City of Valdez

212 Chenega Ave.
Valdez, AK 99686

Meeting Agenda

City Council

Tuesday, March 17, 2026 | **7:00 PM** | **Council Chambers**

Regular Meeting

WORK SESSION AGENDA - 6:00 pm

Transcribed minutes are not taken for Work Sessions. Audio is available upon request.

REGULAR AGENDA - 7:00 PM

I. CALL TO ORDER

II. PLEDGE OF ALLEGIANCE

III. ROLL CALL

IV. APPROVAL OF MINUTES

1. Approval of Minutes for Regular Council Meeting of February 3, 2026
2. Approval of Minutes for Regular Council Meeting of March 3, 2026

V. PUBLIC BUSINESS FROM THE FLOOR

VI. CONSENT AGENDA

1. Proclamation: Earthquake Remembrance Day
2. Proclamation Recognizing Animal Care and Control Officer Appreciation Week
3. Proclamation Recognizing Public Safety Telecommunicators Week
4. Approval of Late File Disabled Veteran Property Tax Exemption for Matthew Satter
5. Approval To Go Into Executive Session Re: Discussion of Implications for City Revenues and Litigation Strategy Regarding Trans Alaska Pipeline System Ad Valorem Tax Issues

VII. NEW BUSINESS

1. Approval of Contract with Wolverine Summit JV, for New Water Well #5 Pumping Station in the Amount of $3,447,000.00

2. Approval of Contract with Wolverine Supply, Inc. for Pavement Management Phase IV Meals Avenue in the Amount of $6,330,803

3. Approval of Professional Services Agreement with DOWL, LLC for CA Services Pavement Management Phase IV Meals Avenue in the Amount of $591,938

VIII. RESOLUTIONS

1. #26-14 - Declaring the Official Intent of the City of Valdez, Alaska, to Reimburse Capital Expenditures in Connection with Pavement Management Phase IV-V from Proceeds of a Future Borrowing

2. #26-15 - Amending the FY26 City Budget by Accepting a Fire Department Grant of Equipment from State of Alaska Department of Transportation Extraction Tools Project in the Amount of $42,229

3. #26-16 - Accepting DNR Department of Forestry Volunteer Fire Assistance Grant in the Amount of $9,900

4. #26-17 - Approval of Annual Renewal of City/School Health Insurance Benefit Plan for Period Beginning 4/1/2026

5. #26-18 - Authorizing the Sale of a Surplus 2009 Nissan Crosswind Street Sweeper

IX. REPORTS

1. Report: Temporary Land Use Permit 26-02 for the Valdez Adventure Alliance for a Portion of 1500 Valdez Glacier Road (Tract A, ASLS 79-116), a Portion of 1730 Homestead Road (Tract J Raven Subdivision) & 3351 Falcon Avenue (Lot 5, Block 9 Robe River Subdivision) owned by the City of Valdez

2. Procurement Report: Purchase of Caselle Annual Maintenance and Support from Caselle in the Amount of $45,933.80

X. CITY MANAGER / CITY CLERK / CITY ATTORNEY / MAYOR REPORTS

1. City Manager Report

    1. City Manager Written Report

2. City Clerk Report

3. City Attorney Report

4. City Mayor Report

XI. COUNCIL BUSINESS FROM THE FLOOR

XII. EXECUTIVE SESSION

XIII. RETURN FROM EXECUTIVE SESSION

XIV. ADJOURNMENT

File #: 26-0096, **Version:** 1

ITEM TITLE:
Approval of Minutes for Regular Council Meeting of February 3, 2026

SUBMITTED BY: Elise Sorum-Birk, Deputy City Clerk

FISCAL NOTES:

Expenditure Required: n/a
Unencumbered Balance: n/a
Funding Source: n/a

RECOMMENDATION:

Review and approve minutes.

SUMMARY STATEMENT:

The minutes from the Regular Meeting held on February 3, 2026 are attached for review and approval.

City of Valdez

212 Chenega Ave.
Valdez, AK 99686

DRAFT Meeting Minutes

Tuesday, February 3, 2026

7:00 PM

Regular Meeting

Council Chambers

City Council

REGULAR AGENDA - 7:00 PM

I. CALL TO ORDER

II. PLEDGE OF ALLEGIANCE

III. ROLL CALL

Present: 7 - Mayor Dennis Fleming
Council Member Austin Love
Council Member Jimmy Devens
Council Member Olivia Foster
Council Member Joseph Lally
Council Member Joy Witte
Council Member Lester Greene

Also Present: Manager Nathan Duval
Deputy City Clerk Elise Sorum-Birk
City Attorney Jack Wakeland
Administrative Assistant Katie Carr

IV. PUBLIC BUSINESS FROM THE FLOOR

V. CONSENT AGENDA

1. Proclamation: Teen Dating Violence Awareness Month

2. Appointment to the Valdez Consortium Library Board, Applicant: Libby Connor

3. Approval of Liquor License Renewal: Stampmill LLC (License #4532)

4. Approval To Go Into Executive Session: City Manager Annual Evaluation

5. Approval To Go Into Executive Session Re: 1) Discussion of Implications for City Revenues and Litigation Strategy Regarding Trans Alaska Pipeline System Ad Valorem Tax Issues; 2) Discussion of Ongoing Escaped Property Legal Issues; 3) Discussion of Local Regulation and Assessment of Oil Spill Prevention and Response Property

MOTION: Council Member Lally moved, seconded by Council Member Witte to approve the consent agenda.

Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene

Representatives from Advocates for Victims of Violence and Alaska Teens Against Abuse accepted the proclamation and spoke on the importance of the topic of teen dating violence awareness.

V. PUBLIC APPEARANCES

1. Public Appearance - State Representative Garrett Nelson

Newly Appointed State Representative Garrett Nelson joined the meeting virtually to introduce himself and give a brief update on happenings in Juneau.

Mayor Fleming noted that members traveling to Juneau would be meeting with him in person and wished him luck with the legislative session.

VI. NEW BUSINESS

1. Discussion Item: 2026 Assessment Process and Trends Update

City Assessor Martins Onskulis with Appraisal Company of Alaska presented on the trends for 2026 property tax assessments and fielded questions from Council.

2. Appointment to the Planning & Zoning Commission, Applicants: Kristian Fagerberg and Jessica McKay

Mayor Fleming announced that he had received notice from the City Clerk that Jessica McKay's application had been withdrawn and that Kristian Fagerberg was the remaining applicant.

MOTION: Council Member Love moved, seconded by Council Member Greene, to appoint Kristian Fagerberg to a three-year term on the Planning and Zoning Commission.

VOTE ON MOTION
Yays**:** 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

3. Approval of 2026 City of Valdez State Government Priorities

MOTION: Council Member Love moved, seconded by Council Member Witte, to approve the 2026 City of Valdez State Government Priorities.

Mayor Fleming thanked city administration for putting the document together and making it more concise.

Council Member Love highlighted the key action priority of increasing local control of property tax exemptions.

City Manager Duval noted that the governor's proposed sales tax was not included in the priorities and gauged whether Council was interested in adopting an official stance on the topic. Council Member Love indicated support for an overall look at state revenue options but voiced opposition to a statewide sales tax noting its regressive nature. Council Member Devens agreed and added details on how a tax may negatively impact lower income

residents.

MOTION TO AMEND: Council Member Devens moved, seconded by Council Member Love, to add opposition to the governor's proposed statewide sales tax to the state government priorities in the "sustainability of state government" section.

VOTE ON MOTION TO AMEND
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

VOTE ON MAIN MOTION AS AMENDED
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

4. Approval of 2026 City of Valdez Federal Government Priorities

MOTION: Council Member Lally moved, seconded by Council Member Witte, to approve 2026 City of Valdez Federal Government Priorities.

Council Member Love thanked the City Manager for shortening the list but expressed concerns about reduction or elimination of federal loan forgiveness programs for healthcare providers. Love gauged the interest of other members on including specific language on the topic, several members were amenable.

MOTION TO AMEND: Council Member Love moved, seconded by Council Member Devens, to add language supporting federal loan forgiveness programs for medical professionals to the "healthcare" section.

Council Member Witte voiced opposition to inclusion of the language, noting that there were other groups better suited to advocate for the issue and highlighting the benefits of a more concise document.

VOTE ON MOTION TO AMEND
Yays: 6 - Fleming, Love, Devens, Foster, Lally and Greene
Nays: 1 - Witte
MOTION CARRIED.

VOTE ON MAIN MOTION AS AMENDED
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

5. Discussion: Short-Term Rental Permit Update

City Manager Duval and Community Development Director Kate Huber provided an update on the newly established process for permitting of short-term rentals.

Director Huber highlighted the similarity between prior safety requirements for bed and breakfast businesses and current requirements for all short-term rentals. She noted that, in addition to safety considerations, the intent of the permit was to gather information about statistics related to short term rentals in Valdez and reminded Council of existing requirements under Title 17 of the Municipal Code. A status update on the new permitting software was also provided.

Council discussion focused on:

- The amount of remaining work required and timeline for implementation of the permit.
- Timeline for annual renewal of permit and situations requiring a reinspection during renewal.
- Smoke detector requirements.
- Relationship of the permit to Public Accommodation Tax collection.
- Safety requirements for motels and hotels and State Fire Marshall jurisdiction and inspection of commercial buildings.
- Differences between allowable land uses in commercial and residential districts under the zoning code.

VII. ORDINANCES

1. #26-01 - Amending Title 3 Property Taxes, Chapter 3.12, Section 3.12.040 Titled Additional Exemptions. Second Reading. Adoption.

MOTION: Council Member Devens moved, seconded by Council Member Love, to adopt Ordinance 26-01 in second reading.

Council Member Devens summarized the history of why adjusting the residential property tax exemption was done annually by ordinance.

VOTE ON MOTION:
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

VIII. RESOLUTIONS

1. #26-10- Establishing the Valdez Tourism Task Force and Appointing the Members Thereof

MOTION: Council Member Love moved, seconded by Council Member Lally, to approve Resolution 26-10.

VOTE ON MOTION:
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

2. #26-11- Expressing Concerns on Proposed Mining Activities at Gold Creek and Requesting Additional Review by the United States Army Corp of Engineers

MOTION: Council Member Love moved, seconded by Council Member Lally, to approve Resolution 26-11.

City Manager Duval shared updated information about how the initial permit application had been withdrawn but that future exploration activities might be permissible under a nationwide permit that would not require additional approvals. He spoke to how city administration's conversations with the U.S. Army Corp of Engineers had influenced resolution language.

Council Member Lally asked about the nationwide permit and what environmental reviews might be triggered at the federal level under a nationwide permit. Duval noted the streamlined process of a nationwide permit and lower threshold of review.

VOTE ON MOTION
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

3. #26-12 - Amending the Valdez Convention and Civic Center Facility Rates and Fees and Repealing Resolution 23-25 Formerly Setting Rates and Fees

MOTION: Council Member Foster moved, seconded by Council Member Love, to approve Resolution 26-12.

Council Member Love asked about the process for developing the new structure for rates and fees.

City Manager Duval described analysis of other similar facilities and balancing increases with past practices, noting that Valdez was substantially lower in cost compared to similar facilities statewide and that labor cost for daily operations still would be higher than the daily rental amount under the new fee schedule. He highlighted the goal of making rates more streamlined, noting that cost increases were significant but that there was a desire to maintain discounts for community and non-profit uses.

Council Member Devens expressed concerns about the increase in fees. He suggested that facility use may be reduced if fees were increased.

Duval noted that current bookings through 2027 would remain at the prior rate and highlighted the goal of maximizing facility use.

Council Member Foster spoke to the structural differences of the new fee schedule and suggested that it may align better with actual facility use. She thanked staff for their work.

Devens drew on personal experience, noting that non-profits may not be able to afford the new fees and may seek other more affordable local venues. He expressed his view that

use of the Civic Center should be a public service.

Council Member Witte voiced support for the resolution and noted the benefits of analyzing cost versus income.

VOTE ON MOTION
Yays: 6 - Fleming, Love, Foster, Lally, Witte and Greene
Nays: 1 - Devens
MOTION CARRIED.

4. #26-13 - Amending The 2026 Budget by Reallocating Previously Appropriated Funds to the Child Care Facility Design and Renovation Project

MOTION: Council Member Devens moved, seconded by Council Member Greene, to approve Resolution 26-13.

Council Member Love asked for and received information about the status of the Green Room project.

VOTE ON MOTION
Yays: 7 - Fleming, Love, Devens, Foster, Lally, Witte and Greene
MOTION CARRIED.

IX. REPORTS

1. Report: Auction Results of Surplus Lincoln Arc Welder - Weld Pak 155 with Rolling Cart

2. Report: Issuance of Temporary Land Use Permit #26-02 for Alyeska Pipeline Service Company, Agent for TAPS Owners, for Six Months, for a .57 acre Portion of Tract C Section 34 ASCS 98-30 (Brown's Creek) Per Plat 2016-7 Owned by the City of Valdez

3. Monthly Treasury Report: November 2025

4. Monthly Treasury Report: December 2025

X. CITY MANAGER / CITY CLERK / CITY ATTORNEY / MAYOR REPORTS

1. City Manager Report

City Manager Duval expounded on the following topics not included in his written report:

- Public questions on roof snow loads and need for shoveling.
- Snow lot purchase negotiations and status update.
- Juneau legislative fly-in plans.
- Chugachmiut Head Start program staffing needs.

2. City Clerk Report

Deputy City Clerk Elise Sorum-Birk discussed:

- Upcoming Juneau travel.
- Proposed adjustments to the regular meeting schedule to accommodate planned Council and Clerk's Office travel.
- Election related updates, including nominating petition timeline and the "I Voted" Sticker Challenge.
- Dates in June for Valdez's 125th Anniversary Celebration.
- Vacancies on boards and commissions.

3. City Attorney Report

City Attorney Jack Wakeland stood for questions on the written report and noted most discussion would take place in executive session.

4. City Mayor Report

Mayor Fleming expressed gratitude to city staff for organization of the newly established Tourism Task Force and highlighted local sporting events at the schools.

XI. COUNCIL BUSINESS FROM THE FLOOR

Council Members thanked Community Development staff and contractors for the Housing Needs Assessment overview and voiced their anticipation of next steps.

Council Members Greene and Foster added thanks to the City Assessor for his presentation on the assessment process. Greene also complimented the "I Voted" sticker program.

Council Member Witte encouraged members of the public to run for local office.

XII. EXECUTIVE SESSION

Mayor Fleming noted that he would participate in the first portion of executive session related to the annual evaluation of the City Manager but would excuse himself from the second section related to oil tax issues.

City Attorney Robin Brena joined the meeting for executive session.

XIII. RETURN FROM EXECUTIVE SESSION

Mayor Pro Tempore Love announced that City Council had provided City Attorneys with direction on how to proceed with legal matters discussed.

XIV. ADJOURNMENT

Mayor Pro Tempore Love adjourned the meeting at 10:37 p.m.

File #: 26-0097, **Version:** 1

ITEM TITLE:
Approval of Minutes for Regular Council Meeting of March 3, 2026

SUBMITTED BY: Elise Sorum-Birk, Deputy City Clerk

FISCAL NOTES:

Expenditure Required: n/a
Unencumbered Balance: n/a
Funding Source: n/a

RECOMMENDATION:

Review and approve minutes.

SUMMARY STATEMENT:

The minutes from the Regular Meeting held on March 3, 2026 are attached for review and approval.

City of Valdez

212 Chenega Ave.
Valdez, AK 99686

DRAFT Meeting Minutes

Tuesday, March 3, 2026

7:00 PM

Regular Meeting

Council Chambers

City Council

REGULAR AGENDA - 7:00 PM

I. CALL TO ORDER

Mayor Pro Tempore Austin Love called the meeting to order at 7:00 p.m.

II. PLEDGE OF ALLEGIANCE

III. ROLL CALL

Present: 6 - Council Member Austin Love
Council Member Jimmy Devens
Council Member Olivia Foster
Council Member Joseph Lally
Council Member Joy Witte
Council Member Lester Greene

Excused: 1 - Mayor Dennis Fleming

Also Present: Deputy City Clerk Elise Sorum Birk
Assistant City Manager Jordan Nelson
City Attorney Jack Staser
Administrative Assistant Katie Carr

IV. APPROVAL OF MINUTES

1. **Approval of Minutes for Regular Council Meeting of January 6, 2026**

2. **Approval of Minutes for Regular Council Meeting of February 17, 2026**

Minutes were approved by consent.

V. PUBLIC BUSINESS FROM THE FLOOR

VI. CONSENT AGENDA

1. **Appointments to PVMC Community Advisory Council - Applicants: Kate Dugan and Pam Shirrell**

2. **Approval of Liquor License Renewal: Mike's Palace (License #892)**

3. **Approval of Memorandum of Agreement Between United States Coast Guard Sector Field Office Valdez and Valdez Fire & EMS Department**

4. **Approval To Go Into Executive Session Re: Discussion of Implications for City Revenues and Litigation Strategy Regarding Trans Alaska Pipeline System Ad Valorem Tax Issues**

MOTION: Council Member Lally moved, seconded by Council Member Witte, to approve all items on the consent agenda.

VOTE ON MOTION
Yays: 6 - Love, Devens, Foster, Lally, Witte and Greene
Absent: 1 - Fleming
MOTION CARRIED

VII. NEW BUSINESS

1. Appointment to VMHA Board of Directors - Applicants: Rachelle Barrus and Karen Mitchell

Deputy City Clerk Elise Sorum-Birk tallied ballots and ballots indicated that Karen Mitchel had received the majority of votes.

MOTION: Council Member Lally moved, seconded by Council Member Greene, to appoint Karen Mitchell to the VMHA Board of Directors.

VOTE ON MOTION
Yays: 6 - Love, Devens, Foster, Lally, Witte and Greene
Absent: 1 - Fleming
MOTION CARRIED

VIII. CITY MANAGER / CITY CLERK / CITY ATTORNEY / MAYOR REPORTS

1. City Manager Report

Assistant City Manager Jordan Nelson noted that he did not have anything in addition to the written report submitted by City Manager Duval.

2. City Clerk Report

Deputy City Clerk Sorum-Birk reminded everyone of upcoming dates related to elections and property tax appeals.

3. City Attorney Report

City Attorney Jake Staser shared that the preliminary assessment had been received from the state assessor for Trans Alaska Pipeline System property subject to taxation under AS 43.56 and noted implications of the assessment would be discussed in executive session.

4. City Mayor Report

Mayor Pro Tempore Love had nothing to report.

IX. COUNCIL BUSINESS FROM THE FLOOR

Council Members thanked staff for organizing the “I Voted Sticker Challenge” and complimented the artwork from the children.

Council Member Lally encouraged the public to run for office.

Council Member Foster thanked Parks Maintenance staff for grooming the winter trail system.

X. EXECUTIVE SESSION

Mayor Pro Tempore Love announced that the meeting would go into executive session.

XI. RETURN FROM EXECUTIVE SESSION

Mayor Pro Tempore Love announced that direction had been given to the City Attorneys on how to proceed related to Trans Alaska Pipeline System valuation and tax issues.

XII. ADJOURNMENT

Mayor Pro Tempore Love adjourned the meeting at 8:06 p.m.

File #: 26-0095, **Version:** 1

ITEM TITLE:
Proclamation: Earthquake Remembrance Day

SUBMITTED BY: Elise Sorum-Birk, Deputy City Clerk

FISCAL NOTES:

Expenditure Required: n/a
Unencumbered Balance: n/a
Funding Source: n/a

RECOMMENDATION:

Approve proclamation.

SUMMARY STATEMENT:

The attached proclamation respectfully recognizes those citizens who lost their lives in the 1964 Earthquake. The proclamation will be read on March 27th at the Earthquake Remembrance Ceremony which will be held at the Kelsey Dock at 5:30 pm.

PROCLAMATION

WHEREAS, in the early evening hours of Friday, March 27, 1964, the original Valdez townsite, home to about 800 persons was jolted, along with most of southcentral Alaska, by one of the most forceful earthquakes of the century; and

WHEREAS, the earthquake—which lasted 5.5 minutes and measured 9.2 on the Richter scale—triggered submarine landslides causing substantial water disturbance in Port Valdez, inundating the community and destroying the City dock in Valdez, at which the Alaska Steamship Company vessel "Chena" was moored, unloading cargoes; and

WHEREAS, the lives of 31 Valdezeans in the boat harbor or standing on the dock were taken when that structure collapsed and disappeared under the waters of Port Valdez; and

WHEREAS, thereafter, either as a direct or indirect result of this natural disaster, a total of 38 persons lost their lives in Valdez, including the four-member crew of an Alaska Air National Guard airplane; and

WHEREAS, the original Valdez townsite was subsequently condemned as unsuitable for continued use and the remaining residents of Valdez came together with assistance from local, state, and federal public officials to create a new townsite; and

WHEREAS, the people of Chitina, Copper Center, Glennallen, Fairbanks and other Alaska communities responded immediately to the needs of Valdez in the highest tradition of compassion; and

WHEREAS, in the intervening 62 years, the families and friends of those who perished have borne their sorrow quietly and with diminishing public awareness of their personal tragedies.

NOW, THEREFORE, I, Dennis Fleming, Mayor of the City of Valdez, do hereby proclaim Friday, March 27, 2026 as

EARTHQUAKE MEMORIAL REMEMBRANCE DAY

and urge citizens to pause and remember those Valdezeans who lost their lives during the 1964 earthquake.

CITY OF VALDEZ, ALASKA

_____

ATTEST: Dennis Fleming, Mayor

_____

Sheri L. Pierce, MMC, City Clerk

Legislation Text

File #: 26-0101, **Version:** 1

ITEM TITLE:
Proclamation Recognizing Animal Care and Control Officer Appreciation Week

SUBMITTED BY: Kalin King, Police Chief

FISCAL NOTES:

Expenditure Required: NA
Unencumbered Balance: NA
Funding Source: NA

RECOMMENDATION:

Click here to enter text.

SUMMARY STATEMENT:

The National Animal Control Association designates the second week of April each year as Animal Care and Control Officer Week. This is an opportunity for local government officials and citizens in our community to recognize and thank our Animal Control Officer and staff at the Valdez Animal Shelter for the outstanding service they provide on a daily basis to the citizens of Valdez.

PROCLAMATION

Animal Care and Control Officer Appreciation Week
April 12 – 18th, 2026

WHEREAS, THE National Animal Control Association has designated the second week of April each year as Animal Care and Control Officer Appreciation Week; and

WHEREAS, the various Federal, State, and Local Government Officials throughout the country take this time to recognize, thank, and commend all Animal Control Officers and Animal Control Staff for the dedicated service they provide to the citizens, various Public Safety, Public Service Agencies and Departments across the country; and

WHEREAS, every day, Animal Control Officers put themselves in potentially dangerous situations to protect the health and welfare of all kinds of animals and the public; and

WHEREAS, the City of Valdez would like to express its sincere thanks and appreciation for the outstanding service the Valdez Animal Control Officer and staff provide daily to the citizens of the city and surrounding communities; and

WHEREAS, the City of Valdez recognizes and commends Animal Control Officers and Animal Shelter staff for the many dedicated and long hours in serving this community and for providing the highest and most efficient level of customer service; and

WHEREAS, THE City of Valdez recognizes the Animal Control Officers who answer calls for assistance, capturing roaming and potentially dangerous animals, rescuing animals in distress, investigate reports of animal cruelty and neglect, provide education for pet guardians about responsible pet care and mediate disputes between neighbors regarding conflicts involving animals.

NOW, THEREFORE, I, Dennis Fleming, Mayor of the City of Valdez, do hereby proclaim the week of April 12th – April 18th, 2026, as

Animal Care and Control Officer Appreciation Week

in the City of Valdez and encourage all citizens to join me in expressing their sincere appreciation for the service and dedication of our Animal Control Officers and Staff.

DATED this 17th day of March 2026.

City of Valdez, Alaska

ATTEST:

_____
Dennis Fleming, Mayor

_____
Sheri L. Pierce, MMC, City Clerk

File #: 26-0102, **Version:** 1

ITEM TITLE:
Proclamation Recognizing Public Safety Telecommunicators Week

SUBMITTED BY: Kalin King, Police Chief

FISCAL NOTES:

Expenditure Required: NA
Unencumbered Balance: NA
Funding Source: NA

RECOMMENDATION:

Click here to enter text.

SUMMARY STATEMENT:

This annual proclamation recognizes the invaluable, and often unseen, work of 9-1-1 Dispatchers nationwide.

PROCLAMATION

Recognizing National Public Safety Telecommunicators Week
April 12th - April 18, 2026

WHEREAS, emergencies that require police, fire or emergency medical services can occur at any time; and

WHEREAS when an emergency occurs the prompt response of police officers, firefighters and paramedics is critical to the protection of life and preservation of property; and

WHEREAS the safety of our police officers, firefighters and paramedics is dependent upon the quality and accuracy of information obtained from citizens who contact the Valdez emergency communications center; and

WHEREAS, Public Safety Telecommunicators are the first and most critical contact our citizens have with emergency services; and

WHEREAS, Public Safety Telecommunicators are the single vital link for our police officers, firefighters and paramedics by monitoring their activities by radio, providing them information and ensuring their safety; and

WHEREAS, Public Safety Telecommunicators of the Valdez Police Department have contributed substantially to the apprehension of criminals, suppression of fires and treatment of patients; and

WHEREAS, each dispatcher has exhibited compassion, understanding and professionalism during the performance of their job in the past year.

NOW, THEREFORE, I, Dennis Fleming, Mayor of the City of Valdez, do hereby proclaim the week of April 12th through April 18th as “Public Safety Telecommunicators Week” in Valdez in honor of the men and women whose diligence and professionalism keep our city and citizens safe.

CITY OF VALDEZ, ALASKA

_____

Dennis Fleming, Mayor

ATTEST:

_____

Sheri L. Pierce, MMC, City Clerk

File #: 26-0103, **Version:** 1

ITEM TITLE:
Approval of Late File Disabled Veteran Property Tax Exemption for Matthew Satter

SUBMITTED BY: Elise Sorum-Birk, Deputy City Clerk

FISCAL NOTES:

Expenditure Required: n/a
Unencumbered Balance: n/a
Funding Source: n/a

RECOMMENDATION:

n/a

SUMMARY STATEMENT:

Matthew Satter filed an application with the City Clerk's Office for a disabled veteran's tax exemption on March 11, 2026. The deadline for applications was on January 15, 2026.

AS 29.45.030 (f) requires for exceptions to the deadline to approved by City Council, reading: "The governing body of the municipality for good cause shown may waive the claimant's failure to make timely application for exemption and authorize the assessor to accept the application as if timely filed."

The property owner has filed a letter explaining the late filing for Council review. The Clerk's Office has reviewed the application, and the applicant meets the criteria to receive this exemption should the late filing be approved.

SENIOR CITIZEN/DISABLED VETERAN PROPERTY TAX EXEMPTION APPLICATION
AS 29.45.030 (e)-(i)

1. Name of Municipality: Valdez	2. Property Tax I.D.: 7125-002-007-0	3. Tax Year 2026
4. Name of Applicant: Matthew Satter	5. Birth date 12-5-63	
7. Name of Spouse: Andrea Satter	8. Birth date 9-17-69	
9. Mailing Address: [redacted]	10. Residential Physical Address: 5891 Corbin Loop Rd Valdez, AK 99686	
11. Home Phone: 412-613-2673	Message Phone: 412-613-2673	12. Please check one of the following

12. Please check one of the following
- ___ I am applying as a Senior Citizen age 65 or older
- ___ I am applying as a widow or widower, age 60-64, of a previously qualified applicant.
- X I am applying as a Disabled Veteran

13. Type of Dwelling:
- X single family
- ___ mobile home
- ___ condominium
- ___ duplex
- ___ other

14. Is this your permanent place of abode?
X Yes ___ No If no, permanent residential address is:

15. Is your home on land you own?
X Yes ___ No If yes, % of ownership
If no, owner's name:

16. Is any portion of this property used for commercial or rental purposes?
___ Yes X No If yes, percentage: ___ %

17. **Certification:** I hereby certify that the answers given on this application are true and correct to the best of my knowledge. I understand that a willful misstatement is punishable by a fine or imprisonment under AS 11.56.210.

Date:	Signature of Applicant:
3-11-26	[signature]

[redacted]

Following is for Local Assessor/Clerk Use Only

___ New Filing ___ Prior Filing ___ Approved ___ Denied

Proof Provided: ___ Age ___ Ownership ___ Disability (DAV)
Verified By: _____

Parcel Number and/or Legal Description: _____

Comments:

		Land	Building	Total
Property Value				
Secondary lots				
Adjustments:			Total Property Value:	$
	Ownership	%		
	Commercial/Rental	%		( )
			Subtotal:	$
		If Subtotal exceeds $150,000, use this figure:		$ 150,000

	SC/DAV Exempt Value	Tax Code Area	Mill Rate	SC/DV Exempt Taxes
Borough				
City				
		Total SC/DAV Exempt	**Tax Amount**	$

Form 21-400 (Revised 1/2021)

ALASKA STATUTES, TITLE 29 - MUNICIPAL GOVERNMENT - CHAPTER 45

Sec. 29.45.030. Required Exemptions.

(e) The real property owned and occupied as the primary residence and permanent place of abode by a resident who is (1) 65 years of age or older; (2) a disabled veteran; or (3) at least 60 years of age and the widow or widower of a person who qualified for an exemption under (1) or (2) of this subsection is exempt from taxation on the first $150,000 of the assessed value of the real property. A municipality may by ordinance approved by the voters grant the exemption under this subsection to the widow or widower under 60 years of age of a person who qualified for an exemption under (2) of this subsection or to a resident who is the widow or widower of a person who dies from a service-connected cause sustained while serving as a member of the United States armed forces or as a member of the National Guard. A municipality may, in case of hardship, provide for exemption beyond the first $150,000 of assessed value in accordance with regulations of the department. Only one exemption may be granted for the same property, and, if two or more persons are eligible for an exemption for the same property, the parties shall decide between or among themselves who is to receive the benefit of the exemption. Real property may not be exempted under this subsection if the assessor determines, after notice and hearing to the parties, that the property was conveyed to the applicant primarily for the purpose of obtaining the exemption. The determination of the assessor may be appealed under AS 44.62.560 - 44.62.570. A municipality shall determine the eligibility requirements and application procedure for an optional exemption provided under this subsection. In this subsection, "widow or widower" means a person whose spouse has died and who has not remarried.

(f) To be eligible for an exemption under (e) of this section for a year, a municipality may by ordinance require that an individual also be eligible for a permanent fund dividend under AS 43.23.005 for that same year or, if the individual does not apply for the permanent fund dividend, that the individual would have been eligible for the permanent fund dividend had the individual applied. An exemption may not be granted under (e) of this section except upon written application for the exemption. Each municipality shall, by ordinance, establish procedures and deadlines for filing the application. The governing body of the municipality for good cause shown may waive the claimant's failure to make timely application for exemption and authorize the assessor to accept the application as if timely filed. If an application is filed within the required time and is approved by the assessor, the assessor shall allow an exemption in accordance with the provisions of (e) of this section. If the application for exemption is approved after taxes have been paid, the amount of tax that the claimant has already paid for the property exempted shall be refunded to the claimant. The assessor shall require proof in the form the assessor considers necessary of the right to and amount of an exemption claimed under (e) of this section, and shall require a disabled veteran claiming an exemption under (e) of this section to provide evidence of the disability rating. The assessor may require proof under this subsection at any time.

(g) The state shall reimburse a borough or city, as appropriate, for the real property tax revenues lost to it by the operation of (e) of this section. However, reimbursement may be made to a municipality for revenue lost to it only to the extent that the loss exceeds an exemption that was granted by the municipality, or that on proper application by an individual would have been granted under AS 29.45.050(a). If appropriations are not sufficient to fully fund reimbursements under this subsection, the amount available shall be distributed pro rata among eligible municipalities.

(h) Except as provided in (g) of this section, nothing in (e) – (j) of this section affects similar exemptions from property taxes granted by a municipality on September 10, 1972, or prevents a municipality from granting similar exemptions by ordinance as provided in AS 29.45.050.

(i) In (e) – (i) of this section,

(1) "disabled veteran" means a disabled person

(A) separated from the military service of the United States under a condition that is not dishonorable who is a resident of the state, whose disability was incurred or aggravated in the line of duty in the military service of the United States, and whose disability has been rated as 50 percent or more by the branch of service in which that person served or by the United States Department of Veterans Affairs; or

(B) who served in the Alaska Territorial Guard, who is a resident of the state, whose disability was incurred or aggravated in the line of duty while serving in the Alaska Territorial Guard, and whose disability has been rated as 50 percent or more;

(2) "real property" includes but is not limited to mobile homes, whether classified as real or personal property for municipal tax purposes.

ALASKA ADMINISTRATIVE CODE TITLE 3 – DEPT. OF COMMUNITY AND ECONOMIC DEVELOPMENT SENIOR CITIZEN AND DISABLED VETERAN PROPERTY TAX EXEMPTION - CHAPTER 135

3 AAC 135.010. METHOD OF APPLICATION. Applications for the senior citizen and disabled veteran property tax exemption shall be on forms provided by the department.

3 AAC 135.020. FORMS. Form 21-400 and Form 21-400B are hereby adopted by the department for use in the application for senior citizen and disabled veteran property tax exemptions, respectively.

3 AAC 135.030. OBTAINING FORMS. Application forms are available only from the office of the clerk or assessor of the municipality.

3 AAC 135.040. DEADLINES AND CALCULATIONS.

(a) Exemption applications filed after January 15 of the assessment year, or after a date provided by ordinance as specified in AS 29.45.030(f), must be accompanied by an affidavit stating the reason for the late filing.

(b) To qualify for a hardship exemption beyond the first $150,000 of assessed value of real property under AS 29.45.030(e), the applicant must apply by completing Form 21-400c and submitting the form, including necessary attachments, to the municipal assessor before July 1, or before a date provided by ordinance as specified in AS 29.45.030(f), of the exemption year.

(c) An eligible applicant may qualify for a hardship exemption beyond the first $150,000 of assessed value of real property if the amount of the applicant's tax bill is greater than two percent of the applicant's gross household income. An exemption will be granted only for that portion of the applicant's taxes in excess of two percent of the gross household income. "Gross household income" means total annual compensation, earned and unearned, from all sources, of all members of the household.

(d) In cases of extreme hardship, an exemption up to 100 percent of the applicant's assessed value of real property may be granted by a two-thirds vote of the governing body.

(e) Hardship exists when the amount of taxes owed is in excess of two percent of an applicant's gross household income.

3 AAC 135.085. ELIGIBILITY.

(a) When an eligible person and his or her spouse occupy the same permanent place of abode, the reimbursement described in AS 29.45.030(g) applies, regardless of whether the property is held in the name of the husband, wife, or both.

(b) A resident widow or widower who is at least 60 years old is eligible for the hardship exemption under AS 29.45.030(e) if the deceased spouse of the widow or widower was at the time of his or her death

(1) a resident of the State of Alaska; and

(2) at least 65 years old or a disabled veteran.

(c) If property is occupied by a person other than the eligible applicant and his or her spouse, an exemption, to be eligible for reimbursement, applies only to the portion of the property permanently occupied by the eligible applicant and his or her spouse as a place of abode.

(d) The real property eligible for reimbursement under this chapter includes only a

(1) primary parcel: the entire parcel of real property owned and occupied by an applicant as a permanent place of abode; and

(2) subsidiary parcel: a parcel of real property adjacent to the primary parcel described under (1) of this subsection, subject to approval by the department.

3-11-26

Please accept our apologies for the late submission. The exemption reminder notices + phone calls were going to the previous owner of the property who also previously received the exemption.

We were not made aware until receiving the 2026 assessment notice.

Thank you

Matt + Andrea Satter

Department of Veterans Affairs

251 N MAIN ST
WINSTON-SAL NC 27155

March 11, 2019

Veteran's Name:
Satter, Matthew, F

MATTHEW F SATTER
[redacted]

This letter is a summary of benefits you currently receive from the Department of Veterans Affairs (VA). We are providing this letter to disabled Veterans to use in applying for benefits such as housing entitlements, free or reduced state park annual memberships, state or local property or vehicle tax relief, civil service preference, or any other program or entitlement in which verification of VA benefits is required. Please safeguard this important document. This letter replaces VA Form 20-5455, and is considered an official record of your VA entitlement.

--America is Grateful to You for Your Service--

Our records contain the following information:

Personal Claim Information:

Your VA claim number is: [redacted]
You are the Veteran

Military Information:

Your character(s) of discharge and service date(s) include:
[redacted]

(You may have additional periods of service not listed above)

VA Benefits Information:

Service-connected disability: Yes
Your combined service-connected evaluation is: 80 PERCENT
The effective date of the last change to your current award was: 01-DEC-2018
Your current monthly award amount is: [redacted]

You should contact your state or local office of Veterans' affairs for information on any tax, license, or fee-related benefits for which you may be eligible. State offices of Veterans' affairs are available at http://www.va.gov/statedva.htm.

Need Additional Information or Verification?

If you have any questions about this letter or need additional verification of VA benefits, please call us at 1-800-827-1000. If you use a Telecommunications Device for the Deaf (TDD), the federal relay number is 711. Send electronic inquiries through the Internet at https://iris.custhelp.va.gov/.

Sincerely yours,

Regional Office Director

VA Benefit Details

SERVICE-CONNECTED DISABILITY: A condition incurred during or aggravated by military service, for which the Veteran is receiving VA benefits.

COMBINED SERVICE-CONNECTED EVALUATION: The Veteran's disability rating for all conditions determined to be service-connected.

CURRENT MONTHLY AWARD AMOUNT: The monthly monetary benefit paid to the Veteran or survivor receiving benefits under a VA program.

NON-SERVICE-CONNECTED PENSION: Benefit for a non-service connected Veteran who meets specific criteria, which include disability or age, wartime service, minimum length of service, and income restrictions. If a Veteran is eligible for service-connected benefits and pension benefits, VA will pay the higher benefit.

INDIVIDUAL UNEMPLOYABILITY (IU): The Veteran is receiving payment at the 100 percent rate, even though the combined service-connected evaluation is not 100 percent. The Veteran's service-connected conditions cause him/her to be unable to obtain or maintain substantially gainful employment because of the Veteran's service-connected conditions. The Veteran must periodically certify continued unemployability, but if there is no scheduled future reduction or medical examination required, he/she may be considered by some states to be permanently and totally disabled.

PERMANENT AND TOTAL (P&T) DISABILITY: The Veteran is considered by VA to be permanently and totally disabled because of his/her service-connected conditions.

SPECIAL MONTHLY COMPENSATION: The Veteran is receiving additional compensation for one or more of the following: a service-connected loss of or loss of use of one or more specific organs or extremities; a combination of severe disabilities; is 100 percent disabled and housebound, bedridden, or in the need of the aid and attendance of another person.

SPECIALLY ADAPTED HOUSING and/or SPECIAL HOME ADAPTATION GRANT: Grants provided by VA to service-connected veterans and service members to help build a new specially adapted house, to adapt a home they already own, or buy a house and modify it to meet their disability-related requirements.

Wartime Service Periods

Mexican Border Period: May 9, 1916, through April 5, 1917, for veterans who served in Mexico, on its borders or in adjacent waters.

World War I: April 6, 1917, through Nov. 11, 1918; for veterans who served in Russia, April 6, 1917, through April 1, 1920; extended through July 1, 1921, for veterans who had at least one day of service between April 6, 1917, and Nov. 11, 1918.

World War II: Dec. 7, 1941, through Dec. 31, 1946.

Korean War: June 27, 1950, through Jan. 31, 1955.

Vietnam War: Aug. 5, 1964 (Feb. 28, 1961, for veterans who served "in country" before Aug. 5, 1964), through May 7, 1975.

Gulf War: Aug. 2, 1990, through a date to be set by law or Presidential Proclamation.

City of Valdez
PO Box 307
Valdez AK 99686

2026 ASSESSMENT NOTICE

How do I appeal?

Appeals of assessed property values must be filed with the City Clerk's Office on a form provided by the City. Forms are available on the city's website, vadezak.gov, and at City Hall during business hours.

Assessment appeals must be filed with the City Clerk's Office by: March 31, 2026 @ 5:00 p.m. To file, return in person or email to taxappeals@valdezak.gov.

SATTER, MATTHEW
SATTER, ANDREA
PO BOX 15129
SURFSIDE BEACH, SC 29587

PIDN: 7125-002-007-0 **Location:** 5891 CORBIN LOOP RD

Legal Description: Lot 7, Block 2, ROBE LAKE SUBD , Lot Size 4.6 AC, Zone RR

Assessed Value	2025	2026
Land:	$ 44,200	$ 44,200
Building:	$ 498,300	$ 533,100
Total Assessed:	**$ 542,500**	**$ 577,300**

Exemption Type &

Disabled Vet	$ 150,000	Primary	$ 79,505
Primary	$ 77,862		
Total Exemptions:	**$ 227,862**		**$ 79,505**
Taxable Value:	**$ 314,638**		**$ 497,795**

Appraisal Company of Alaska 405 W 27th Ave, Anchorage, AK 99503-6639, +1 (907) 562 2424 (Office)

If you have additional questions, please call (907) 835-4313 or email taxappeals@valdezak.gov.

The Board of Equalization (City Council) will meet on: May 14 & May 15, 2026 @ 6:00 p.m.

3-11-26 Reggie emailing form. Everything was inadvertantly mailed to a phone followup made to previous owner

File #: 26-0099, **Version:** 1

ITEM TITLE:
Approval To Go Into Executive Session Re: Discussion of Implications for City Revenues and Litigation Strategy Regarding Trans Alaska Pipeline System Ad Valorem Tax Issues

SUBMITTED BY: Jake Staser

FISCAL NOTES:

Expenditure Required: NA
Unencumbered Balance: NA
Funding Source: NA

RECOMMENDATION:

Click here to enter text.

SUMMARY STATEMENT:

Alaska Statute AS 44.62.310 provides an exception to the Alaska Open Meetings law (AS 44.62.310) which allows the City Council to meet in executive session for the purpose of discussion related to:

1. Matters which involve litigation and where matters of which the immediate knowledge would clearly have an adverse effect upon the finances of the City.

2. Matters which by law, municipal charter, or ordinance are required to be confidential.

Any formal action related to the discussion requiring a motion and vote of the governing body must be done in open session.

File #: 26-0104, **Version:** 1

ITEM TITLE:
Approval of a Contract with Wolverine Summit JV, for New Water Well #5 Pumping Station in the Amount of $3,447,000.00

SUBMITTED BY: Scott Benda, Senior Project Manager

FISCAL NOTES:

Expenditure Required: $3,447,000
Unencumbered Balance: $4,540,000
Funding Source: 310-2538-58010

RECOMMENDATION:

Approve the Contract with Wolverine Summit JV, for New Water Well #5 in the amount of $3,447,000.

SUMMARY STATEMENT:

The New Well 5 Pumping Station was out to bid for thirty-two days, and three (3) bids were submitted. Wolverine Summit JV of Valdez, AK submitted the low bid of $3,447,000. The project consists of constructing a new well house building, associated site work, underground piping, controls and installation of electrical transformer, and emergency generator with load bank. This new wellhouse will be located near the elementary school and pump water to the tank on Meals Hill. The well was drilled in 2022, and this project will make that well operational.

This is a rebid following a withdrawal & dismissal of the prior low bid.

Construction is scheduled to begin in the spring of 2026 and be completed by April 2027.

The project is funded by remaining GO22 bond proceeds.

CITY OF VALDEZ
ALASKA

CONTRACT DOCUMENTS

Project: New Well 5 Pumping Station
Project Number: 21-310-2538
Contract Number: 2406
Cost Code: 310-2538-58010
Issued for Construction
Date: TBD

City of Valdez
Capital Facilities and Engineering
300 Airport Road, Suite 201
P.O. Box 307
Valdez, Alaska 99686

Project Manager:
Scott Benda

Construction Plan Set Completed By:
Day Engineering
PO Box 651
Eureka, Nevada 89316

City of Valdez
Contract Documents

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Table of Contents

City of Valdez
Invitation to Bid

Date: January 28, 2026

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

This project includes, but is not necessarily limited to:

Construction of a new groundwater well pumping station including well cleaning and equipping, site and building interior piping, domestic water fill station/water dispenser, tie-in to existing transmission main(s), site grading, asphalt surface driveway and parking area, new wood-frame building with metal, shed-style roof and concrete slab floor, HVAC, lighting, power, new power service, stand-by power generation and telemetry controls.

Engineers Estimate for construction under $ 4,000,000.00.

Sealed bids will be accepted electronically until 2:00 pm local Alaska time on February 26, 2026, at www.bidexpress.com. The bids will be publicly opened at that time.

A non-mandatory pre-bid conference will be held at the office of the Capital Facilities Director, 300 Airport Road, Suite 201, Valdez, Alaska on February 12, 2026 at 2:00 pm.

Complete sets of the bid documents may be purchased from Digital Blueprint, 903 West Northern Lights Blvd., Anchorage, AK 99503, (907) 274-4060. Bid documents may also be downloaded from the City of Valdez solicitation page at www.bidexpress.com Bidders are encouraged to register as a plan holder at the link listed within the bid posting to ensure receipt of any addendum issued for this project.

Bid security in the amount of 5% of the total bid is required.

The City reserves the right to waive any irregularities or informalities in a bid and to reject any and all bids without cause.

Current minimum prevailing wage rates as published by the Alaska Department of Labor must be paid if required by law.

Requirements of the Alaska Employment Preference (AS 36.10) must be met.

The City of Valdez encourages disadvantaged, minority and women-owned firms to respond and is available to assist said firms in learning how to do business with the City.

The City of Valdez "Standard Specifications and Standard Details" shall be used. An electronic copy is available from the City of Valdez website at http://www.valdezak.gov under "standards and specifications" located on the "quick links" portion of the Capital Facilities Department page.

City of Valdez
Instructions to Bidders

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

CAUTION:
Your bid may be rejected if it is not properly executed. Check that the following items have been accomplished to help assure a responsive bid. Please read Sections 6 and 7 carefully.

1. Bid Form
   A. The Bid Form has been executed and signed.
   B. Addendum Acknowledgement Form has been executed and signed.
2. Bid Security or Bid Bond
   A. An executed Bid Security (Bid Bond) in the amount indicated on the Invitation to Bid.
   B. Verify that the Certificate showing the Corporate Principal on the form is executed if applicable.
3. Alaska Business License, a copy your current license must be included.
4. Alaska Contactor Certificate of Registration
   A. A copy of your current Alaska Contractor License of Registration in the bidder's name must be included with the bid.
   B. The Contractor is required to verify that the appropriate license(s) is in place prior to submitting their bid for the project's scope of work.
5. A bid may be rejected if it contains any alterations or erasures that are not initialed by the signer of the bid.

Note: Any certified checks may be held uncollected at the risk of bidders submitting them.

1. General

Bidders are requested to study and follow these instructions about the method and form for submitting bids to avoid having their bid rejected.

Bidders will find all required forms and documents contained within this assembly. Please notice under Section 7, Required Documents for Bid, as to which forms and documents are required for your bid to be considered.

2. Explanation to Bidders

Requests from bidders concerning interpretations or clarifications of the bid documents shall be made in writing to the project manager or project engineer through Bid Express at **www.bidexpress.com**. Such requests shall arrive at least three working days prior to the date for opening bids. There needs to be sufficient time allowed for a reply to reach all bidders before the submission of the bids. Explanations made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and receipt of the addendum must be acknowledged on the Addendum Form.

3. Site Conditions

Bidders are highly encouraged to visit the site to ascertain pertinent local conditions, location, accessibility, terrain, labor conditions, conditions of surrounding areas, and any other aspect that may impact the project.

4. Addenda Requirements

All bids must include the Addendum Acknowledgement Form. If addendums have been issued the bidder must state on the form all the addendums have been acknowledged. If no addendums were issued then the bidder is to write "NONE" on the form. The Addendum Acknowledgement Form shall be reviewed prior to acceptance of the bid.

5. Submissions of Bids

All bids must be submitted electronically through Bid Express at www.bidexpress.com. Hard copy or paper submissions will not be accepted.

All electronic bidders must first register on bidexpress.com. Instead of paying paper bidding costs (hand or hired delivery costs), a fee of $40 will be incurred for those who wish to bid electronically on a pay-per solicitation basis. Alternatively, you may subscribe for $50 per month for unlimited electronic bid submission for all agencies posting solicitations on the bidexpress.com website, plus get email notifications by agency/work type/commodity code.

For bidders who are bidding online and wish to utilize the electronic bid bond option, please see the FAQs page regarding electronic bid bonds (bottom of the page in the link).

For additional guidance, please contact the Bid Express team at toll free (888) 352-2439 (select option 1) or at support@bidexpress.com

6. Preparation of Bids

Bids shall be submitted on the forms furnished, or copies thereof, and must be manually signed in ink. If erasures or other changes appear on the forms, the person signing the bid must initial each erasure or change.

The Bid Form will provide for quotation or price for all items. Bidders must quote on all items. Failure to do so may result in disqualification. Alternative bids will not be acceptable unless requested.

Bids can be modified until the bid deadline on Bid Express. Modification by facsimile or email will NOT be allowed for bids.

7. Required Documents for Bid

The following listed documents are to be completed and submitted at the time of bidding. Deviation from these requirements will be grounds for rejection of the bid.

A. Addendum Acknowledgement Form, fully completed original (see Item 6 above also)
B. Bid Schedule, fully completed original (see Item 6 above also)
C. Bid Bond, original
D. Copy of current and appropriate Alaska Contractor License for this Scope of Work.
E. Copy of current Alaska Business License

8. Required Documents for Award of the Contract

The following documents must be executed prior to award of the contract and the initiation of work. Contractors are urged to expedite the completion of these documents. This will allow the contract award and notice to proceed to be issued expeditiously. These documents must be submitted within ten (10) working days after the date of notice of award.

A. Agreement Pages (2 signed copies)
B. Entity Acknowledgement (Corporate, LLC, Limited Partnership, Individual)
C. Non-collusion Affidavit
D. Contract Bond (Payment Bond: See Bonding Requirements below)
E. Contract Bond (Performance Bond: See Bonding Requirements below)
F. Certificate of Insurance naming City of Valdez as an "Additional Insured"
G. Original signature pages (last page of bid schedule and bid bond)
H. Certificate of good standing for a Corporation or LLC
I. City of Valdez Business Registration
J. Executed W-9 Form
K. Proof of application for City of Valdez building permit submitted to the Planning Department.

9. Bonding Requirements

A. Bid Security (Bid Bond or Certified Check)

Bid Security is required and shall be in the form of a Certified Check for each bid or a Bid Bond prepared on the attached Bid Bond Form.

The Bid Bond must be executed by the bidder as principal and be executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

The Bid Security shall be issued for five percent (5%) of the bid amount.

Bid Securities will be returned to all except the three lowest bidders. The remaining certified checks or bid bonds will be returned, after the Owner and the accepted bidder have executed the Contract. Failure of the Owner to return the certified checks or bid bonds in a timely manner will create no liability on the part of the Owner. If no award has been made within sixty (60) days after the bid opening, all bidders except the one who has received the notice of intent to award may request the return of their cash, check or bid bonds.

B. Contract Payment Bond

A Contract Payment Bond is not required if the total dollar amount of the contract is less than One Hundred Thousand Dollars ($100,000).

A Contract Payment Bond is required if the total dollar amount of the contract is equal to or greater than One Hundred Thousand Dollars ($100,000). Contract Payment Bond will be in the amount of One Hundred Percent (100%) of the Bid amount.

Contract Payment Bond shall be prepared on the Payment Bond Form that is attached. The Bond must be executed by the Contractor as principal and executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

C. Contract Performance Bond

A Contract Performance Bond is not required if the total dollar amount of the contract is less than One Hundred Thousand Dollars ($100,000).

A Contract Performance Bond is required if the total dollar amount of the contract is equal to or greater than One Hundred Thousand Dollars ($100,000). Contract Performance Bond) will be in the amount of One Hundred Percent (100%) of the Bid amount.

Contract Performance Bond shall be prepared on the Performance Bond Form that is attached. The Bond must execute by the Contractor as principal and executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

Section 2.80.080 of Valdez City Code provides for a modified contractor bond. Bidders shall familiarize themselves with exemptions allowed and the requirements for exemptions.

10. Bidder Qualifications

Before a bid is considered for award, the apparent low bidder may be requested to submit a statement of facts or proof in detail as to his previous experience in performing similar or comparable work, technical abilities, equipment, size, manpower and financial resources to complete and perform the work as outlined in the contract documents, plans and specifications.

11. Withdrawal of Bids

Bids may be withdrawn by written request received from the bidder prior to the bid opening time. Errors on the part of the bidder in preparing the bid, confers no right for the withdrawal of the bid after the bid has been opened.

12. Bidders Interested in More than One Bid

If any one party, by or in name of his or their agent, partner or other person, offers more than one bid, all such bids will be rejected. A party who quoted prices to a bidder is not disqualified from quoting prices to other bidders or from a bid directly for the work.

13. Rejection of Bids

The Owner reserves the right to reject any and all bids, when such rejection is in the interest of the Owner; to reject the bid of a bidder who previously failed to perform properly or to complete on time; and to reject the bid of a bidder who is not, in the opinion of the Owner in, in a position to perform the contract; or to waive any irregularities or informalities in a bid.

14. Hiring of Local Labor

The Owner encourages that every Contractor and Subcontractor, employ to the maximum extent practical and allowed by law, qualified people who regularly reside in the project area.

15. Local Bidder Preference

The Valdez City Code provides for a local bidder preference as follows:

> Section 2.80.020 Definitions
>
> "Local bidder" means a bidder that is not delinquent in the payment of any taxes, fees, assessments, or other charges owing the city and satisfies one of the requirements set forth in subsections (1) through (3) of this definition for a period of eighteen consecutive months immediately prior to the opening of a competitive city bid for which the bidder wishes to utilize the local bidder preference:
> 1. If the bidder is a corporation or limited liability company, the bidder's primary business address has a city of Valdez postal zip code, as reflected on the bidder's state of Alaska business license or the records of the State of Alaska Department of Commerce, Community and Economic Development, Division of Corporations;
> 2. If the bidder is an individual, the bidder's primary business or residential address has a city of Valdez postal zip code, as reflected on the bidder's state of Alaska business license;
> 3. If the bidder is a general partnership, a limited partnership, or a joint venture, at least one of the general partners has a postal zip code compliant with subsection (1) or (2) of this definition.

Section 2.80.065H Competitive Bidding

Except where prohibited by state or federal grant requirements, a local bidder, as defined in Section 2.80.020, may be given consideration as low bidder where the offer is the lesser of ten percent or fifty thousand dollars in excess of the lowest offer received from a bidder not qualified as a local bidder. The city may split the award between two or more suppliers in any manner the city deems to be in its best interest.

16. Award of Bid

The bid, if awarded, will be awarded to the lowest responsive responsible bidder as determined by the terms of the City Code and this document.

17. Pre-Bid Conference

A non-mandatory Pre-Bid Conference will be held February 12, 2026, at 2:00 pm at the office of the Capital Facilities Director, Suite 201 300 Airport Road, Valdez, Alaska.

18. Pre-Award Conference

Before the award of the contract a Pre-Award Conference may be held between the Engineer or Project Manager and the apparent low bidder.

City of Valdez
Addendum Acknowledgement

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

The bidder acknowledges receipt of the following addenda and certifies that their contents have been considered in the preparation of this Bid. If there are no addendums please state NONE above your name.

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

_____ _____
Company Name Authorizing Name

_____ _____
Date Title

_____
Signature

Addendum Acknowledgment

The bidder acknowledges receipt of the following addenda and certifies that their contents have been considered in the preparation of this Bid. If an addendum is issued after you have submitted your bid, you will need to come back to this form and update your Addendum Acknowledgment to reflect the new addendum.

Addendum Acknowledgment

Addendum 1 issued 2.10.26

Addendum 2 issued 2.23.26

Initials *

MC

Company Name *

Wolverine Summit JV

Authorizing Name *

Michelle Clapp

Date *

February 26, 2026

Title *

Vice President

.

Signature *

Michelle Clapp

City of Valdez
Bid Schedule
Page 1 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Item No.	Item Description	Quantity	Unit	Unit Price	Total Item Price
1	Mobilization and Demobilization to and from the project site	All Req'd	LS	N/A	$_____
2	Perform Field Surveying/ Construction Staking of the entire project including all work per approved Plans and Specifications	All Req'd	LS	N/A	$_____
3	Develop SWPPP, Permit, and Implement over the entire project including all work per approved Plans and Specifications	All Req'd	LS	N/A	$_____
4	Provide an approved Traffic Control Plan, Com Dev Driveway Permit, all Traffic Control, Maintenance, and work required per Com Dev Permit and City of Valdez Requirements	All Req'd	LS	N/A	$_____
5	Perform Dewatering including all work per approved Plans and Specifications	All Req'd	LS	N/A	$_____
6	Clean and Test Pump existing production well and monitor well per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
7	Submersible well pump and motor including pitless unit, drop pipe and check valve and all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____

City of Valdez
Bid Schedule
Page 2 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Item No.	Item Description	Quantity	Unit	Unit Price	Total Item Price
8	Twelve (12") and 8" DIP site piping including all tie-ins and appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
9	Eight (8") DIP and Twelve (12") DIP building drain piping to new DI including connection to existing DI and all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
10	Off-Site 12" DIP piping connection between Well 4 and Well 5 including tie-ins and all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
11	Twelve (12") DIP building interior piping, valves, meter, fittings and appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
12	Grading, paving sawcut and new pavement, curb and gutter and sidewalk removal and replacement per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____

City of Valdez
Bid Schedule
Page 3 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Item No.	Item Description	Quantity	Unit	Unit Price	Total Item Price
13	Reinforced concrete building foundation, building slab floor and other reinforced slabs on grade including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
14	Wood frame building with metal roofing, siding, insulation, doors, windows and including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
15	Building HVAC equipment including fuel tank and all appurtenances per Approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
16	Building small diameter piping including building floor drain, piping, valves, fittings, backflow preventors and all appurtenances per Approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
17	Wellhouse 5 electrical power service from CVEA including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____

City of Valdez
Bid Schedule
Page 4 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Item No.	Item Description	Quantity	Unit	Unit Price	Total Item Price
18	Wellhouse 5 electrical power and lighting including stand-by power generator, ATS and all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
19	Facility equipment fully integrated MCC, RTU, controls instrumentation and integration at new Well 5 including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
20	Off-Site facility equipment RIO panel, controls, instrumentation and integration additions at existing Well 4 including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____
21	Off-Site dual 2” PVC conduits conductors, comm lines and pull boxes from Well 4 to Water Tank including all appurtenances per approved Plans and Specifications _____ _____Dollars	1	LS	$_____	$_____

City of Valdez
Bid Schedule
Page 5 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Item No.	Item Description	Quantity	Unit	Unit Price	Total Item Price
22	Additional Potholing for unmarked and/or incorrectly marked buried utilities for crew hours as required per approved Plans and Specifications _____ _____Dollars per hour.	16	HRS	$_____/HR	$_____
23	Field engineering, submittals, shop & record drawings, operating instructions, O&M manuals, and close-out punch list	All Req'd	LS	N/A	$_____
24	Force Account, a fixed cost item to be included in bid total for unforeseen construction issues.	1	LS	$250,000	$250,000
				TOTAL BID AMOUNT	$ _____

$3,447,000.00

Item No.	Item Description	Quantity	Unit	Unit Price	Extension
1	Mobilization and Demobilization to and from the project site	1.0000	LS	$150,000.00	$150,000.00
2	Perform Field Surveying/ Construction Staking of the entire project including all work per approved Plans and Specifications	1.0000	LS	$25,000.00	$25,000.00
3	Develop SWPPP, Permit, and Implement over the entire project including all work per approved Plans and Specifications	1.0000	LS	$20,000.00	$20,000.00
4	Provide an approved Traffic Control Plan, Com Dev Driveway Permit, all Traffic Control, Maintenance, and work required per Com Dev Permit and City of Valdez Requirements	1.0000	LS	$10,000.00	$10,000.00
5	Perform Dewatering including all work per approved Plans and Specifications	1.0000	LS	$10,000.00	$10,000.00
6	Clean and Test Pump existing production well and monitor well per approved Plans and Specifications	1.0000	LS	$25,000.00	$25,000.00
7	Submersible well pump and motor including pitless unit, drop pipe and check valve and all appurtenances per approved Plans and Specifications	1.0000	LS	$180,000.00	$180,000.00
8	Twelve (12”) and 8” DIP site piping including all tie-ins and appurtenances per approved Plans and Specifications	1.0000	LS	$175,000.00	$175,000.00
9	Eight (8”) DIP and Twelve (12”) DIP building drain piping to new DI including connection to existing DI and all appurtenances per approved Plans and Specifications	1.0000	LS	$50,000.00	$50,000.00
10	Off-Site 12” DIP piping connection between Well 4 and Well 5 including tie-ins and all appurtenances per approved Plans and Specifications	1.0000	LS	$113,000.00	$113,000.00
11	Twelve (12”) DIP building interior piping, valves, meter, fittings and appurtenances per approved Plans and Specifications	1.0000	LS	$180,000.00	$180,000.00
12	Grading, paving sawcut and new pavement, curb and gutter and sidewalk removal and replacement per approved Plans and Specifications	1.0000	LS	$48,000.00	$48,000.00
13	Reinforced concrete building foundation, building slab floor and other reinforced slabs on grade including all appurtenances per approved Plans and Specifications	1.0000	LS	$170,000.00	$170,000.00
14	Wood frame building with metal roofing, siding, insulation, doors, windows and including all appurtenances per approved Plans and Specifications	1.0000	LS	$370,000.00	$370,000.00
15	Building HVAC equipment including fuel tank and all appurtenances per Approved Plans and Specifications	1.0000	LS	$140,000.00	$140,000.00

Total: $3,447,000.00

Item No.	Item Description	Quantity	Unit	Unit Price	Extension
16	Building small diameter piping including building floor drain, piping, valves, fittings, backflow preventors and all appurtenances per Approved Plans and Specifications	1.0000	LS	$95,000.00	$95,000.00
17	Wellhouse 5 electrical power service from CVEA including all appurtenances per approved Plans and Specifications	1.0000	LS	$60,000.00	$60,000.00
18	Wellhouse 5 electrical power and lighting including stand-by power generator, ATS and all appurtenances per approved Plans and Specifications	1.0000	LS	$350,000.00	$350,000.00
19	Facility equipment fully integrated MCC, RTU, controls instrumentation and integration at new Well 5 including all appurtenances per approved Plans and Specifications	1.0000	LS	$600,000.00	$600,000.00
20	Off-Site facility equipment RIO panel, controls, instrumentation and integration additions at existing Well 4 including all appurtenances per approved Plans and Specifications	1.0000	LS	$120,000.00	$120,000.00
21	Off-Site dual 2” PVC conduits conductors, comm lines and pull boxes from Well 4 to Water Tank including all appurtenances per approved Plans and Specifications	1.0000	LS	$240,000.00	$240,000.00
22	Additional Potholing for unmarked and/or incorrectly marked buried utilities for crew hours as required per approved Plans and Specifications	16.0000	HRS	$375.00	$6,000.00
23	Field engineering, submittals, shop & record drawings, operating instructions, O&M manuals, and close-out punch list	1.0000	LS	$60,000.00	$60,000.00
24	Force Account, a fixed cost item to be included in bid total for unforeseen construction issues.	1.0000	LS	$250,000.00	$250,000.00

Total: $3,447,000.00

Summary of Bids Received

Project: New Well 5 Pumping Station

Contract No.: 2406

Bid Opening - February 26, 2026 at 2:00PM

Project No.: 21-310-2538

			Wolverine Summit JV		Orion Construction Inc		SD Construction LLC	
Item #	Item	Quantity	Price	Extension	Price	Extension	Price	Extension
	Bid Schedule Page 1 of 2							
1	Mobilization and Demobilization to and from the project site - LS	1.0000	$150,000.00	$150,000.00	$25,000.00	$25,000.00	$614,970.00	$614,970.00
2	Perform Field Surveying/ Construction Staking of the entire project including all work per approved Plans and Specifications - LS	1.0000	$25,000.00	$25,000.00	$45,000.00	$45,000.00	$22,502.00	$22,502.00
3	Develop SWPPP, Permit, and Implement over the entire project including all work per approved Plans and Specifications - LS	1.0000	$20,000.00	$20,000.00	$24,000.00	$24,000.00	$2,479.00	$2,479.00
4	Provide an approved Traffic Control Plan, Com Dev Driveway Permit, all Traffic Control, Maintenance, and work required per Com Dev Permit and City of Valdez Requirements - LS	1.0000	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$3,575.00	$3,575.00
5	Perform Dewatering including all work per approved Plans and Specifications - LS	1.0000	$10,000.00	$10,000.00	$40,000.00	$40,000.00	$35,441.00	$35,441.00
6	Clean and Test Pump existing production well and monitor well per approved Plans and Specifications - LS	1.0000	$25,000.00	$25,000.00	$31,800.00	$31,800.00	$12,288.00	$12,288.00
7	Submersible well pump and motor including pitless unit, drop pipe and check valve and all appurtenances per approved Plans and Specifications - LS	1.0000	$180,000.00	$180,000.00	$143,750.00	$143,750.00	$128,803.00	$128,803.00
8	Twelve (12") and 8" DIP site piping including all tie-ins and appurtenances per approved Plans and Specifications - LS	1.0000	$175,000.00	$175,000.00	$220,000.00	$220,000.00	$361,782.00	$361,782.00
9	Eight (8") DIP and Twelve (12") DIP building drain piping to new DI including connection to existing DI and all appurtenances per approved Plans and Specifications - LS	1.0000	$50,000.00	$50,000.00	$45,000.00	$45,000.00	$41,518.00	$41,518.00
10	Off-Site 12" DIP piping connection between Well 4 and Well 5 including tie-ins and all appurtenances per approved Plans and Specifications - LS	1.0000	$113,000.00	$113,000.00	$261,000.00	$261,000.00	$122,907.00	$122,907.00
11	Twelve (12") DIP building interior piping, valves, meter, fittings and appurtenances per approved Plans and Specifications - LS	1.0000	$180,000.00	$180,000.00	$184,000.00	$184,000.00	$286,956.00	$286,956.00
12	Grading, paving sawcut and new pavement, curb and gutter and sidewalk removal and replacement per approved Plans and Specifications - LS	1.0000	$48,000.00	$48,000.00	$46,500.00	$46,500.00	$144,998.00	$144,998.00
13	Reinforced concrete building foundation, building slab floor and other reinforced slabs on grade including all appurtenances per approved Plans and Specifications - LS	1.0000	$170,000.00	$170,000.00	$120,000.00	$120,000.00	$235,000.00	$235,000.00

14	Wood frame building with metal roofing, siding, insulation, doors, windows and including all appurtenances per approved Plans and Specifications - LS	1.0000	$370,000.00	$370,000.00	$359,050.00	$359,050.00	$341,283.00	$341,283.00
15	Building HVAC equipment including fuel tank and all appurtenances per Approved Plans and Specifications - LS	1.0000	$140,000.00	$140,000.00	$159,000.00	$159,000.00	$92,856.00	$92,856.00
16	Building small diameter piping including building floor drain, piping, valves, fittings, backflow preventors and all appurtenances per Approved Plans and Specifications - LS	1.0000	$95,000.00	$95,000.00	$28,500.00	$28,500.00	$86,718.00	$86,718.00
17	Wellhouse 5 electrical power service from CVEA including all appurtenances per approved Plans and Specifications - LS	1.0000	$60,000.00	$60,000.00	$0.00	$0.00	$52,212.00	$52,212.00
18	Wellhouse 5 electrical power and lighting including stand-by power generator, ATS and all appurtenances per approved Plans and Specifications - LS	1.0000	$350,000.00	$350,000.00	$643,800.00	$643,800.00	$250,513.00	$250,513.00
19	Facility equipment fully integrated MCC, RTU, controls instrumentation and integration at new Well 5 including all appurtenances per approved Plans and Specifications - LS	1.0000	$600,000.00	$600,000.00	$514,100.00	$514,100.00	$521,536.00	$521,536.00
20	Off-Site facility equipment RIO panel, controls, instrumentation and integration additions at existing Well 4 including all appurtenances per approved Plans and Specifications - LS	1.0000	$120,000.00	$120,000.00	$289,000.00	$289,000.00	$106,651.00	$106,651.00
21	Off-Site dual 2" PVC conduits conductors, comm lines and pull boxes from Well 4 to Water Tank including all appurtenances per approved Plans and Specifications - LS	1.0000	$240,000.00	$240,000.00	$129,000.00	$129,000.00	$209,254.00	$209,254.00
22	Additional Potholing for unmarked and/or incorrectly marked buried utilities for crew hours as required per approved Plans and Specifications - HRS	16.0000	$375.00	$6,000.00	$50.00	$800.00	$732.50	$11,720.00
23	Field engineering, submittals, shop & record drawings, operating instructions, O&M manuals, and close-out punch list - LS	1.0000	$60,000.00	$60,000.00	$25,000.00	$25,000.00	$17,580.00	$17,580.00
24	Force Account, a fixed cost item to be included in bid total for unforeseen construction issues. - LS	1.0000	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$250,000.00
	24 Items	**Totals**		$3,447,000.00		$3,594,300.00		$3,953,542.00

The bid totals are subject to correction after the bids have been completely reviewed.

Totals have been reviewed	✓
Totals have been corrected	N/A

I hereby certify that the above is a true and correct summary of proposals received.

Scott Bonar Project Manager

City of Valdez
Bid Schedule
Page 6 of 6

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Total Bid Amount:

_____ Dollars _____ Cents

($ _____)

I, _____, hereinafter called Bidder, an individual doing business as _____, (strike out inapplicable words:) a partnership, a corporation incorporated in the State of Alaska, a joint venture, hereby submits this bid and agrees: to hold this bid open for forty five (45) days, to accept the provisions of the Instruction to Bidders, to accomplish the work in accordance with the contract documents, plans, specifications, for the lump sum and unit price amounts as set forth in this bid schedule.

Respectfully submitted this _____ day of _____, 202___

BIDDER:

_____
Company Name

_____
Address

_____
City, State, Zip Code

_____
Telephone Number

_____
Federal I.D. or S.S.N.

_____
Authorizing Name

_____
Title

_____
Signature

_____
Email Address

CORPORATE SEAL

ATTEST:

_____
Signature of Corporate Sec.

_____
Print Name

Bid Schedule Page 2 of 2 - ORIGINAL WILL NEED TO BE SUBMITTED BY SUCCESSFUL BIDDER

I *(authorized name below)*, herinafter called Bidder, an individual doing business as *(company name below)*, (strike out inapplicable words in original document:) a partnership, a corporation incorporated in the State of Alaska, a joint venture, hereby submits this bid and agrees: to hold this bid open for forty five (45) days, to accept the provisions of the Instruction to Bidders, to accomplish the work in accordance with the contract documents, plans, specifications for the lump sum and unit price amounts as set forth in this bid schedule.

Company Name *

Wolverine Summit JV

Authorizing Name *

Michelle Clapp

Address *

5099 E. Blue Lupine Drive

Date *

February 26, 2026

City, State, Zip Code *

Wasilla, Alaska 99654

Title *

Vice President

Telephone Number *

(907) 373-6572

Signature (typed) *

Michelle Clapp

Federal I.D. or S.S.N. *

86-3084605

City of Valdez
Bid Bond

KNOW ALL MEN BY THERE PRESENTS, that we Wolverine Summit JV

PO Box 825, Valdez , AK 99686 (Insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and The Ohio Casualty Insurance Company

175 Berkeley Street, Boston, MA 02116 (Insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of Alaska as surety, hereinafter called the Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, Alaska 99686

as Obligee, hereinafter called the Obligee, in the sum of

Five percent (5%) of the total bid amount---------- Dollars ($ 5%----),

For the payment of which sum well and truly to be made, the said Principal and the Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severely, firmly by these presents.

Whereas, the Principal has submitted a bid for

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with Obligee in accordance with terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 20th **day or** February **, 202** 6

(Witness)

(Witness) Kristine Santamaria

Wolverine Summit JV
(Principal) (Seal)

(Title) Ashlee Stetson, Vice President, JV Partner

The Ohio Casualty Insurance Company
(Surety) (Seal)

(Title) Roxana Palacios, Attorney-in-Fact

License #: CONG340
Effective: 11/19/2024
Expires: 09/30/2026

State of Alaska

Department of Commerce, Community, and Economic Development
Division of Corporations, Business, and Professional Licensing

Regulation of Construction Contractors and Home Inspectors

Licensee: **Wolverine Supply, Inc.**

License Type: **General Contractor With Residential Contractor Endorsement**

Status: **Active**

Doing Business As: **Wolverine Supply, Inc.**

Commissioner: Julie Sande

Relationships

Relation Type	License #	License Type	Owners/Entities	Name/DBA
Electrical Administrator Assignee	EADE1478	Electrical Administrator	Dagwood Shoemaker	
Residential Endorsement Assignee	RESR1175	Residential Contractor Endorsement	Bill Van Buskirk	
Residential Endorsement Assignee	RESR2515	Residential Contractor Endorsement	Bruce Van Buskirk	

Designations

No designations found.

Wallet Card

State of Alaska
Department of Commerce, Community, and Economic Development
Division of Corporations, Business, and Professional Licensing
Regulation of Construction Contractors and Home Inspectors

Wolverine Supply, Inc.
DBA: Wolverine Supply, Inc.
As
General Contractor With Residential Contractor Endorsement

License	Effective	Expires
CONG340	11/19/2024	09/30/2026

Wolverine Supply, Inc.
5099 E BLUE LUPINE DR
WASILLA, AK 99654-8419

Alaska Business License # **2128876**

Alaska Department of Commerce, Community, and Economic Development

Division of Corporations, Business, and Professional Licensing
PO Box 110806, Juneau, AK 99811-0806

This is to certify that

WOLVERINE SUMMIT

PO BOX 825, VALDEZ, AK 99686

owned by

Summit Construction LLC; WOLVERINE SUPPLY, INC.

is licensed by the department to conduct business for the period

November 20, 2024 to December 31, 2026
for the following line(s) of business:

23 - Construction

This license shall not be taken as permission to do business in the state without having complied with the other requirements of the laws of the State or of the United States.

This license must be posted in a conspicuous place at the business location.
It is not transferable or assignable.

Julie Sande
Commissioner

City of Valdez
Agreement Page 1 of 2

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

This agreement is made on the _____ day of _____, 202__, by and between the City of Valdez, Alaska, hereinafter called the Owner, acting through its Mayor, and (**Contractor)** doing business as an individual, partnership, a corporation, limited liability company (strike out inapplicable words) located in (City), (State), hereinafter called the Contractor.

The Contractor agrees to this Contract known as:

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Furthermore the Contractor agrees to accept as full and complete payment for all work to be done in this Contract for the lump sum and per unit prices as set forth in the Bid Form and Addendums in the Contract Documents for this project. The total amount of this Contract shall be: Three Million - Four Hundred - Fourty Seven Thousand **dollars and** Zero **cents (\$3,447,000).**

The Contractor hereby agrees to commence work on this project within ten (10) working days after the date of the written Notice to Proceed and to complete all work in accordance with the contract documents and addendums by April 30, 2027. Said contract documents are listed in the Table of Contents herein. All documents listed therein are by this reference made a part hereof.

The Contractor further agrees to pay, as liquidated damages, the sum of one thousand dollars ($1,000.00) for each calendar day in excess of the completion date specified in the written Notice to Proceed in which this project remains incomplete.

The Owner agrees to pay the Contractor for the performance of the Contract, subject to additions and deductions, as provided in the City of Valdez Standard Specifications Section 10 Standard General Provisions of this of this Contract, and to make payments on account thereof as provided in the City of Valdez Standard Specifications Section 10 Standard General Provisions and City of Valdez City Code.

City of Valdez
Agreement Page 2 of 2

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

IN WITNESS WHEREOF, the parties to this presence have executed this Contract in two (2) counterparts, each of which shall be deemed as original, in the year and day first mentioned above.

Wolverine Summit JV

Signature

Name

Title

Date

Mailing Address

City, State, Zip Code

Federal I.D. or S.S.N.

Corporate Secretary

Attest: _____
Corporate Secretary

City of Valdez, Alaska, Authorized

Dennis Fleming, Mayor

Date

Attested:

Sheri L. Pierce, MMC, City Clerk

Date

Recommended:

Nate Duval, City Manager

Date

Kasey Walker, Capital Facilities Director

Date

Approved as to Form:

Brena, Bell & Walker, P.C.

Jon S. Wakeland

Date

City of Valdez
Corporate Acknowledgement

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

(To be filled in when Contract is executed in behalf of Corporation)

UNITED STATES OF AMERICA)
)SS.
STATE OF ALASKA)

The foregoing instrument was acknowledged before me this ___ day of _____, 20_____.

_____ _____
(Name of Officer) (Title of Officer)

_____
(Name of Corporation)

_____ Corporation, on behalf of said Corporation.
(State of Incorporation)

_____
Notary Public

My Commission Expires: _____

City of Valdez
Non-Collusion Affidavit

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

(to be executed prior to award)

UNITED STATES OF AMERICA)
)SS.
STATE OF ALASKA)

I, Ashlee Stetson, Vice President, JV Partner, of Wolverine Summit JV, being duly sworn, do depose and state:

I, or the firm, association of corporation of which I am a member, a bidder on the Contract to be awarded, by the City of Valdez, Alaska, for the construction of that certain construction project designated as:

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Located at Valdez, in the State of Alaska, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such Contract.

Signature

Subscribed and sworn to this 26 day of February, 2026.

Notary Public

NOTARY PUBLIC
MARISA LOTT
STATE OF ALASKA
MY COMMISSION EXPIRES APR. 14, 2027

My Commission Expires: 4/14/2027

City of Valdez
Labor and Material Payment Bond

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Know all men by these presents that:

(Insert full name and address or legal title of Contractor)

as Principal, hereinafter called Principal, and,

(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, Alaska 99686

as Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the amount of

Dollars ($_____),
(Here insert a sum equal to the contract amount)

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____, 20_____, entered into a contract with Owner for

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

in accordance with Drawings and Specifications prepared by

Day Engineering
PO Box 651
Eureka, Nevada 89316

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

City of Valdez
Labor and Material Payment Bond

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expirations of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials are furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business. Or served in any manner in which legal process may be served in the state in which aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county of other political subdivision of the state in which the Project, or any part thereof is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety or mechanic's liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against the bond

Signed and Sealed this _____, day of _____, 202___

_____ _____
(Witness) (Principal) (Seal)

_____
(Title)

_____ _____
(Witness) (Surety) (Seal)

_____
(Title)

City of Valdez
Performance Bond

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

KNOW ALL MEN BY THESE PRESENTS: that

(Here insert full name and address or legal title of contractor)

as Principal, hereinafter called Contractor, and ,

(Here insert full name and address or legal title Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, AK 99686

as Obligee, hereinafter called Owner, in the amount of

Dollars ($)

for the payment whereof Contractor and Surety bind themselves, their heirs, executor, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____, 20_____, entered into a contract with Owner for

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

in accordance with Drawings and Specifications prepared by

Day Engineering
PO Box 651
Eureka, Nevada 89316

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

City of Valdez
Performance Bond

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Now, therefore the condition of this obligation is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly comply with one of the following:

1. Complete the Contract in accordance with its terms and conditions, or

2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the bidder, arrange for contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and Sealed this _____ day of _____, 20_____

_____ _____

(Witness) (Principal) (Seal)

_____

(Title)

_____ _____

(Witness) (Surety) (Seal)

_____

(Title)

City of Valdez
Contractor Certificate of Substantial Completion

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

CONTRACTOR: _____

This is to certify that I, _____, am a duly authorized official of the said CONTRACTOR working in the capacity of_____, and in my official capacity representing said CONTRACTOR do hereby certify as follows:

1. The work of the subject Contract above has been performed, and materials used and installed in accordance with and in conformity to, the Contract Drawings, Contract Specifications, City of Valdez Standard Specifications and Details.

2. The Contract work is now substantially complete in all parts and requirements.

3. I understand that neither the determination by the Engineer--Architect that the work is substantially complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

4. The work to which this Certificate applies has been properly inspected and that work is hereby declared to be substantially complete in accordance with the Contract Documents.

5. The date of Substantial Completion is the date upon which all guarantees and warranties begin.

6. The Owner accepts the Project or specified area as described under "REMARKS," of the Project as substantially complete and will assume full possession of the Project or specified area of the Project at _____(time) on _____day,_____, 202__.

CONTRACTOR	CITY OF VALDEZ, OWNER
_____	_____
(Signature)	Capital Facilities Director
_____	_____
(Title)	Date
_____	
Date	

REMARKS:_____

_____

City of Valdez
Contract Release Page 1 of 2

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

The undersigned, _____
for itself, its successors in interest, assigns trustees, administrators, subcontractors, suppliers, and laborers do hereby release and forever discharge the CITY OF VALDEZ, ALASKA a municipal corporation, from all actions, causes of actions, suits, controversies, claims, damages and demands of every kind and nature, mature or to mature in the future, for and by reason of any matter, thing or claim arising out of the following Contract:

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

The undersigned also intends hereby to discharge the City of Valdez from all liability for any and all damages or injuries presently undiscovered or unanticipated. The undersigned's intention hereby is to waive any right it may subsequently have to set aside this release under the doctrine of Witt v. Watkins, 579 P.2d 1065 (Alaska 1978).

The undersigned further agrees to defend, indemnify and hold harmless the City of Valdez against any claims, liens, or causes of action arising under or by virtue of this Contract, including, but not limited to, any claim that the undersigned, any successor in interest, assignee, trustee, administrator, subcontractor, supplier or laborer of the undersigned or any other person might make or claim that he could possibly make against the City of Valdez.

The undersigned certifies that he has not assigned any amounts payable under this Contract to anyone.

The undersigned hereby acknowledges receipt of the amount of $_____ as full and final payment in consideration for all services, materials and labors rendered in connection with this Contract.

The undersigned hereby declares that the terms of this RELEASE have been completely read and are fully understood, and said terms are voluntarily accepted for the purpose of making a full and final release of any and all claims, disputed or otherwise, arising under or by virtue of this Contract.

City of Valdez
Contract Release Page 2 of 2

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

IN WITNESS WHEREOF, I have hereunto set my hand and seal this _____day of _____, 20_____.

_____
COMPANY

_____
SIGNATURE

_____
TITLE

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this _____ day of _____, 20_____, before me, Notary Public in and for the State of Alaska, personally appeared _____of _____, known to me to be its _____and acknowledged to me that he has read this foregoing RELEASE and knew contents thereof to be true and correct to the best of his knowledge and belief, and that he signed the same freely and voluntarily for the uses and purposes therein mentioned, and that he was duly authorized to execute the foregoing document according to the Bylaws or by Resolutions of said corporation.

WITNESS my hand and notarial seal this _____ day of _____, 20_____.

_____
Notary Public in and for Alaska
My Commission expires: _____

City of Valdez
Special Provisions

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Table of Contents

City of Valdez
Special Provisions

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

SP 01 General Statement

The Special Provisions set forth conditions and requirements unique to this Project and are supplemental to, and supersede, the City of Valdez "Standard Specifications and Standard Details."

SP 02 Scope of Work

Base Bid

The Scope of Work of the Base Bid of this Contract shall include providing all labor, materials, tools, equipment, transportation, supervision and facilities necessary to:

Construct a new municipal well facility and all ancillary materials and equipment for a functioning groundwater well pumping station.

SP 03 Time of Completion

All work shall be completed in accordance with the Contract Documents by April 30, 2027.

Liquidated damages will be assessed in the sum of one thousand dollars ($1,000.00) for each calendar day after the completion date during which the Project remains incomplete.

Substantial Completion: Substantial Completion shall be defined as the stage in the progress of the work when the work is sufficiently complete in accordance with the Contract Documents so the Owner (City) can occupy or use the structure or that which is the subject of the contract, for its intended use.

SP 04 Special Site Conditions

The Contractor will be responsible for the disposal of all refuse and debris generated by the project. The City has, on a limited 'first come first served' basis, dumpsters for use free of charge on City projects if available.

Dump fees will be waived. The Contractor will be responsible for hauling demolished materials and construction waste out to the City Baler facility on South Sawmill Drive. The Baler is located approximately 5 miles out of town. Please contact the Baler ahead of time to make arrangements for the disposal of such materials. The Baler's number is 907-835-2356. The project name or

contract number will be required on all Baler disposal forms and when calling to reserve or empty dumpsters.

Local building permit fees are waived. The Contractor will be responsible for obtaining local building permits before the NTP is issued. The Contractor will need to call the City Building Department at 907-834-3401.

Staging area will be located adjacent to the new well house. The contractor is not to store materials or park vehicles and equipment on the elementary school property.

The Contractor will need to keep their equipment and materials out of the way of snow plowing and snow storage operations. The new well house will be built next to a snow storage lot. Snow removal and snow storage operations typically run from late October through early May.

The Contractor is responsible for setting up detours or barricades if their work is in a public area and will interfere with normal traffic flow.

SP 05 Hazardous Waste Generation

Every effort to minimize or eliminate the generations of hazardous waste shall be used by the Contractor in the performance of the work of this Contract. Unless there is no substitute, no hazardous material shall be used in the performance of the work of this Contract.

SP 06 Coordination and Schedule

The Contractor shall, within ten (10) working days of the date of the Notice to Proceed, submit to the Engineer a schedule as required in Section 10.5, Control of Work, Article 5.3. The schedule shall be updated every week. An updated schedule shall be submitted with each of the Contractor's Periodic Payment Requests. Failure to provide an updated schedule will be cause to withhold partial payment.

SP 07 Site Preservation, Restoration, Cleanup and Environmental Reporting

The Contractor shall be solely responsible for damage to public or private property caused by construction operations. The Contractor shall take all precautions necessary to control dust. The Contractor shall notify the City of any claims of damage, and shall clean and restore any property so damaged at the sole expense of the Contractor. All spills or releases of any hazardous substance shall be reported to the appropriate governmental agency as well as notice to the City. Contractor shall be responsible for all associated cleanup costs and fines.

At all times during the work, keep the premises clean and orderly. Upon completion of the work, repair all damage caused by equipment and leave the Project free of rubbish and excess materials of any kind.

SP 08 Permits

The Contractor shall obtain all licenses and permits that are required to do the work. A Building Permit will be required but there will be no charge.

SP 09 Order of Award of Alternative Bids

Additive Alternate and/or Deductive Alternative Bids will be awarded, if any are awarded, in any order determined to be the most advantageous combination by the owner.

SP 10 Payment

Payments shall be in accordance with Section 10.07, Measurement and Payment of the CVSS. All invoices for payment must be submitted on a City of Valdez *Periodic Payment Request Form.* An electronic copy of this form (Excel Spreadsheet) will be made available for the Contractor's use.

Disbursement of money to a person, firm or corporation will be made only after all the various receivable accounts of the general government and any municipal utility or enterprise have been reviewed for outstanding balances owed, and the disbursement will be reduced by setting off the amount of any delinquent indebtedness due the city from such person, firm or corporation.

All contracts to which the city is a party which will or may involve the disbursement of city funds shall contain the following clause, or its substantial equivalent: "Disbursement of money by the City of Valdez hereunder shall subject to set-off pursuant to the provisions of the Valdez City Code." Such contracts include, but are not limited to, oral contracts, employment contracts, construction contracts, purchasing contracts and contracts of any municipal utility or enterprise, including customer's deposits.

SP 11 References to City of Valdez Standard Specifications (CVSS)

The City of Valdez Standard Specifications & Standard Details, Streets-Drainage-Utilities-Parks, dated April 2003, hereafter referred to as CVSS, are incorporated in and become a part of the Contract Documents for the work, The Standard Specifications are available for purchase from the Engineer's Office of the City of Valdez, P.O. Box 307, Valdez, Alaska 99686. All work under this Contract shall comply with the latest edition and addenda to all applicable codes, ordinances, and standards.

It shall be the responsibility of the Bidder to prepare his bid so all materials and/or different arrangements of connections or fittings shall harmoniously conform with the intent of the Contract Drawings, CVSS, and the Special Provisions.

SP 12 Construction Specifications

The Specifications for construction of the work of this Project are incorporated into the following pages and on the attached drawing titled “Valdez New Well 5 Pumping Station”. These drawings are by reference included herein.

City of Valdez
Modifications and Additions to the Standard Specifications

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

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City of Valdez
Modifications and Additions to the Standard Specifications

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Division 10 Standard General Provisions

Article 7.5 Progress Payments

Add the following:

Any request for payments for work accomplished within the calendar fiscal year (January 1st to December 31st) must be received by the city no later than January 31st of the following year. Failure to provide a request for payment by Jan. 31st for work accomplished the previous year will delay payment. Failure to provide a request for payment by January 31st for work accomplished the previous year will be subject to a penalty. Penalty may be assessed at a minimum of $1000 and up to 5% of the invoice not to exceed $10,000.

Article 7.7 Final Payments

Add the following:

Any request for final payment for work accomplished within the calendar fiscal year (January 1st to December 31st) must be received by the city no later than January 31st of the following year. Failure to provide a request for final payment by January 31st for work accomplished the previous year will delay payment. Failure to provide a request for payment by January 31st for work accomplished the previous year will be subject to a penalty. Penalty may be assessed at a minimum of $1000 and up to 5% of the invoice not to exceed $10,000.

City of Valdez
Minimum Prevailing Wage Rates

Project: New Well 5 Pumping Station
Project Number: 21-310-2538 / Contract Number: 2406

Minimum Prevailing Wage Rates and Title 36 Public Contracts Follows
See attached Links:

http://labor.state.ak.us/lss/pamp600.htm
http://labor.alaska.gov/lss/forms/Pam400.pdf

In accordance with the requirements of AS 36.05.070 and AS 36.05.080, the following provisions are included where applicable:

(1) The Contractor or subcontractors of the Contractor shall pay all employees unconditionally and not less than once a week;

(2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the Contractor or subcontractors and laborers, mechanics, or field surveyors;

(3) the scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of the work;

(4) Owner shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the Contractor or subcontractors the difference between

(A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and

(B) the rates of wages in fact received by laborers, mechanics, or field surveyors.

(5) If it is found that a laborer, mechanic, or field surveyor employed by the Contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the Owner may, by written notice to the Contractor, terminate the Contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the Contractor and the Contractor's sureties are liable to Owner for excess costs for completing the work.

CITY OF VALDEZ
Project Title: New Well 5 Pumping Station
Project No.: 21-310-2538
Contract No.: 2406

TO: All Recipients **Date: February 10, 2026**

SUBJECT: Addendum No.1

This three (3) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

1. Contractors have the option to call into the pre-bid. The number is 1-720-843-2217 access code 151164#.

2. Contractors will be given the opportunity to visit the work site after the pre-bid if they choose. The area is currently being used as a snow lot so there is not much to see.

3. Aerial photos of the work site included on following two pages.

CITY OF VALDEZ
Project Title: New Well 5 Pumping Station
Project No.: 21-310-2538
Contract No.: 2406

TO: All Recipients **Date: February 23, 2026**

SUBJECT: Addendum No.2

This three (3) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

1. Question: Can we get a better detail for the DI Manhole, or can we substitute it with a concrete catch basin?

   Response: A catch basin may be used instead of a drop inlet at Station 0+54. The existing drop inlet at Station 1+75 will remain as is and the new 12-inch building drain will tie into the existing DI.

2. Question: I need additional information to provide to suppliers to get a quote. Air Valves - There is no info about capacity or comparable valves. We can't get a quote based on the given info because there is no confirmation on the inlet connection. The drawing seems to show flanged. Please provide information. Check & Booster Pump Control Valve - There is no spec for this valve, the supplier needs solenoid voltage and de-energized position. Will a spec be made available in an addendum? Mag Mater - Please confirm the requirement for a Class 1 Div I explosion proof rating is required for this meter as shown in spec section 409100 3.01E. Relief Valves - Given that the description calls for the inclusion of ball valves, this should be a 730 instead of a 73Q. The spec says the valves should have flanges, but the plan sheets appear to show threaded valves. Please verify

   Response:

   Air Valves – valves shown on the plans are 2-inch valves with threaded ends installed into 2-inch service saddles (not flanges). Specification 33500, 2.02 provides three comparable air valve manufacturers.

   Check/Booster Pump Control Valve – Please replace Section 2.02 of Technical Specification 33600 with the attached: (see attached specification modification on page 3 of this addendum).

Mag Meter – flowmeter is not required to be explosion-proof (Class 1 Div 1) as described in Spec Section 409100 3.02E.
Pressure Relief Valves – Specification 33600 references a Bermad 730 Quick Release valve. Cannot find your reference to 73Q. The valve ends will be threaded as shown on the Plans, not flanged as described in the Specification.

3. Question: Can this project bid date be extended one week?

   Response: No. This project has already been delayed. The bid opening date will remain unchanged.

4. Question: Can as-builts of well 4 be provided?

   Response: What specific information are you looking for?

5. Question: Does the city or the contractor pay for any electrical utility installation charges? The specs aren't clear and on other projects the city has paid.

   Response: Yes, the city will cover the electrical utility charges.

6. The period for submitting questions ended at 10:30am Monday February 23, 2026. No additional questions will be accepted.

End of Addendum

2.02 PUMP CONTROL VALVES WITH CHECK FEATURE

A. Pump control valve with check valve feature shall be flanged, double chambered, hydraulically operated, active check pump control valve that opens fully or shuts in response to electric control signals. The valve isolates the pump from the system during pump startup, and shutdown, reducing pipeline surges. Hydraulic globe valve with a raised seat and double chamber actuator. Unobstructed flow, high pressure modulation, minimal cavitation, complying with AWWA standards.

B. Valve controls pump stat-up and shut down. Valve shall be 12" "EN" series Bermad 740 or equal. Valve shall be Y (globe) pattern, rated at 200 psi or more, with flanged end connections, flat disc, v-port, cavitation cage, max. temperature of 200 degrees F.

C. Check valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Ductile Iron
Bolts, Nuts, and Studs	Stainless Steel
Internals	Stainless Steel, Tin Bronze, Coated Steel & PDM
Diaphragm	Fabric-reinforced synthetic rubber
Seals	Synthetic rubber
Control Accessories	Stainless steel
Control Tubing	Stainless steel
Control Fittings	Stainless steel
Solenoid Body	Stainless steel
Solenoid Elastomers	NBR or FPM
Solenoid Enclosure	Molded epoxy

D. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550.

E. Pressure Testing

1. Valves shall be hydrostatically tested at 1.5 times their rated working pressure.

F. Solenoid Electrical

1. Match electrical and control design

G. Limit Switch

1. SPDT switch type, 10 amp type gl or gc, up to 185 degrees F, IPBB enclosure rating

Aerial view of the snow lot and new well house #5 location taken on February 23, 2024. The well house site is in the middle left of the photo. This photo was taken during a heavy snow year. The site does not currently contain as much snow.

Another view of the worksite looking west. The new well house #5 work site is located in the upper middle area of the photo. Photo taken February 23, 2024.

End of Addendum

REVISED NEW WELL 5 PUMPING STATION

CITY OF VALDEZ, ALASKA
PROJECT NO. 21-310-2538
CONSTRUCTION CONTRACT NO. 2227
JANUARY 2026

OWNER

CITY OF VALDEZ, ALASKA · OPPORTUNITIES IN EVERY SEASON

PO BOX 307
VALDEZ, AK 99686

ENGINEER

STATE OF ALASKA · 49TH · DEAN D. DAY · 1/16/2026 · CE No. 7452 · REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING

PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090

CONSULTANTS

SURVEYING
WRANGELL MOUNTAIN TECHNICAL SERVICES
ALLEN MINISH, P.L.S., P.E.
PO BOX 118
CHITINA, ALASKA 99566
(907) 823-2280

ARCHITECT
WOLF ARCHITECTURE, INC.
GARY S. WOLF, AIA
625 SOUTH COBB STREET, STE. 200
PALMER, AK 99645
(907) 746-6670

STRUCTURAL
PND ENGINEERS
DAVID BENTTI, P.E., S.E.
625 SOUTH COBB STREET
PALMER, AK 99645
(907) 707-1081

ELECTRICAL & MECHANICAL
RSA MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
DAVIN BLUBAUGH, P.E.
BRIAN PEKAR, P.E.
670 WEST FIREWEED LANE, SUITE 200
ANCHORAGE, ALASKA 99503
(907) 276-0521

CONTROLS/INTEGRATION
STEAD AND ASSOCIATES
JAMES SWANSON
13200 S.E. 30TH ST.
BELLEVUE, WA 98005
(425) 644-1700

LOCATION MAP
VALDEZ, ALASKA

SHEET LIST

BASIS OF BEARINGS:
THE BASIS OF BEARING, COORDINATES, BEARINGS, DISTANCES ARE ALL BASED ON HIGH PRECISION GPS RTK, NAD83 ALASKA STATE PLANE ZONE 3 IN FEET.

BASIS OF ELEVATION:
THE BASIS OF ELEVATION IS BASED ON HIGH PRECISION GPS RTK, NAVD88 GEOID 12b.

C1
1 OF 8

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "ORANGE BOOK" – STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INCLUDING A BUILDING PERMIT, A DUST CONTROL PERMIT AND A STORMWATER POLLUTION PREVENTION PLAN, AS WELL AS BONDING FROM THE APPROPRIATE AGENCIES PRIOR TO CONSTRUCTION.
3. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT THE WORK PERFORMED UNDER THE CONTRACT SHALL RESULT IN A COMPLETE OPERATING SYSTEM IN SATISFACTORY WORKING CONDITION WITH RESPECT TO THE FUNCTIONAL PURPOSES OF THE INSTALLATION. IF THERE ARE ANY DISCREPANCIES REGARDING THE IMPLIED MEANING OF THESE PLANS, THE CONTRACTOR IS DIRECTED TO CONTACT THE CONSULTING ENGINEER IMMEDIATELY.

ENGINEER
DAY ENGINEERING
PO BOX 651
EUREKA, NEVADA 89316
(775) 293-1743
DEAN DAY

OWNER OF WATER UTILITIES
CITY OF VALDEZ
PO BOX 307
VALDEZ, AK 99686

4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH CONSTRUCTION.
5. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
6. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND NOTICE OF COMPLETION, CERTIFIED LEGIBLE AS-BUILT DRAWINGS MUST BE SUBMITTED TO CITY OF VALDEZ. AS-BUILT DRAWINGS MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS" AND CERTIFIED AS SUCH BY THE ENGINEER.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITION TO BE DETERMINED BY THE ENGINEER.
8. BEFORE ANY WORK IS STARTED IN THE ADOT RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE AND MEET ALL REQUIREMENTS OF THE ADOT ENCROACHMENT PERMIT. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "ALASKA TRAFFIC MANUAL" – CURRENT EDITION, AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" – CURRENT EDITION, AND BE APPROVED BY THE ADOT ENGINEER BEFORE CONSTRUCTION BEGINS. A COPY OF THE ADOT PERMIT SHALL BE ON SITE AT ALL TIMES.
9. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE DESIGN ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING OVER OR NEAR EXISTING GAS MAINS AND UNDERGROUND POWER AND TELEPHONE LINES.
10. ALL EXCESS OR UNSUITABLE MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH CITY OF VALDEZ CODES.
11. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO ENGINEER'S SATISFACTION.
12. AT LEAST TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES THAT MAY HAVE FACILITIES IN THE AREA OF CONSTRUCTION.
13. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO CITY OF VALDEZ PUBLIC WORKS DESIGN STANDARDS. CONTRACTOR SHALL NOTIFY AFFECTED UTILITY 48 HOURS IN ADVANCE OF ANY WORK.
14. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO CITY OF VALDEZ'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
15. CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY DEPTHS, EXISTING MATERIALS AND LOCATION PRIOR TO EXCAVATION.
16. ALL DRAINAGES, ROADWAYS, CULVERTS, SLOPES, DITCHES, CURB & GUTTER & SIDEWALKS, FENCES, UTILITIES, AND STRUCTURES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION BY THE CONTRACTOR IN ACCORDANCE WITH CITY OF VALDEZ.
17. CONTRACTOR SHALL STABILIZE TRENCHING ACTIVITIES INCLUDING EXISTING WATER AND SEWER LINES, OVERHEAD POWER POLES, EXISTING STRUCTURES AND WHEREVER NECESSARY, SUCH AS AT CROSSINGS AND ADJACENT TO STORM DRAIN HEADWALLS TO MAINTAIN TRENCH STRUCTURAL INTEGRITY.

PUBLIC WORKS UTILITY NOTES

1. ALL WORK AUTHORIZED BY THIS PLAN SHALL CONFORM TO CITY OF VALDEZ DESIGN STANDARDS, LATEST REVISION AND THE SPECIAL PROVISIONS OF THE PROJECT.
2. NO OPEN TRENCH SHALL BE ALLOWED ACROSS ANY STREET OR WITHIN TEN FEET (10') OF ANY TRAVEL-WAY, EXCEPT WHEN WORK IS IN ACTUAL PROGRESS. AREAS COVERED BY ACCEPTABLE STEEL PLATES ARE NOT TO BE CONSTRUCTED AS A TRENCH. NO OPEN TRENCH PERMITTED IN EXCESS OF 500 FEET OR LENGTH NECESSARY TO ACCOMMODATE PIPE INSTALLATION IN A SINGLE DAY, WHICHEVER IS GREATER.
3. ALL PERMITS AND APPROVED PLANS FOR THIS WORK MUST BE ON THE JOB SITE AT ALL TIMES.
4. ALL TRENCH CROSSINGS AND BACKFILL SHALL MEET THE STANDARD SPECIFICATIONS UNLESS OTHERWISE STATED.
5. CONTRACTOR SHALL MAINTAIN AN ON-GOING PROCESS FOR REMOVAL OF ALL SPILLAGE OF EXCAVATED MATERIAL ON ALL PAVED STREETS.
6. INSPECTIONS ARE REQUIRED. THE CONTRACTOR SHALL NOTIFY ALL EFFECTED PUBLIC ENTITIES 48 HOURS MINIMUM PRIOR TO COMMENCEMENT OF WORK.
7. ANY SPECIAL INSPECTIONS SHALL BE AS REQUIRED PER SPECIFICATIONS.
8. COMPACTION TESTS ARE REQUIRED. SOIL TESTING SHALL COMPLY WITH THE STANDARD SPECIFICATIONS.

WATER NOTES

1. ALL PIPE FOR THIS PROJECT SHALL BE HDPE WHERE SHOWN.
2. ALL PIPE SHALL BE FLUSHED AND PRESSURE TESTED PER AWWA C600 (LATEST REVISION).
3. ALL PIPE SHALL BE DISINFECTED PER AWWA C651 (LATEST REVISION).
4. THE CONSTRUCTION OPERATION SEQUENCING FOR MAINTAINING WATER SUPPLY SHALL BE DEFINED BY THE CONTRACTOR AND APPROVED BY THE CITY OF VALDEZ PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ 48 HOURS IN ADVANCE OF ANY WATER MAIN SHUTDOWNS OR TIE-INS. THE TOTAL TIME OF ANY WATER SERVICE INTERRUPTION IS LIMITED TO 4 HOURS MAXIMUM. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES.
6. ALL WATER SERVICES 2 INCHES OR LESS SHALL BE IPS, PE PIPE; SERVICES 3 INCHES OR GREATER SHALL BE PVC C900 DR 18 OR AS SPECIFIED ON THE PLANS.
7. MAINTAIN 18 INCHES VERTICAL AND 5 FEET HORIZONTAL SEPARATION BETWEEN ALL UNDERGROUND UTILITY LINES AND WATER LINES. IF WATER LINE IS BELOW POWER LINE OR IS WITHIN 18 INCH VERTICAL SEPARATION OF POWER LINE, POWER/TELEPHONE LINE SHALL BE ENCASED 4 INCHES MINIMUM OF CONCRETE EXTENDING 5 FEET EACH SIDE OF THE CROSSING. CONCRETE ENCASEMENT OF WATER LINES IS NOT ALLOWED.
8. WATER VALVE MARKERS SHALL BE BLUE CARSONITE UTILITY MARKER (CUM-375), 5'-2" WITH WATER VALVE DECAL (WV-XXX) OR APPROVED EQUAL. PLACE MARKER NO MORE THAN FIVE (5) FEET FROM THE VALVE.
9. SATISFACTORY BACTERIOLOGICAL ANALYSIS MUST BE PROVIDED TO ADEC PRIOR TO PLACING A NEW WELL, WATER STORAGE TANK, OR DISTRIBUTION AND TRANSMISSION MAINS INTO SERVICE.
10. CONTRACTOR SHALL SEAL ALL OPENINGS OF UNFINISHED PIPE OR APPURTENANCES AT THE END OF EACH CONSTRUCTION DAY TO PREVENT THE INTRODUCTION OF CONTAMINATION.
11. CONTACT ADEC FOR COORDINATION PRIOR TO DISPOSAL OF HEAVILY CHLORINATED WATER.
12. ALL MATERIALS COMING INTO CONTACT WITH POTABLE WATER SHALL BE NSF 61 LISTED AND CERTIFIED AS LEAD-FREE.
13. THE HDPE PIPE MANUFACTURER WILL CERTIFY THAT THE RESIN CAN BE USED IN THE CITY OF VALDEZ CLIMATE.
14. THE HDPE PIPE MANUFACTURER'S WELDABILITY TESTING RECOMMENDATIONS WILL BE SUBMITTED FOR APPROVAL BY THE ENGINEER AND FOLLOWED BY THE CONTRACTOR.
15. BUTT FUSION OF HDPE JOINTS WILL PER THE MANUFACTURER'S RECOMMENDATIONS, AND A DATA LOGGER WILL RECORD THE FUSION EQUIPMENT TEMPERATURE, TIMES, AND PRESSURES. ALL WELDS SHALL BE ACCOMPLISHED IN THE PRESENCE OF A QUALIFIED INSPECTOR PROVIDED BY THE ENGINEER.
16. HDPE PIPE BUTT FUSION WELDERS SHALL BE CERTIFIED TO OPERATE FUSION EQUIPMENT.
17. HDPE PIPE FUSION SHALL USE CERTIFIED EQUIPMENT. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, AND FOLLOW, EQUIPMENT MANUFACTURER'S QA/QC, MAINTENANCE, AND CALIBRATION.
18. PARTS AND PIPE FOR THIS PROJECT IN CONTACT WITH POTABLE WATER SHALL NOT HAVE MORE THAN 0.25 PERCENT LEAD.
19. CONTRACTOR SHALL PROVIDE CERTIFICATION THAT ALL PARTS AND PIPE IN CONTACT WITH POTABLE WATER ARE NSF-61 CERTIFIED BY AN ANSI ACCREDITED ORGANIZATION.
20. FLUSHING AREA IS SHOWN ON THE PLANS (FROM FIRE HYDRANT). FLUSH WATER SHALL BE FLUSHED USING AN AIR GAP. CHLORINATED FLUSH WATER SHALL BE DECHLORINATED USING A DIFFUSER ON THE HYDRANT THAT CONTAINS SODIUM SULFITE TABLETS. THEN THE FLUSH WATER CAN BE PUT ON THE GROUND AND GRADED TO AVOID DAMAGE TO ADJACENT PROPERTY. FLUSHED WATER MUST MEET THE REQUIREMENTS OF 18 AAC 70.
21. THE WATER SAMPLE TAP FOR BACTERIOLOGICAL SAMPLES SHALL BE OUT OF THE FIRE HYDRANT. TWO SEPARATE SAMPLES TAKEN 24 HOURS APART MUST PASS AS NEGATIVE FOR COLIFORM BACTERIA BEFORE NEW WATER PIPING CAN BE CONNECTED AND PUT INTO SERVICE IN THE WATER SYSTEM.

ABBREVIATIONS

A	AREA
AC	ASPHALTIC CONCRETE
ACP	ABESTOS CEMENT PIPE
ADJ	ADJUST, ADJUSTABLE
AL	ARC LENGTH
AD	AREA DRAIN
BC	BEGINNING OF CURB / BACK OF CURB
BCR	BEGINNING OF CURB RETURN
BDRY	BOUNDARY
BEG	BEGIN
BM	BENCHMARK
BSW	BACK OF SIDEWALK
BVC	BEGINNING OF VERTICAL CURVE
CB	CATCH BASIN / DROP INLET
C&G	CURB AND GUTTER
CF	CURB FACE
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONST	CONSTRUCT, CONSTRUCTION
DC	DEPRESSED CURB
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DROP MANHOLE
E	EAST
EC	END OF CURVE
ECR	END OF CURB RETURN
EF	ELECTROFUSION
EG	EXISTING GROUND
EL	ELEVATION
EP, EOP	EDGE OF PAVING
EVC	EDGE OF VERTICAL CURVE
EXIST, EX	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FM	FORCEMAIN
G	GAS
GB	GRADE BREAK
GV	GAS VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HGT	HEIGHT
HORIZ.	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
L	LENGTH
LS	LANDSCAPE
LAT	LATERAL
LF	LINEAL FEET
LT	LEFT
LP	LOW POINT
MAX	MAXIMUM
MB	MAIL BOX
MH	MANHOLE
MIN	MINIMUM
N	NORTH
NO	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD POWER LINE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
POC	POINT OF CONNECTION
PRC	POINT OF REVERSE CURVE
PROP	PROPOSED
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
Q	RATE OF FLOW
RAD	RADIUS
RED	REDUCER
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
R/W, ROW	RIGHT OF WAY
S	SOUTH
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FOOT
SHP	STEEL HIGH PRESSURE
SHT	SHEET
STA	STATION
STD	STANDARD
STL	STEEL
SW	SIDEWALK
T	TANGENT DISTANCE
TBC	TOP BACK OF CURB
TC	TOP OF CURB
TEL	TELEPHONE
TFC	TOP FRONT OF CURB
TOC	TOP OF CONCRETE
TMH	TOP OF MANHOLE
TOW	TOP OF WALL
TRANS	TRANSITION
TSC	TRAFFIC SIGNAL CONDUIT
TSW	TOP OF SIDEWALK
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC LINE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VG	VALLEY GUTTER
W	WEST, WATER
WV	WATER VALVE

LEGEND

- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING TELEPHONE
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED AIR VALVE ASSEMBLY
- PROPOSED FIRE HYDRANT
- EXIST FIRE HYDRANT
- PROPOSED SINGLE METER
- PROPOSED DOUBLE METER
- EXISTING METER
- PROPOSED SSMH
- EXISTING SSMH
- FLOW ARROW
- SECTION/ PROPERTY LINE/ EASEMENT LINE
- CENTERLINE
- FENCE
- EDGE OF ROAD
- OVERHEAD POWER LINE
- LIGHT POLE
- TELEPHONE PEDESTAL
- POWER POLE

REVISION	BY	DATE	APPRVL REV

TITLE: **GENERAL NOTES, ABBREVIATIONS, AND LEGEND**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C2 OF 8 SHEETS

WHALEN DR.

PIONEER DR.

SEE SHEET C6
FOR WELL 5
TIE-IN TO WELL 4

EXIST 12" WATER MAIN

EXIST 8" WATER MAIN

EXIST
PROPERTY
LINE

EXIST
EASEMENT

EXIST 8" WATER
MAIN HDPE WATER

EXIST 12" WATER
MAIN HDPE WATER

TIE-IN TO EXIST 8" AND
12" WATER MAINS
SEE TIE-IN DETAIL
D1

N: 2606161.46
E: 1573719.74

N: 2606162.56
E: 1573731.00

N: 2606149.40
E: 1573727.63

INSTALL 90 LF
12" DIP

NEW 29'-6" x 40'-9" WELL BUILDING
FOR BUILDING PIPING PLAN SEE SHEET C5

N: 2606158.90
E: 1573735.45

N: 2606214.28
E: 1573799.30

N: 2606232.91
E: 1573776.40

N: 2606263.96
E: 1573801.66

N: 2606245.33
E: 1573824.56

NEW TRANSFORMER
REINFORCED CONCRETE
SLAB AND BOLLARDS
SEE ELECTRICAL SHEETS

NEW GENERATOR AND
LOAD BANK
INSTALL NEW
14'x4.5'x12"
REINFORCED CONCRETE
SLAB AND BOLLARDS
SEE DETAIL

SEE ELECTRICAL
SHEETS

30'

20'

10'

18'

INSTALL 25
LF 12" DIP

N: 2606136.07
E: 1573769.57

12" DI 45° MJ BEND
WITH THRUST BLOCK

EXIST 8" AND 12"
WATER MAINS
ABANDON IN PLACE

6'

10'

92'

INSTALL 90
LF 12" DIP

N: 2606225.56
E: 1573821.37

12" DI 45° MJ
BEND WITH
THRUST BLOCK

N: 2606203.03
E: 1573824.03

12" DI 45° MJ
BEND WITH
THRUST BLOCK

20'

EXIST TEST WELL
PROTECT IN PLACE

N: 2606139.15
E: 1573792.62

INSTALL 23 LF
12" DIP

N: 2606131.12
E: 1573770.24

12" DI 45° MJ
BEND WITH
THRUST
BLOCK

INSTALL NEW 8'x8'x6" REINFORCED
CONCRETE SLAB AND BOLLARDS
SEE WELL CROSS SECTION SHEET C8

NEW WELL
SEE SHEET C8

N: 2606124.84
E: 1573778.48

12" DIP DRAIN TO EXIST
DRAIN INLET
SEE PROFILE ON SHEET C7

TIE FLOOR DRAIN
TO EXIST DI
SEE SHEET C7

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

CALL 811 BEFORE YOU DIG
811
SAFE DIGGING PARTNER

REVISION	BY	DATE	APPRV'L REV

TITLE: SITE PIPING PLAN

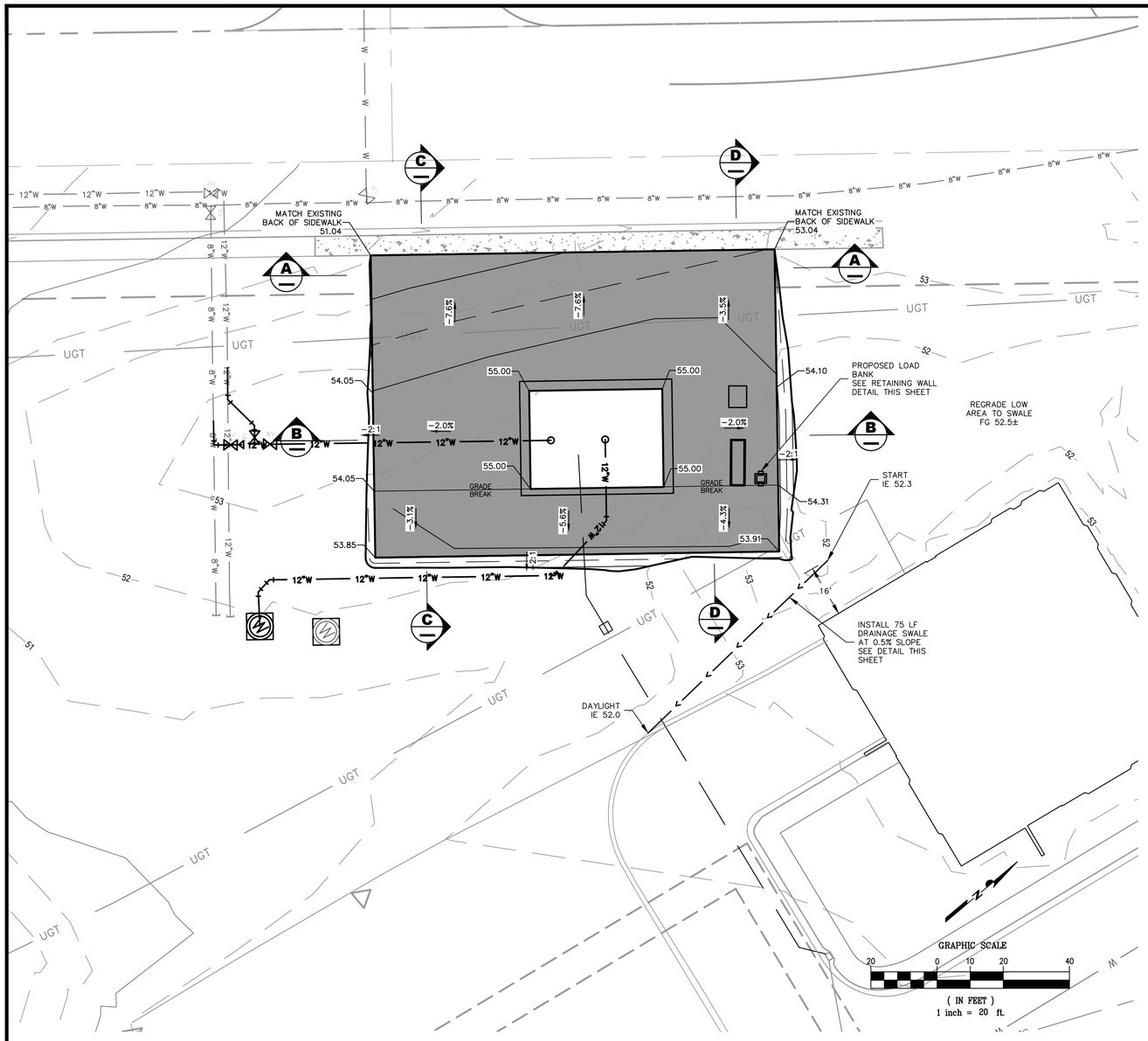
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

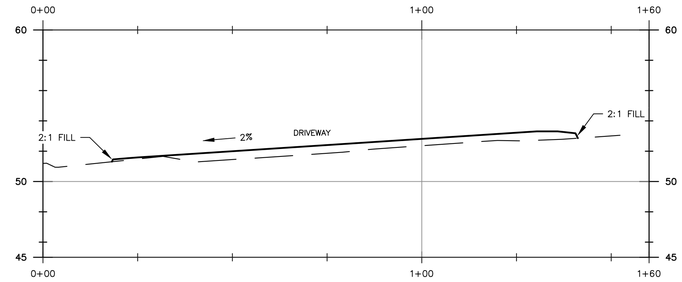
STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

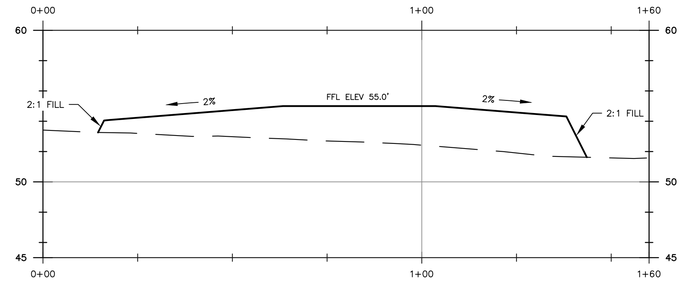
BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C3 OF 8 SHEETS

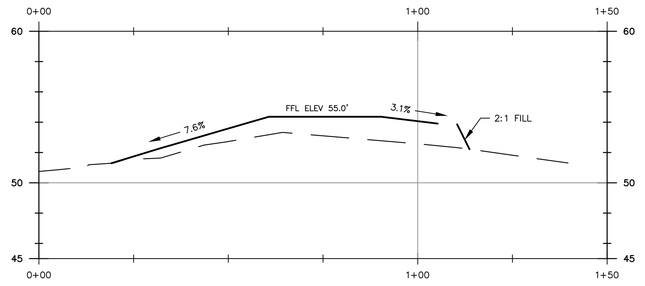




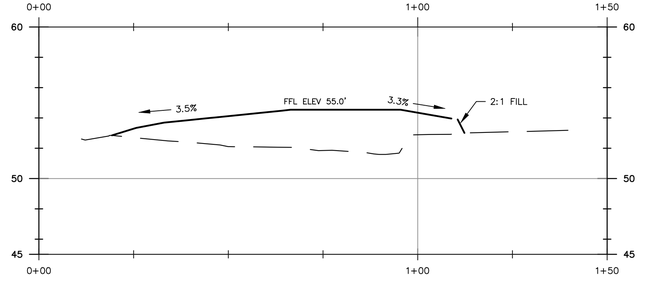
SECTION A
VER SCALE: 1"= 5' HOR SCALE 1"=20'



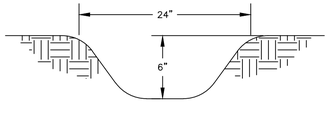
SECTION B
VER SCALE: 1"= 5' HOR SCALE 1"=20'



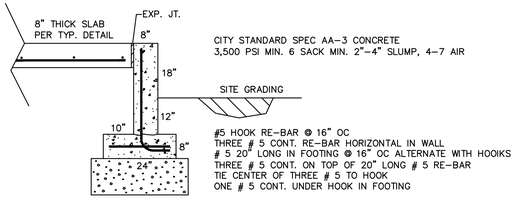
SECTION C
VER SCALE: 1"= 5' HOR SCALE 1"=20'



SECTION D
VER SCALE: 1"= 5' HOR SCALE 1"=20'



SWALE DETAIL 1
SCALE: N.T.S.



RETAINING WALL DETAIL 2
SCALE: N.T.S.

CALL 811 BEFORE YOU DIG
811
SAFE DIGGING PARTNER

APPRV.	REV.	DATE	BY	REVISION

TITLE: **SITE GRADING PLAN**

PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
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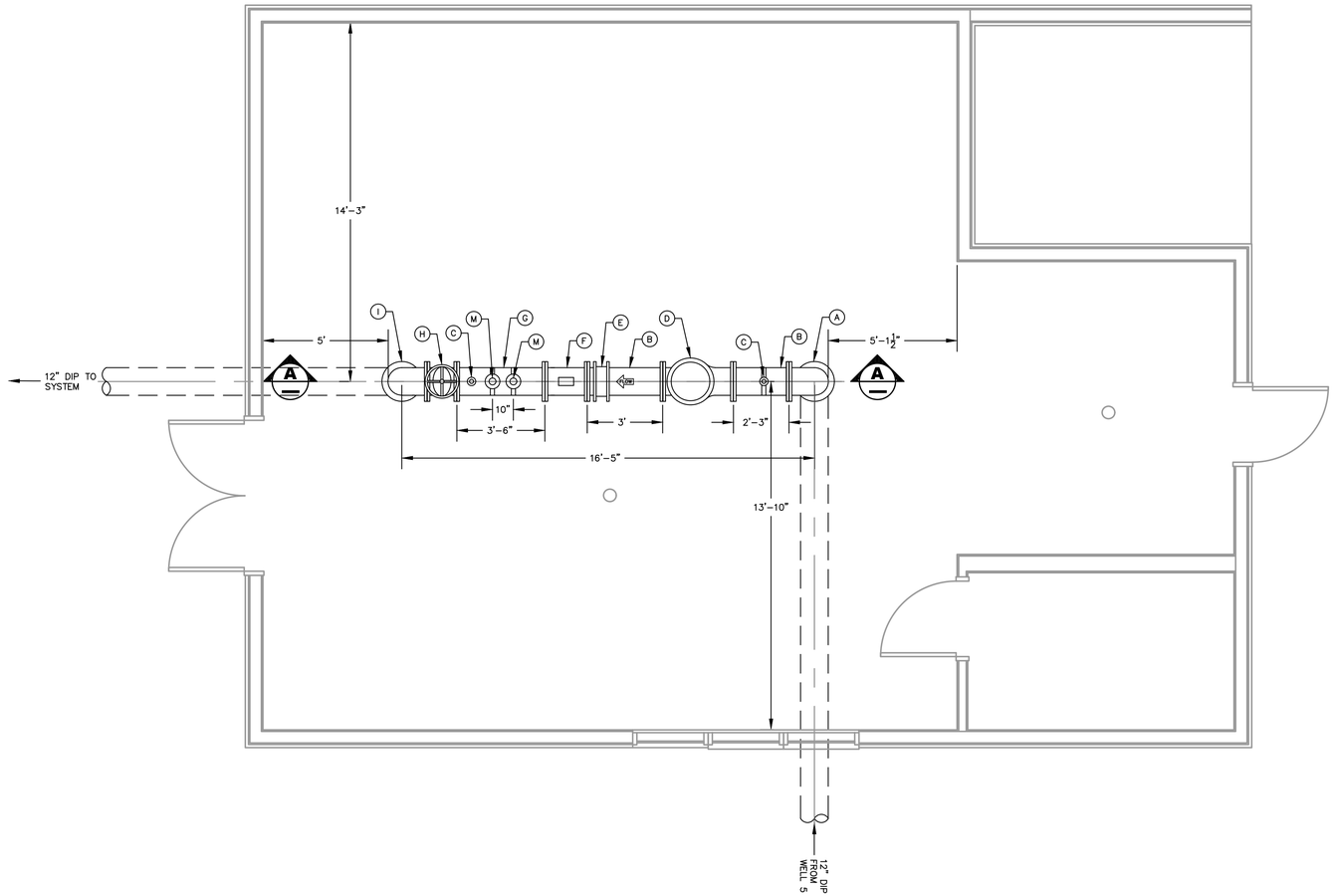
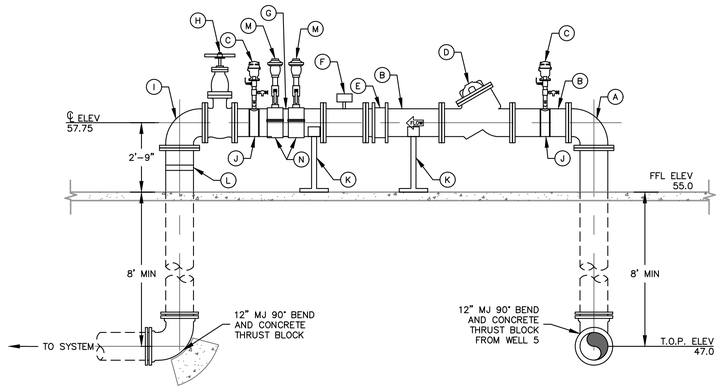
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C4 OF 8 SHEETS



PIPING FLOOR PLAN
SCALE: 1"=3'



SECTION
SCALE: 1"=3'

MATERIALS LIST

ITEM	QTY	DESCRIPTION
A	1	12" DI FL 90
B	2	12" DI FLxPE SPOOL
C	2	2" COMBINATION AIR VALVE WITH SAMPLE TAP
D	1	12" CHECK & BOOSTER PUMP CONTROL VALVE (BERMAD 740 EN)
E	1	12" REST. FL ADAPT. (ROMAC RFCA)
F	1	12" MAG METER (BADGER M2000)
G	1	12" DI FLxFL SPOOL
H	1	12" OS&Y FL RES. WEDGE GATE VALVE (AFC 2500)
I	1	12" DI FL 90
J	2	2" DOUBLE STRAP TAPPING SLEEVE
K	1	PIPE SUPPORT
L	1	1 ½" SERVICE SADDLE
M	2	2" BERMAD PRESSURE RELIEF VALVES (SEE DETAIL SHEET 3/D1)
N	2	12"x2" STAINLESS SADDLES

NOTE:
1) SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SHEETS FOR BUILDING DETAILS.
2) FEDERAL SAFETY BLUE SHERWIN-WILLIAMS MACROPOXY EPOXY FOR POTABLE WATER OR EQUAL, 2 COATS AND 10 MILS MINIMUM ON ALL EXPOSED POTABLE WATER PIPING AND FITTINGS.

APPRVL	REV	DATE	BY	REVISION
	1	9/3/2025	MU	ITEM L MOVED TO OTHER SIDE OF CHECK VALVE AND CHANGED SIZE
	2	9/23/2025	MU	ADDED NOTE FOR PAINT
	3	10/31/2025	MU	ELEVATIONS ADDED

TITLE **BUILDING PIPING PLAN AND SECTION**

PROJECT **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C5 OF 8 SHEETS

DAY ENGINEERING

PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

SHEET **C6** OF **8** SHEETS

BY :

DATE : JAN 2026

SCALE : AS SHOWN

REGISTERED PROFESSIONAL ENGINEER — CE No. 7452 — DEAN O. DAY — 49 TH STATE OF ALASKA

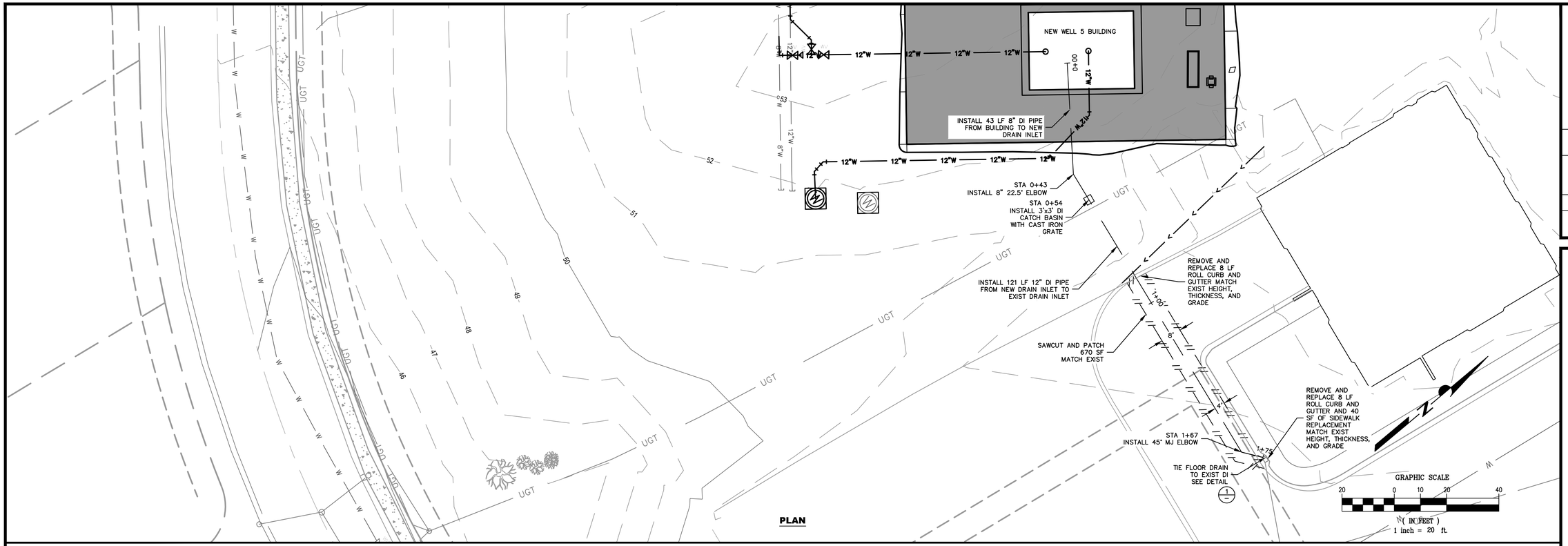
TITLE

WELL 5 TRANSMISSION MAIN

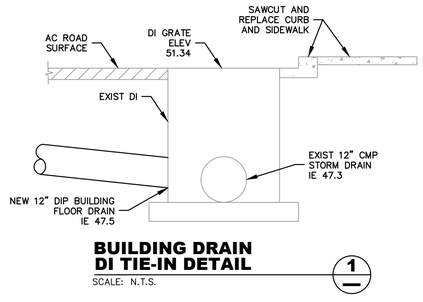
PROJECT

NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

APPRVL	REV	DATE	BY	REVISION



PLAN

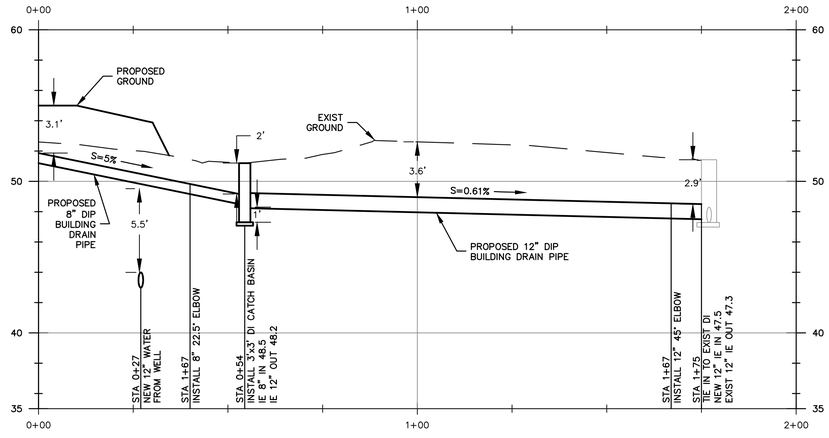


BUILDING DRAIN DI TIE-IN DETAIL

SCALE: N.T.S.

1

—



PROFILE

HOR SCALE: 1"=20'

VER SCALE: 1"=5'

APPRV'L	REV	DATE	BY	REVISION

TITLE **BUILDING DRAIN PLAN AND PROFILE**

PROJECT **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

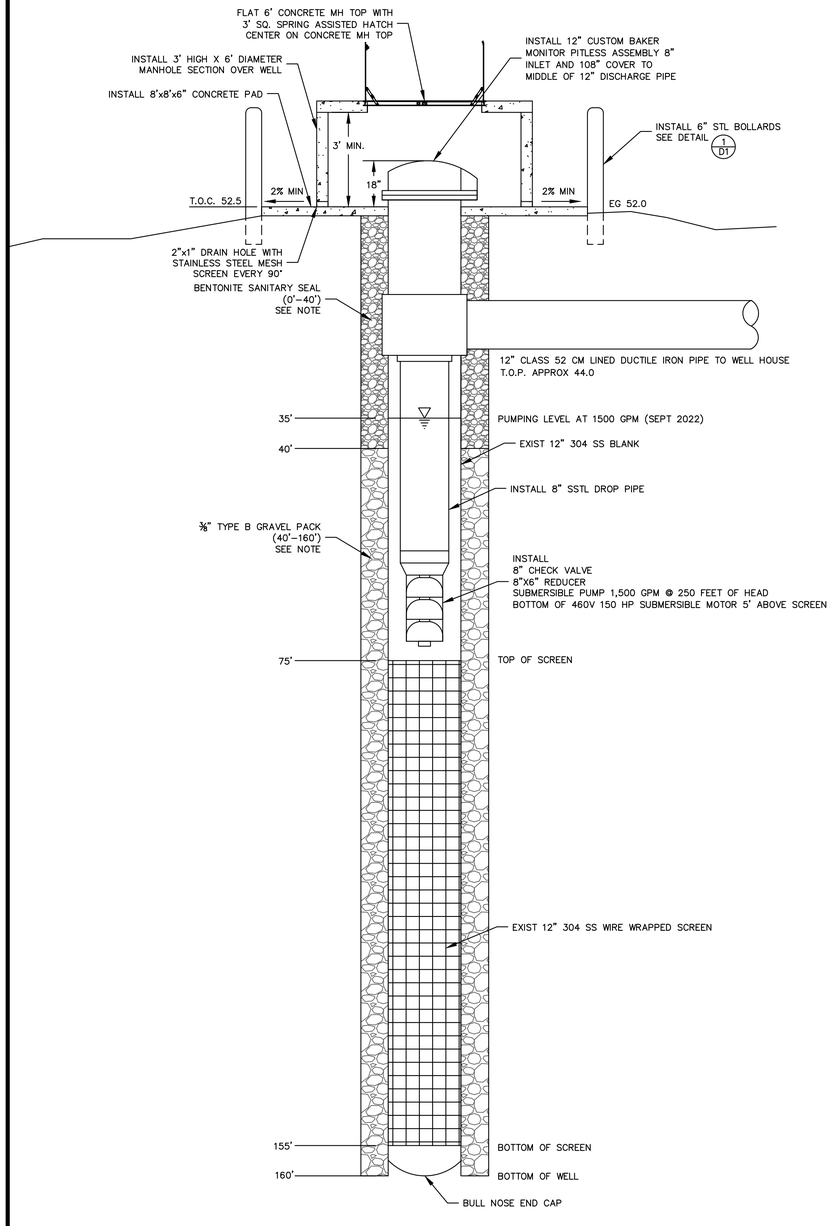
BY :

DATE : JAN 2026

SCALE : AS SHOWN

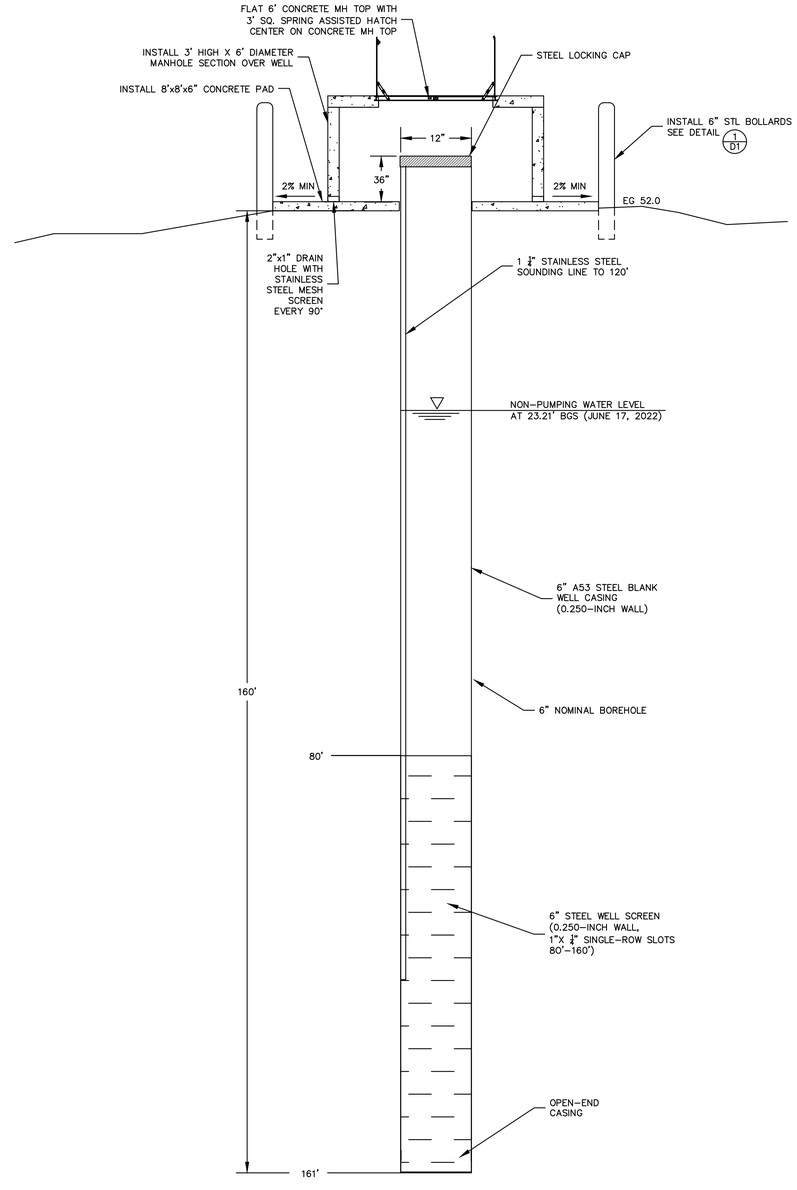
SHEET C7 OF 8 SHEETS

CALL 811 BEFORE YOU DIG 811 SAFE DIGGING PARTNER

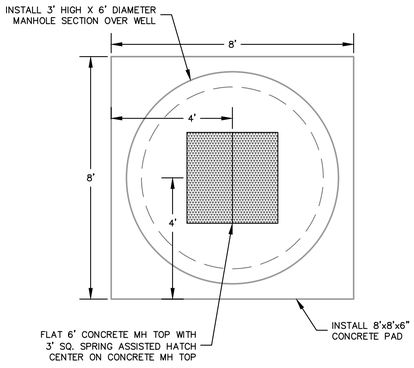


NOTE:
CONTRACTOR TO REPAIR SANITARY SEAL AFTER INSTALLATION OF PITLESS UNIT AND DISCHARGE PIPE.

EXIST WELL SECTION
SCALE: N.T.S.



EXIST MONITORING WELL SECTION
SCALE: N.T.S.



LID DETAIL
SCALE: N.T.S.

REVISION	BY	DATE	APPRV
ELEVATIONS ADDED	MU	10/31/2025	

TITLE: **WELL CROSS SECTION**

PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
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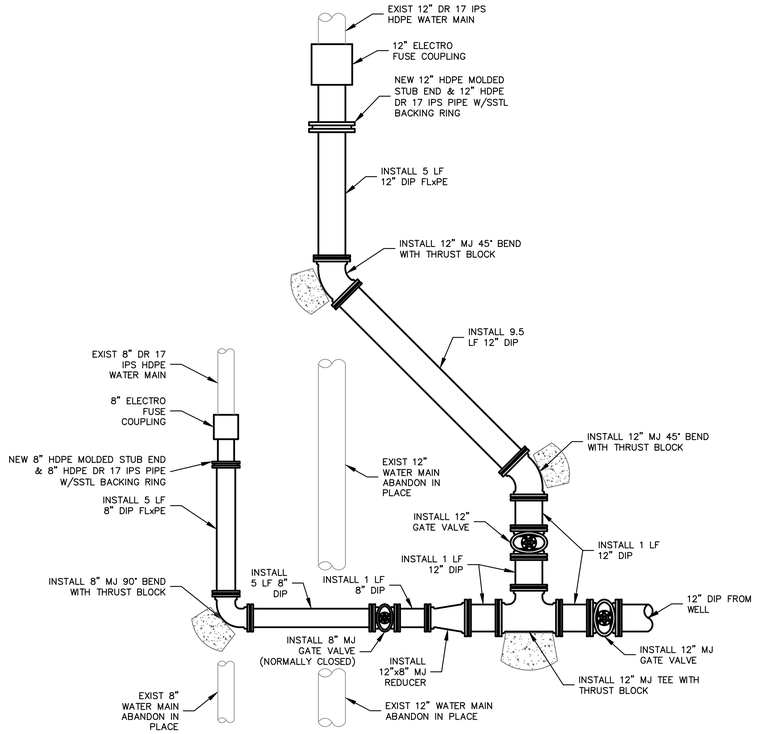
BY :
DATE : JAN 2026
SCALE : AS SHOWN

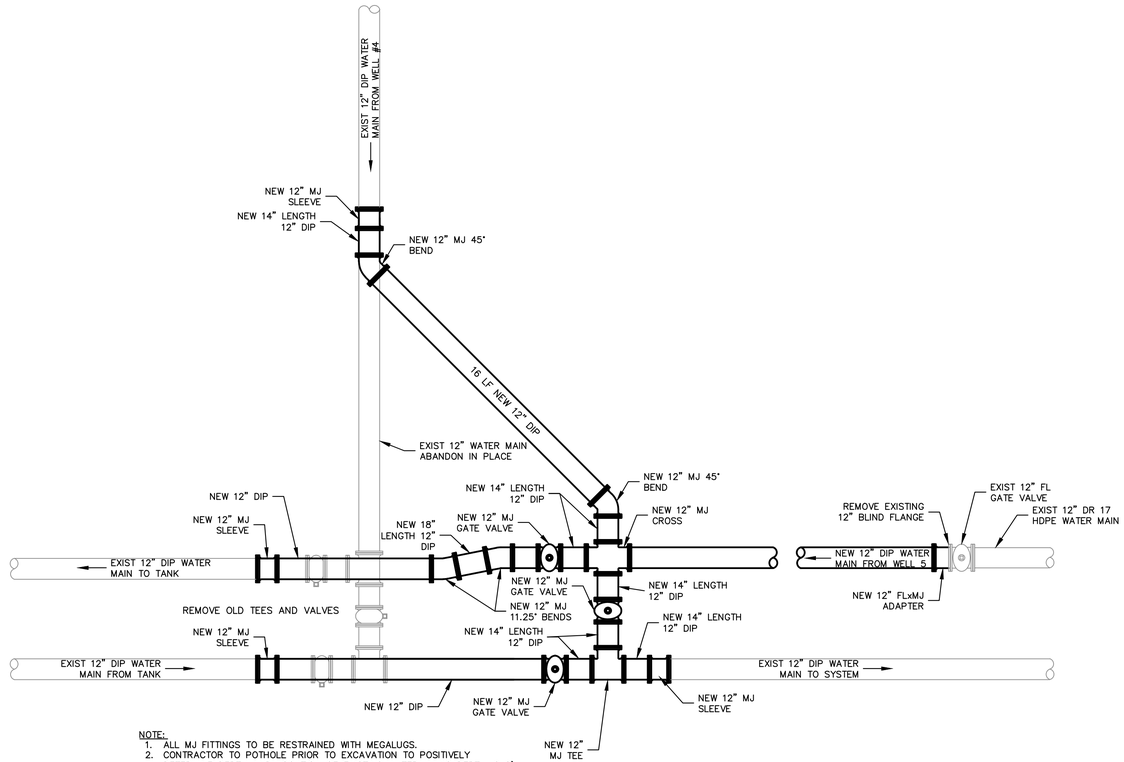
SHEET C8 OF 8 SHEETS



NOTE:
1. ALL MJ FITTINGS TO BE RESTRAINED WITH MEGALUGS.
2. CONTRACTOR TO POTHOLE PRIOR TO EXCAVATION TO POSITIVELY DETERMINE DEPTH AND LOCATION OF EXISTING WATER MAINS DEPTH IS 8'.

EXIST WATER MAIN TIE-IN 1

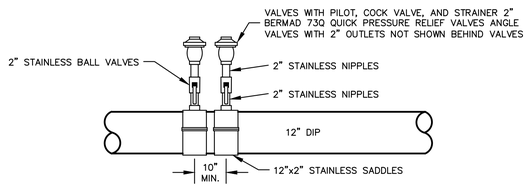
SCALE: N.T.S.



NOTE:
1. ALL MJ FITTINGS TO BE RESTRAINED WITH MEGALUGS.
2. CONTRACTOR TO POTHOLE PRIOR TO EXCAVATION TO POSITIVELY DETERMINE DEPTH AND LOCATION OF EXISTING WATER MAINS DEPTH IS 8'.

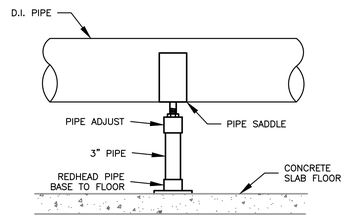
WELL 5 TO WELL 4 TIE-IN 2

SCALE: N.T.S.



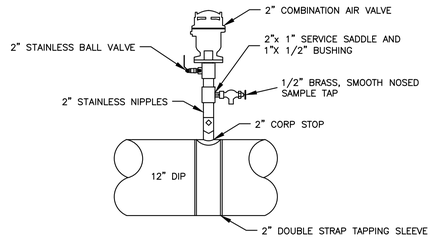
PRESSURE RELIEF VALVE 3

SCALE: N.T.S.



PIPE STAND DETAIL 4

SCALE: N.T.S.



AIR VALVE WITH SAMPLE TAP DETAIL 5

SCALE: N.T.S.

REVISION	BY	DATE	APPRV.	REV
NOTES REVISED	MJ	10/31/2025		1

TITLE: **GENERAL DETAILS**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
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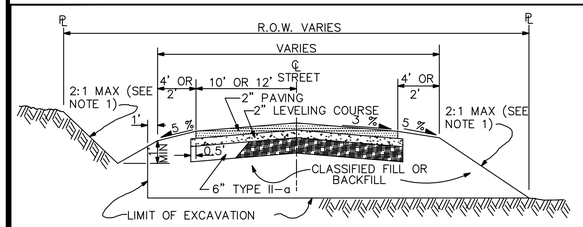
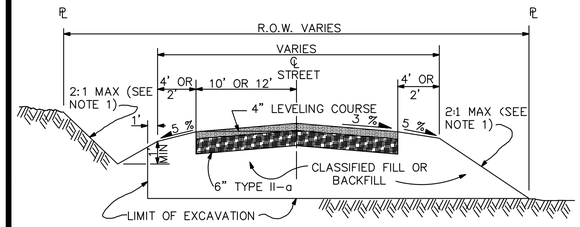
BY: MJ
DATE: JAN 2026
SCALE: AS SHOWN

SHEET D1 OF 2 SHEETS



TYPICAL SECTION - 20'/24' STRIP PAVING



TYPICAL SECTION - 20'/24 GRAVEL STREET

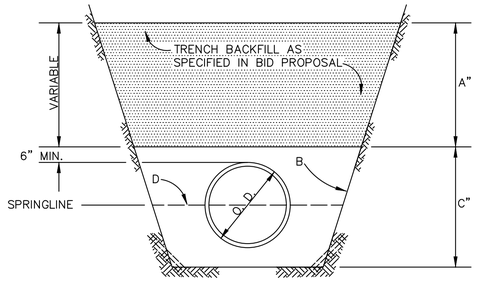
NOTES:

1. MATERIAL TO BE PLACED OR REMOVED AND GRADED IN A NEAT MANNER FROM EXCAVATION LIMITS TO EXISTING ELEVATION AT PROPERTY LINE AS DIRECTED BY THE ENGINEER.
2. DEPTH OF EXCAVATION TO BE DETERMINED BY THE ENGINEER.
3. THE TOP 6" OF CLASSIFIED FILL OR BACKFILL IMMEDIATELY BENEATH THE LEVELING COURSE SHALL BE RESTRICTED TO MINUS 3-INCH MATERIAL.
4. UNLESS OTHERWISE APPROVED, THE ℄ OF STREET WILL BE THE ℄ OF R.O.W.

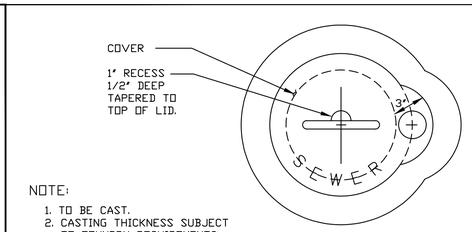
SCALE: NTS	TYPICAL SECTIONS FOR 20'/24' STRIP PAVING AND GRAVEL STREETS	SECTION# 20.01 THRU# 20.14
APPROVED:		DETAIL # 20-1
REVISED: 02/03		

NOTES:

(A) TRENCH BACKFILL MATERIAL PLACED AND COMPACTED TO DEPTHS AS DETERMINED BY THE ENGINEER.
(B) TRENCH WALL SLOPES WILL VARY WITH SOIL STRENGTH AND CHARACTER. SLOPES TO CONFORM TO SAFETY STANDARDS.
(C) CLASS "B" OR "C" BEDDING.
(D) BEDDING TO SPRING LINE ONLY WHEN DUCTILE IRON PIPE IS INSTALLED.

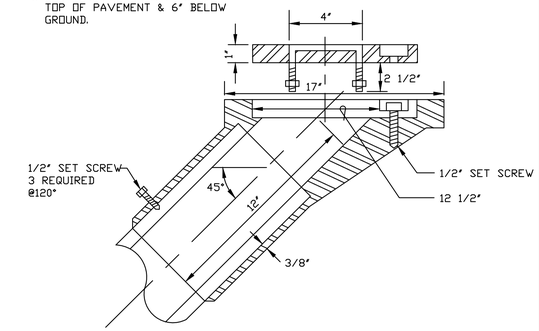


SCALE: NONE	TRENCH BACKFILL	SECTION# 20.07
APPROVED:		DETAIL # 20-11
REVISED: 1/88		

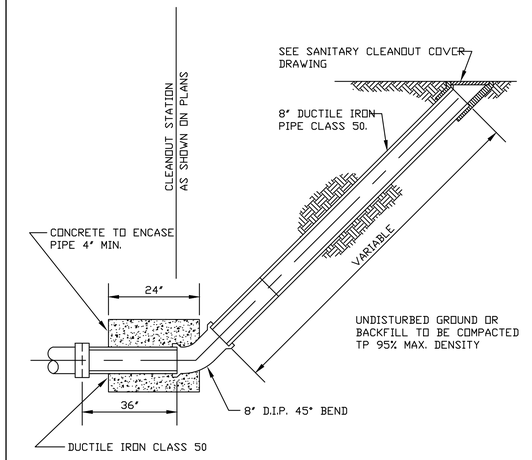


NOTE:

1. TO BE CAST.
2. CASTING THICKNESS SUBJECT TO FOUNDRY REQUIREMENTS.
3. CASTING MUST BE SIZED TO 8" AND OVER, CLASS 22 C.I. OR CLASS 50 D.I. PIPE.
4. COVER SHALL BE 1/4" BELOW TOP OF PAVEMENT & 6" BELOW GROUND.

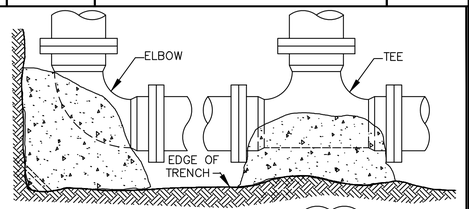


SCALE: 3"=1'-0"	SANITARY CLEANOUT COVER	SECTION# 50.12
APPROVED:		DETAIL # 50-20
REVISED: 11/87		

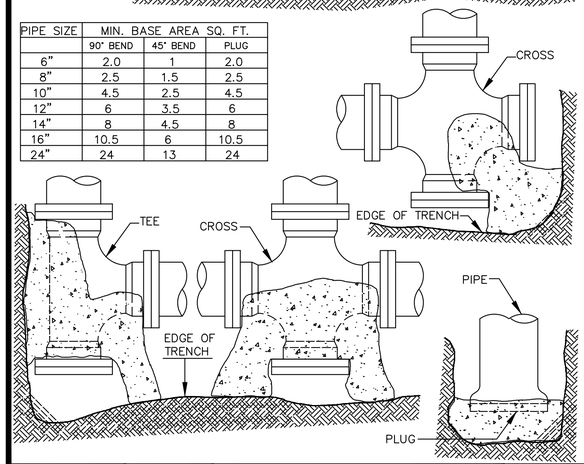


NOTE: WHEN D.I. PIPE WITH MECHANICAL JOINT IS USED CONCRETE ENCASEMENT IS NOT NECESSARY

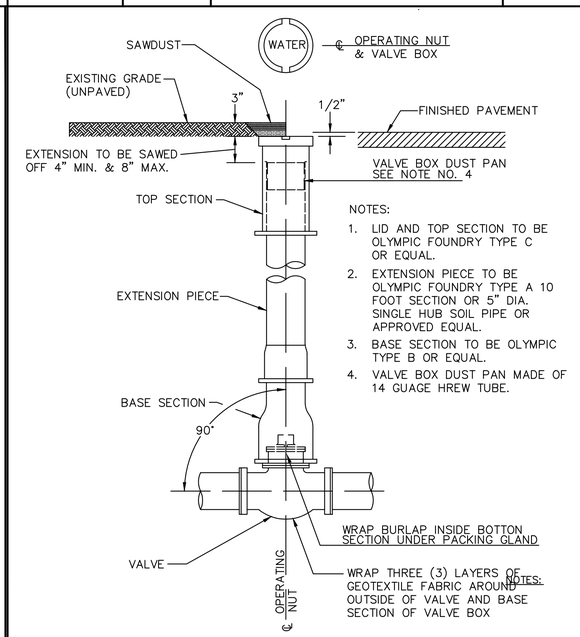
MUNICIPALITY OF ANCHORAGE	SCALE: 1/2"=1'-0"	SANITARY CLEANOUT	SECTION# 50.12
	APPROVED:		DETAIL # 50-21
	REVISED: 11/87		



PIPE SIZE	MIN. BASE AREA SQ. FT.		
	90° BEND	45° BEND	PLUG
6"	2.0	1	2.0
8"	2.5	1.5	2.5
10"	4.5	2.5	4.5
12"	6	3.5	6
14"	8	4.5	8
16"	10.5	6	10.5
24"	24	13	24



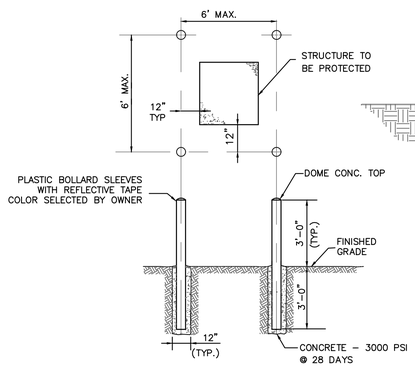
SCALE: NTS	THRUST BLOCK	SECTION# 60.02
APPROVED:		DETAIL # 60-2
REVISED: 11/87		



NOTES:

1. LID AND TOP SECTION TO BE OLYMPIC FOUNDRY TYPE C OR EQUAL.
2. EXTENSION PIECE TO BE OLYMPIC FOUNDRY TYPE A 10 FOOT SECTION OR 5" DIA. SINGLE HUB SOIL PIPE OR APPROVED EQUAL.
3. BASE SECTION TO BE OLYMPIC TYPE B OR EQUAL.
4. VALVE BOX DUST PAN MADE OF 14 GUAGE HREW TUBE.

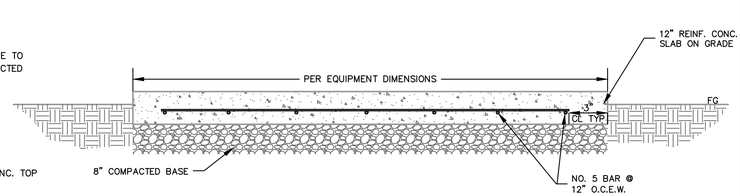
SCALE: NTS	TYPICAL VALVE BOX	SECTION# 60.03
APPROVED:		DETAIL # 60-4
REVISED: 11/87		



1. BOLLARDS TO BE 6" SCH. 40 STEEL PIPE, 6'-0" LONG AND FILLED WITH CONCRETE.
2. BOLLARDS ON SIDE NOT ACCESSIBLE TO VEHICLES MAY BE OMITTED.
3. DO NOT BLOCK HOSE CONNECTIONS ON HYDRANT.
4. BOLLARD SPACING PER PLANS.

BOLLARD DETAIL 1

SCALE: N.T.S.



CONCRETE SLAB DETAIL 2

SCALE: N.T.S.

REVISION	BY	DATE	APPRV. REV

TITLE: **GENERAL DETAILS**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
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PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY: | DATE: JAN 2026 | SCALE: AS SHOWN

SHEET D2 OF 2 SHEETS

CODE PLAN GENERAL NOTES

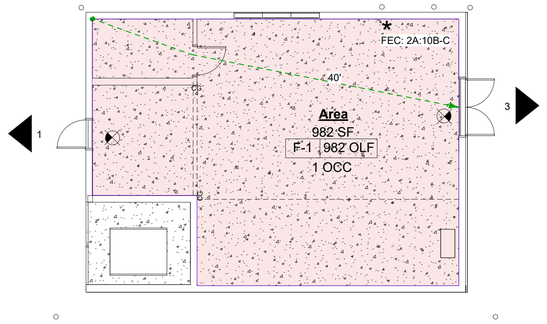
1. SEE MAIN FLOOR PLAN FOR DIMENSIONS, WALL TYPE REFERENCES.
2. SEE DOOR AND RELITE SCHEDULES FOR DOOR HARDWARE AND OTHER FIRE RATING REQUIREMENTS FOR DOORS AND RELITES.
3. SEE ELECTRICAL FOR EXIT SIGNS AND EMERGENCY EGRESS LIGHT FIXTURES.
4. INTERIOR WALL AND CEILING FINISHES SHALL CONFORM TO IBC SECTION 803.5 AND TABLE 803.5 FOR FLAME SPREAD REQUIREMENTS.
5. PORTABLE FIRE EXTINGUISHERS MUST BE PROVIDED WHERE REQUIRED BY NFPA 101.4. WHEN PROVIDED, FIRE EXTINGUISHERS MUST BE LOCATED IN ACCORDANCE WITH NFPA 10. IF PROVIDED IN ELECTRONIC EQUIPMENT AREAS, CLEAN AGENT TYPE PORTABLE FIRE EXTINGUISHERS MUST BE USED. PORTABLE FIRE EXTINGUISHERS UTILIZING CARBON DIOXIDE (CO2) ARE ONLY PERMITTED TO BE USED IN ENCLOSED ROOMS IF THEY EXCEED 1,000SF.

FIRE STOPPING NOTES

ALL PENETRATIONS MADE THROUGH FIRE-RATED WALLS, CEILINGS AND FLOOR ASSEMBLIES, BOTH EMPTY HOLES AND HOLES ACCOMODATING SUCH ITEMS AS DUCTS, PIPES, CONDUIT, AND OTHER PENETRATING ITEMS SHALL BE FIRE- STOPPED. PENETRATIONS SHALL BE FIRE STOPPED TO RETAIN THE INTEGRITY OF THE TIME-RATED CONSTRUCTION BY MAINTAINING AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND GASES, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 07270 - FIRESTOPPING. MECHANICAL AND ELECTRICAL RELATED PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR MAKING THE PENETRATION - SEE MECHANICAL AND ELECTRICAL.

PLAN LEGEND

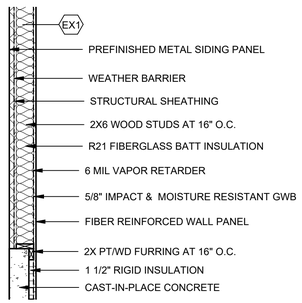
- 1 HR WALLS; 60 MINUTE OPENINGS OCCUPANCY SEPARATION
- 1 HR WALLS; 20 MINUTE OPENINGS OCCUPANCY SEPARATION
- SMOKE-PROOF ENCLOSURES
- ▲ ## EXIT FROM ROOMS. NUMBER INDICATES THE CALCULATED ACCUMULATED LOAD AT THAT ROOM OR BUILDING EXIT. ARROW INDICATES EXIT DIRECTION.
- ✱ FIRE EXTINGUISHER CABINET, 2A:10B-C



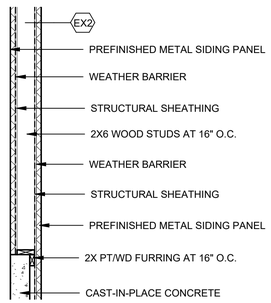
1 FIRST FLOOR CODE PLAN
Scale: 1/8" = 1'-0"

TYPICAL CONSTRUCTION ASSEMBLIES

EXTERIOR WALL ASSEMBLIES

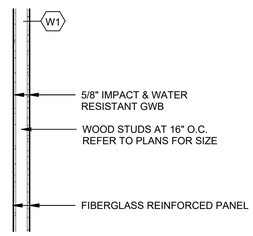


EX1_ 2X6 WALL W/ CONCRETE BASE



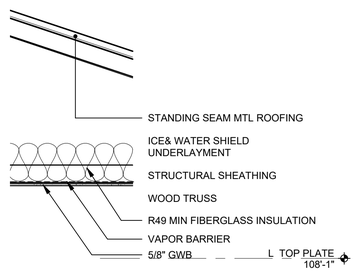
EX2_ 2X6 WALL

INTERIOR WALL ASSEMBLIES



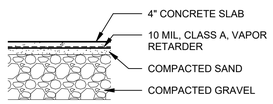
W1_ WALL - 2X STUD

ROOF ASSEMBLY

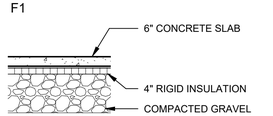


RF_ ROOF/CEILING

FLOOR ASSEMBLY



F1



F2

BUILDING CODE ANALYSIS

GOVERNING CODES: 2021 INTERNATIONAL BUILDING CODE (AK AMMENDMENTS)
2017 ICC/ANSI A117.1 (AK AMMENDMENTS)
2021 INTERNATIONAL MECHANICAL CODE (AK AMMENDMENTS)
2021 INTERNATIONAL FUEL AND GAS CODE (AK AMMENDMENTS)
2021 INTERNATIONAL FIRE CODE (AK AMMENDMENTS)
2021 NFPA STANDARD 13 & 72 FIRE PROTECTION
2018 UNIFORM PLUMBING CODE (AK AMMENDMENTS)
2020 NATIONAL ELECTRICAL CODE

CHAPTER 3 OCCUPANCY CLASSIFICATION AND USE

SECTION 306 F-1 MODERATE -HAZARD FACTORY INDUSTRIAL; WATER TREATMENT FACILITY

CHAPTER 4 SPECIAL REQUIREMENTS BASED ON USE/OCCUPANCY

N/A

CHAPTER 5 GENERAL BUILDING HEIGHTS & AREAS

CONSTRUCTION TYPE V-B, SEPARATED OCCUPANCIES

IBC TABLE 504.3 / 504.4 ALLOWABLE NUMBER OF STORIES/HEIGHT ABOVE GRADE PLANE:

OCC.	CONST. TYPE	ALLOW. STORY	ALLOW. HEIGHT/ACTUAL HEIGHT
F-1/NS	V-B	1	40'/20'-8"

IBC TABLE 506.2 ALLOWABLE AREA FACTOR:

OCC.	ALLOWABLE AREA	ACTUAL AREA
F-1	8500 SF	982 SF

508.3 NON-SEPARATED BASED ON PROVISIONS OF 508.3.1 AND 508.3.2
OCCUPANCY SEPARATION NOT REQUIRED

508.4 ACCESSORY OCCUPANCIES--NO ACCESSORY OCCUPANCIES

509 INCIDENTAL OCCUPANCIES--NO INCIDENTAL OCCUPANCIES

CHAPTER 6 TYPES OF CONSTRUCTION

TABLE 601: TYPE VB -- NO FIRE RESISTANT RATING REQUIRED FOR BUILDING ELEMENTS

TABLE 602: FIRE RESISTANCE RATING FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE
F-1 X>/= 30' NO RATING REQUIRED

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

TABLE 716.5 FIRE-RATED ASSEMBLIES:	RATING:	ASSEMBLY:
• STRUCTURAL FRAME	0-HR	N/A
• EXTERIOR BEARING WALLS	0-HR	N/A
• INTERIOR BEARING WALLS	0-HR	N/A
• FLOOR/CEILING	0-HR	N/A
• ROOF/CEILING	0-HR	N/A
• FIRE BARRIERS	NONE REQUIRED	
• FIRE PARTITIONS	NONE REQUIRED	
• DOORS	NONE REQUIRED	
• SMOKE PARTITIONS	NONE REQUIRED	

CHAPTER 9 FIRE PROTECTION SYSTEMS

903 AUTOMATIC SPRINKLER SYSTEMS
F-1 NOT REQUIRED

906 PORTABLE FIRE EXTINGUISHERS
IFC TABLE ORDINARY HAZARD TYPE 2-A WITHIN 75' TRAVEL DISTANCE

907 FIRE ALARM AND DETECTION SYSTEMS
907.2 MANUAL FIRE ALARM NOT REQUIRED
907.2.13.2 F-1 NOT REQUIRED

CHAPTER 10 MEANS OF EGRESS

TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT
OCCUPANT LOAD 1:300=3 OCCUPANTS

1006.2.1 1 EXIT REQUIRED; 2 PROVIDED
OCCUPANT LOAD <30; MAX
MAX TRAVEL DISTANCE 75'; ACTUAL 40'

CHAPTER 12 VENTILATION

TABLE
12.03.02 PROVIDE 28.3 SQUARE INCHES OF VENTILATION PER ROOF TRUSS BAY FOR TOTAL OF 566 SQUARE FEET.
50% AT LOW EAVE - 14SF
50% AT HIGH EAVE - 14SF

REVISION	BY	DATE	APPRVL REV

WOLF
ARCHITECTURE
625 S Cobb St Palmer, AK 99645
907.746.6670 | wolfarchitecture.com

TITLE: CODE PLAN

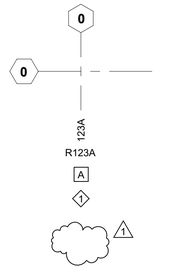
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY:
DATE: 01/16/25
SCALE:

SHEET: G1.1

ARCHITECTURAL MATERIALS



GRID LINE

DOOR IDENTIFICATION

RELITE IDENTIFICATION

WINDOW TYPE

LOUVER TYPE

REVISION

MATCH LINE
Shaded area is side considered

WORK POINT, DATUM POINT, CONTROL POINT

DETAIL
Upper mark denotes drawing number
Lower mark denotes sheet

PARTIAL BUILDING SECTION

BUILDING CROSS SECTION

INTERIOR ELEVATION
Elevation number denoted in arrow
Sheet number denoted in box

ROOM IDENTIFICATION

CODED NOTE

WALL TYPE

EQUIPMENT IDENTIFICATION

DASHED LINE
Used to denote items hidden, overhead, not in contract (NIC), or to be removed

BREAK LINE
Material to continue

CENTER LINE, GRID LINES

PROPERTY LINE

EXISTING CONTOUR, DISTURBED

NEW CONTOUR

EXISTING CONTOUR, UNCHANGED

NEW FINISH GRADE

EXISTING GRADE

TOP OF FOOTING

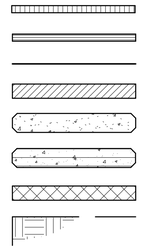
TOP OF WALL

TOP OF CURB

TOP OF PAVEMENT

ARCHITECTURAL MATERIALS

DETAIL INDICATIONS



ACOUSTIC TILE OR BOARD

ASPHALT CONCRETE PAVING

ROOFING

BRICK

CONCRETE

PRECAST CONCRETE

CONCRETE MASONRY UNIT

EARTH / FINISH GRADE

GLASS

GRAVEL

GYPSUM BOARD

INSULATION, BATT

INSULATION, RIGID

MORTAR, PLASTER, SAND

MDF

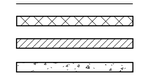
PLYWOOD

WOOD, FINISH

WOOD FRAMING
Continuous member

WOOD FRAMING
Interrupted member

PLAN INDICATIONS



STUD WALL

BRICK

CONCRETE MASONRY UNIT

CONCRETE

ABBREVIATIONS

∠	ANGLE
℄	CENTERLINE
#	POUND, NUMBER
&	AND
@	AT
°	DEGREE
±	PLUS / MINUS
Ø	DIAMETER
A/C	AIR CONDITIONING
AB	ANCHOR BOLT
AC	ASPHALT CONCRETE
ACOUS	ACOUSTICAL
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AJ	ACCENT JOINT
AL	ALUMINUM
ALT	ALTERNATE
ANC	ANCHOR(AGE)
APC	ACOUSTICAL PANEL CEILING
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
AUTO	AUTOMATIC
AWP	ACOUSTICAL WALL PANEL
BD	BOARD
BET	BETWEEN
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOF	BOTTOM OF FRAME
BOM	BOTTOM OF MASONRY
BOTT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
BUR	BUILT UP ROOF
C	COURSES
CAB	CABINET
CB	CATCH BASIN, CHALKBOARD
CC	CUBICLE CURTAIN & TRACK
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CI	CAST IRON
CIP	CAST-IN-PLACE CONCRETE
CJ	CONTROL JOINT
CLG	CEILING
CLKG	CAULKING
CLO	CLOSET
CLR	CLEAR, COLOR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CLEANOUT
COL	COLUMN
COMBO	COMBINATION TPD, SNR, & SCD
COMP	COMPOSITION, COMPOSITE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
CW	CURTAIN WALL
D	DEEP, DEPTH
DBL	DOUBLE
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPOSAL
DIV	DIVISION
DN	DOWN
DP	DAMPPROOF(ING)
DR	DOOR
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EHD	ELECTRIC HAND/ HAIR DRYER
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	ENTRY MAT
EMB	ENAMELIZED MARKING BOARD
EMER	EMERGENCY
ENCL	ENCLOSURE
EP	ELECTRICAL PANELBOARD, EPOXY PAINT
EPT	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EYEWASH
EWC	ELECTRIC WATER COOLER
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXPO	EXPOSED
EXT	EXTERIOR

ABBREVIATIONS

FA	FIRE ALARM
FAB	FABRICATE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET (RECESSED)
FEC-S	FIRE EXTINGUISHER CABINET (SEMI-RECESSED)
FF	FACTORY FINISHED
FFL	FINISHED FLOOR LINE
FHC	FIRE HOSE CABINET
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR, FLOORING
FLUOR	FLUORESCENT
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOSH	FACE OF SHEATHING
FP	FIREPROOF
FR	FIRE RESISTANT
FRMG	FRAMING
FRP	FIBER REINFORCED PLASTIC
FRTW	FIRE RETARDANT TREATED WOOD
FS	FLOOR SINK
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING
FUT	FUTURE
FWC	FABRIC WALL COVERING
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GEN	GENERAL
GI	GALVANIZED IRON
GL	GLASS
GLB	GLUE LAMINATED BEAM
GLZ	GLAZING
GMU	GLAZED MASONRY UNIT
GND	GROUND
GR	GRADE
GYP	GYPSUM BOARD (SCHEDULES ONLY)
GYP BD	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HOLLOW CORE, HANDICAP (ACCESSIBLE)
HD	HEAD
HDW	HARDWARE
HDWD	HARDWOOD
HORIZ	HORIZONTAL
HSS	HOLLOW STEEL SECTION
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/ VENTILATING/ AIR CONDITIONING
HWH(T)	HOT WATER HEATER (TANK)
I/S	INSIDE
ID	INSIDE DIAMETER (DIM)
INCL	INCLUDE
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INTERCOM	INTERCOMMUNICATION
JAN	JANITOR
JST	JOIST
JT	JOINT
KIT	KITCHEN
L	LENGTH, LONG
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LKR	LOCKER
LMS	LIQUID MARKING SURFACE
LN	LINOLEUM
LT	LIGHT, LEFT
LV	LOUVER
MACH	MACHINE
MATL	MATERIAL
MAX	MAXIMUM
MB	MARKING BOARD
MBR	MEMBER
MC	MEDICINE CABINET
MCSP	MINERAL COMPOSITE SCULPTURAL PANEL
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE, MOP HOLDER
MIN	MINIMUM
MIR	MIRROR
MIR-S	MIRROR W/ SHELF
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MT(D)	MOUNT(ED)
MTL	METAL
MUL	MULLION
N	NORTH
NAT	NATURAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

ABBREVIATIONS

O/S	OUTSIDE
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OCC	OCCUPANT, OCCUPANCY
OD	OUTSIDE DIAMETER (DIM)
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHEAD
OHD	OVERHEAD DOOR
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
PAR	PARALLEL
PB	PEG BOARD
PC	PRECAST
PCC	PORTLAND CEMENT CONCRETE
PCD	PAPER CUP DISPENSER
PERF	PERFORATED
PERP	PERPENDICULAR
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLUMB	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POS	POSITIVE
PR	PAIR
PREFAB	PREFABRICATE(D)
PREFIN	PREFINISH(ED)
PROJ	PROJECT
PS	PROJECTION SCREEN
PT	POINT, PAINT
PTD	PAPER TOWEL DISPENSER
PTDR	COMBINATION PAPER TOWEL DISPENSER & RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVMT	PAVEMENT
PWP	PLASTIC WALL PROTECTION
QT	QUARRY TILE
R	RISER, RADIUS
R&S	CLOSET ROD & SHELF
RAF	RESILIENT ATHLETIC FLOORING
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RDO	ROOF DRAIN; OVERFLOW
REBAR	REINFORCING BAR
RECD	RECEIVED
REF	REFERENCE
REFL	REFLECTED
REFR	REFRIGERATOR
REINF	REINFORCE(D)(ING)
REQD	REQUIRED
RESIL	RESILIENT
RF	ROOF
RFT	RESILIENT FLOORING TILE
RH	ROBE HOOK
RM	ROOM
RO	ROUGH OPENING
RSD	RECESSED SOAP DISPENSER
RST	RUBBER STAIR TREAD
RT	RIGHT
RWL	RAIN WATER LEADER
S	SOUTH
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SD	SOAP DISPENSER
SDG	SIDING
SECT	SECTION
SHR	SHOWER
SHT	SHEET
SHTG	SHEETING / SHEATHING
SIM	SIMILAR
SLR	SEALER
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
SPEC	SPECIFICATION
SQ	SQUARE
SS	SOLID SURFACE
SSK	SERVICE SINK
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STN	STAIN
STOR	STORAGE
STRFT	STOREFRONT
STRUCT	STRUCTURAL
SUB	SUBSTITUTE
SUSP	SUSPENDED
SV	SHEET VINYL
SWC	SANITARY WALL COVERING
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD, TEE
TB	TOWEL BAR, TACK BOARD
TC	TOP OF CURB
TEL	TELEPHONE
TEMP	TEMPORARY
TERR	TERRAZZO
TF	TOP OF FOOTING
THK	THICK
THRU	THROUGH
TOF	TOP OF FRAME
TOM	TOP OF MASONRY
TP	TOP OF PAVEMENT
TPD	TOILET PAPER DISPENSER
TR	TOWEL RACK
TS	TUBE STEEL
TV	TELEVISION
TVB	TELEVISION BRACKET
TW	TOP OF WALL
TYP	TYPICAL

ABBREVIATIONS

UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPT	UNGLAZED PORCELAIN TILE
UR	URINAL
USK	UTILITY SINK
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VENT	VENTILATE
VER	VERIFY
VERT	VERTICAL
VEST	VESTIBULE
VOL	VOLUME
VRB	VENTILATING RUBBER BASE
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST, WIDE, WIDTH
W/	WITH
W/D	WASHER/DRYER
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WH	WALL HUNG
WP	WATERPROOF, WALL PADS
WPTL	WOOD PRESERVATIVE TREATED LUMBER
WS	WEATHER STRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WTR	WATER
WWF	WELDED WIRE FABRIC

REVISION	BY	DATE	APPRVL / REV

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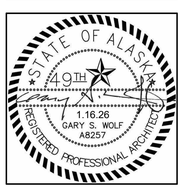
TITLE: ARCHITECTURAL SYMBOLS AND ABBREVIATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA



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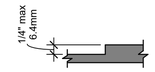
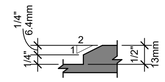
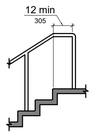


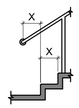
303.2 VERTICAL CHANGE IN LEVEL



303.3 BEVELED CHANGE IN LEVEL

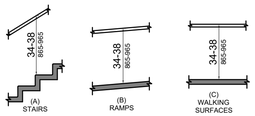


505.10.2
TOP HANDRAIL
EXTENSION AT STAIRS

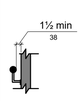


note: X = tread depth

505.10.3
BOTTOM HANDRAIL
EXTENSION AT STAIRS

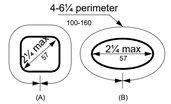


505.4 HANDRAIL HEIGHT



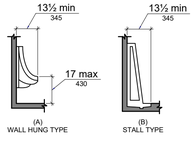
505.5 HANDRAIL
CLEARANCE

505.6 HORIZONTAL
PROJECTIONS BELOW
GRIPPING SURFACE

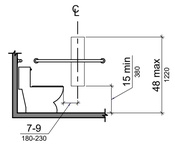


505.7.2 HANDRAIL NON-
CIRCULAR CROSS SECTION

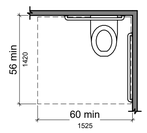
602.5
DRINKING FOUNTAIN
SPOUT LOCATION



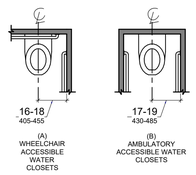
605.2 HEIGHT AND DEPTH OF URINALS



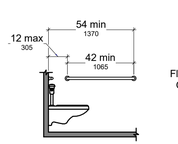
604.7 DISPENSER OUTLET LOCATION



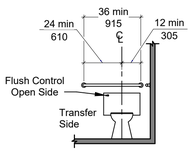
604.3.1 SIZE OF CLEARANCE AT WATER CLOSETS



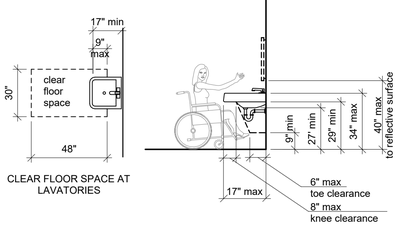
604.2 WATER CLOSET LOCATION



604.5.1 SIDE WALL GRAB BAR
AT WATER CLOSETS

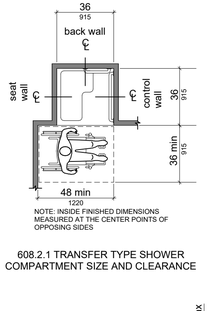


604.5.2 REAR WALL GRAB BAR
AT WATER CLOSETS



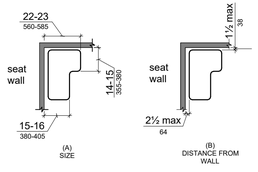
CLEAR FLOOR SPACE AT
LAVATORIES

LAVATORY CLEARANCE

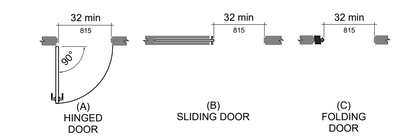


NOTE: INSIDE FINISHED DIMENSIONS
MEASURED AT THE CENTER POINTS OF
OPPOSING SIDES

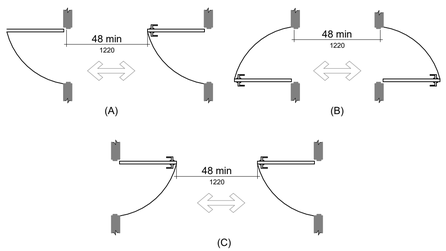
608.2.1 TRANSFER TYPE SHOWER
COMPARTMENT SIZE AND CLEARANCE



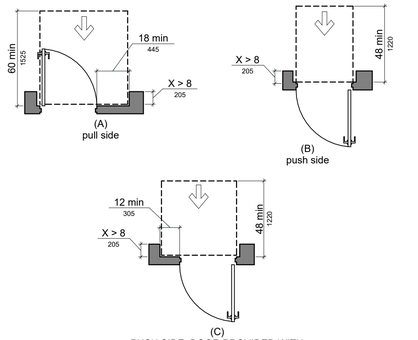
610.3.2 L-SHAPED SHOWER SEAT



404.2.3 CLEAR WIDTH OF DOORWAYS

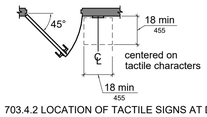


404.2.6 DOORS IN SERIES AND GATES IN SERIES

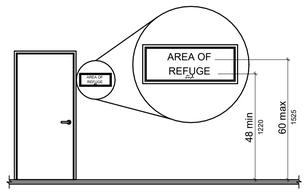


PUSH SIDE, DOOR PROVIDED WITH
BOTH CLOSER AND LATCH

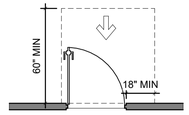
404.2.4.3 MANEUVERING CLEARANCES AT RECESSED DOORS AND GATES



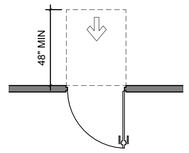
703.4.2 LOCATION OF TACTILE SIGNS AT DOORS



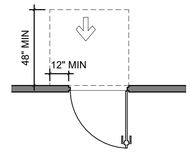
703.4.1 HEIGHT OF TACTILE CHARACTERS ABOVE FINISH FLOOR OR GROUND



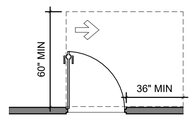
(A)
FRONT APPROACH, PULL SIDE



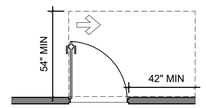
(B)
FRONT APPROACH, PUSH SIDE



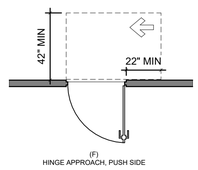
(C)
FRONT APPROACH, PULL SIDE
PROVIDED WITH BOTH **CLOSER AND LATCH**



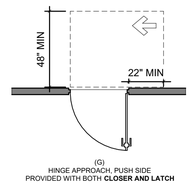
(D)
HINGE APPROACH, PULL SIDE



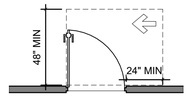
(E)
HINGE APPROACH, PULL SIDE



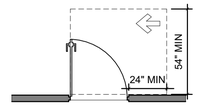
(F)
HINGE APPROACH, PUSH SIDE



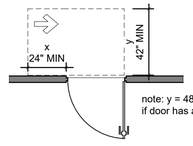
(G)
HINGE APPROACH, PUSH SIDE
PROVIDED WITH BOTH **CLOSER AND LATCH**



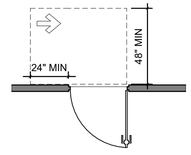
(H)
LATCH APPROACH, PULL SIDE



(I)
LATCH APPROACH, PULL SIDE
DOOR PROVIDED WITH CLOSER

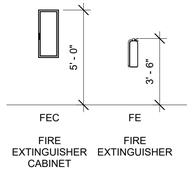


(J)
LATCH APPROACH, PUSH SIDE



(K)
LATCH APPROACH, PUSH SIDE,
DOOR PROVIDED WITH **CLOSER**

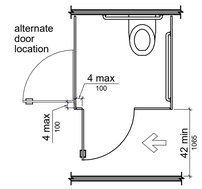
404.2.4.1 MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES



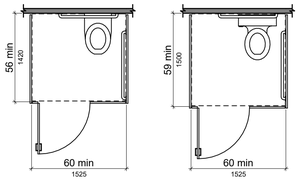
FIRE
EXTINGUISHER
CABINET

FIRE
EXTINGUISHER

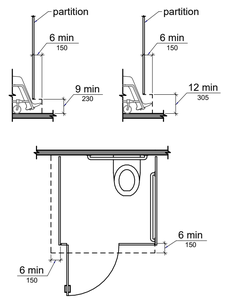
MOUNTING HEIGHTS



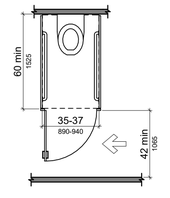
604.8.1.2 WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT DOORS



604.8.1.1 SIZE OF WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT



604.8.1.4 WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT TOE CLEARANCE



604.8.2 AMBULATORY ACCESSIBLE
TOILET COMPARTMENT

REVISION	BY	DATE	APPRVL REV

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TITLE
TYPICAL ADA DETAILS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49TH
1.16.26
GARY S. WOLF
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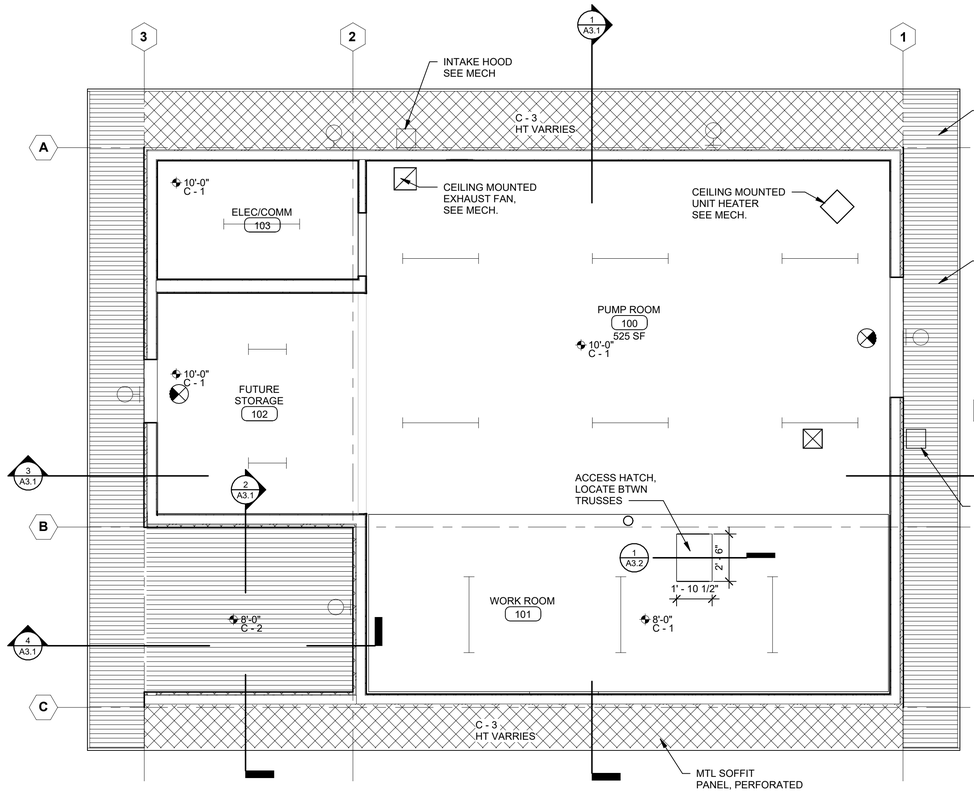
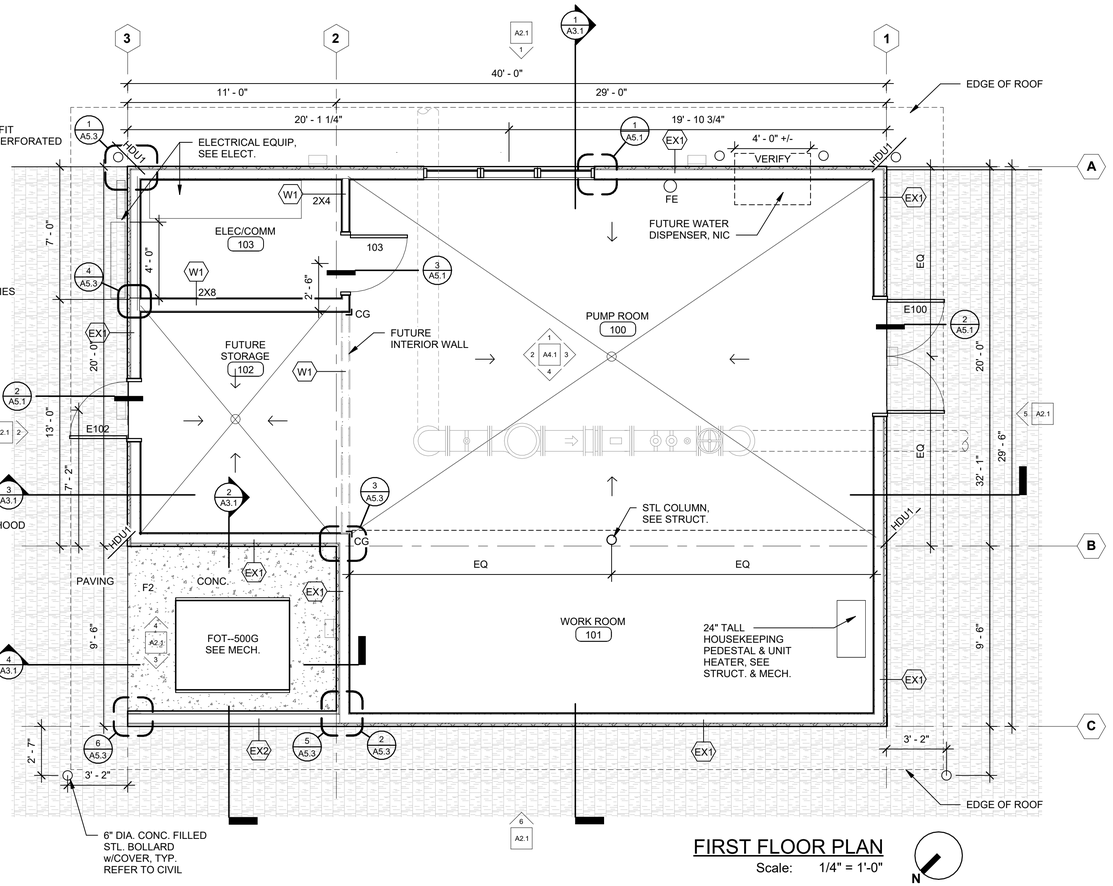
BY:
DATE: 01/16/2026
SCALE:

SHEET
G0.02



FIRST FLOOR REFLECTED CEILING PLAN

Scale: 1/4" = 1'-0"



FIRST FLOOR PLAN

Scale: 1/4" = 1'-0"

GENERAL RCP NOTES

1. SEE FINISH SCHEDULE FOR COLORS.
2. ALL GYP BD CEILINGS AND SOFFITS TO BE PAINTED.
3. EXCEPT AT ELECTRICAL UTILITY ROOMS PAINT ALL EXPOSED DUCTWORK, PIPING AND CONDUITS.
4. CEILING HEIGHT TO BE MEASURED FROM FINISH FLOOR LEVEL OF THE ROOM OR THE AREA WHERE CEILING IS IN.

RCP - CODED NOTES

C - 1 5/8" GWB
C - 2 METAL SOFFIT PANEL
C - 3 PERFORATED METAL SOFFIT PANEL

LEGEND

10'-0" C-1	CEILING HEIGHT (HEIGHTS INDICATED ARE RELATIVE TO 100'-0" FLOOR LEVEL).
	STRIPLIGHT - PENDANT OR SURFACE MTD WALL
OH	SURFACE MOUNTED LIGHT FIXTURES
	SUPPLY DIFFUSERS
	RETURN AIR REGISTER OR EXHAUST FAN
	EXIT LIGHT

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DRAWINGS, DIMENSIONS, SPECIFICATIONS, AND SCHEDULES PRIOR TO PROCEEDING WITH ANY WORK OF FABRICATION. NOTIFY ARCHITECT IMMEDIATELY OF ANY UNCERTAINTY OR DISCREPANCY.
2. DRAWINGS SHALL NOT BE SCALED.
3. WHERE NOTES ON THE DRAWINGS INDICATE A CONDITION AT ONE LOCATION, WHETHER INDICATED AS TYPICAL OR NOT, THE NOTE SHALL APPLY TO ALL SIMILAR LOCATIONS UNLESS NOTED OTHERWISE.
4. SEE SHEET G0.01 FOR SYMBOLS, ABBREVIATIONS, ETC.
5. SEE SHEET G0.02 FOR TYPICAL ADA DETAILS AND CLEARANCES.
6. SEE SHEET G0.02 FOR TYPICAL ACCESSORY MOUNTING HEIGHTS.
7. DIMENSIONS ARE TYPICALLY TAKEN TO GRID LINE, FACE OF STUD WALL, UNLESS NOTED OTHERWISE OR INDICATED ON DETAILS. A DIMENSION NOTING "5'-0" CLEAR" WOULD DENOTE FACE OF FINISH.
8. WALL TYPES W1 UNLESS NOTED OTHERWISE.

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TITLE: FIRST FLOOR & REFLECTED CEILING PLANS

PROJECT: NEW WELL 5 PUMPING STATION
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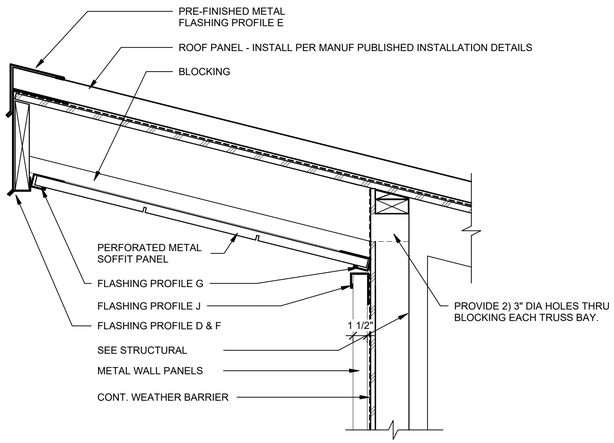
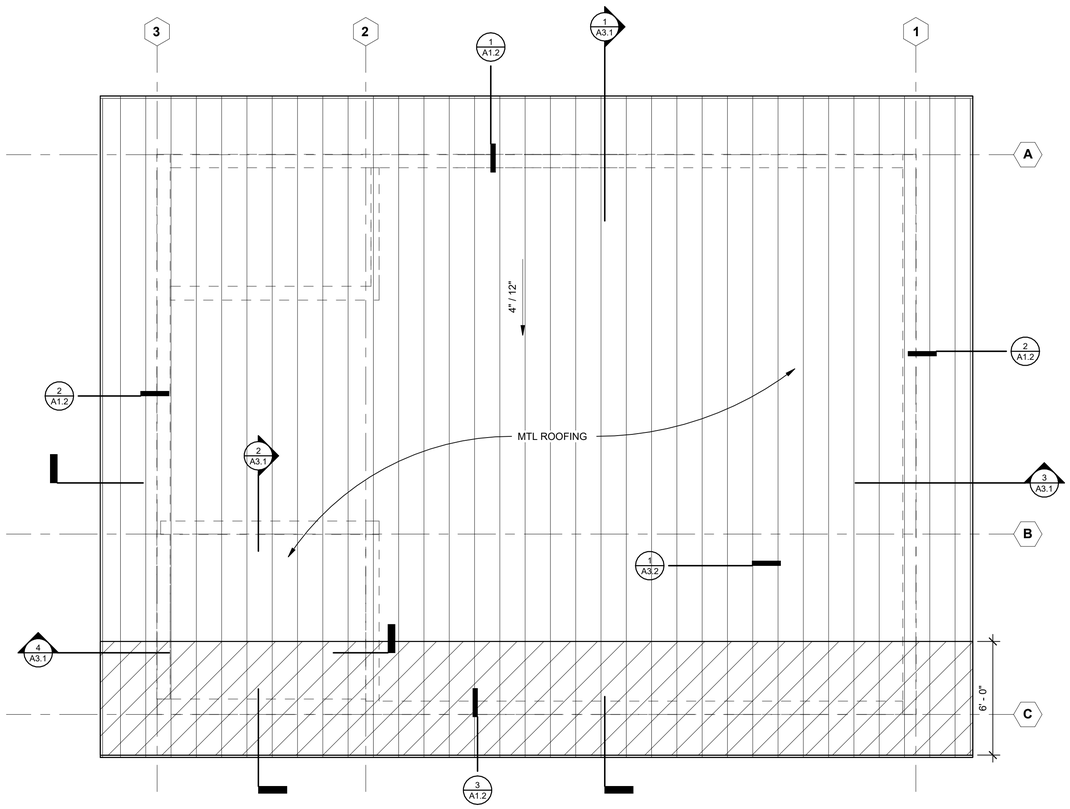
SHEET A1.1



1 TYP - TOP OF EAVE DETAIL

Scale: 1 1/2" = 1'-0"



ROOF PLAN

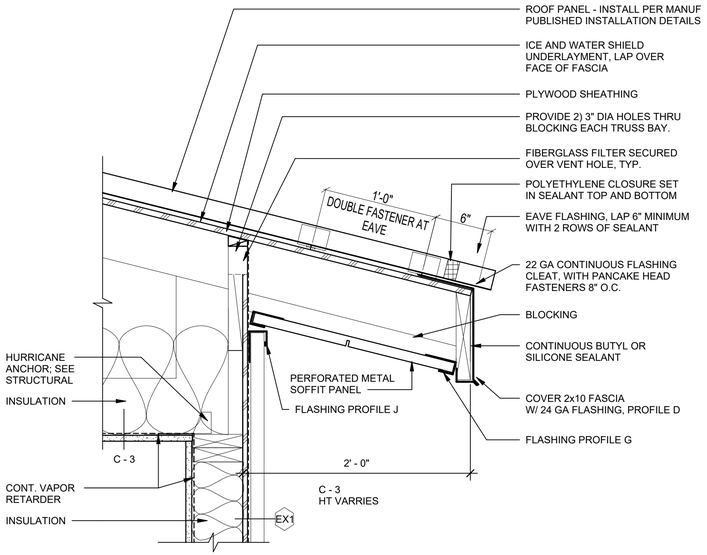
Scale: 1/4" = 1'-0"

N

LEGEND

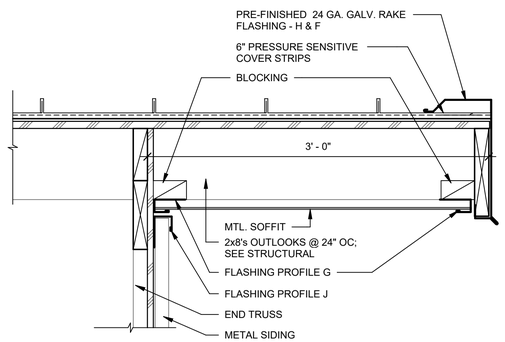
DIRECTION OF SLOPE TO DRAIN

ICE & WATER SHEILD



3 TYP - EAVE DETAIL

Scale: 1 1/2" = 1'-0"



2 TYP - RAKE DETAIL

Scale: 1 1/2" = 1'-0"

GENERAL NOTES

1. SEE G SHEETS FOR TYPICAL ROOF CONSTRUCTION
2. VENTS, EXHAUST, & COWLS ARE MECHANICAL PENETRATION ITEMS. SEE MECHANICAL FOR LOCATIONS, TYPES, SIZES AND QUANTITY OF ALL PENETRATIONS. PENETRATIONS SHALL BE MIN 18" FROM ANY RIDGE VALLEY HIP, OR EDGE OF ROOF.
3. ALL FLASHING & ROOFING TIE-INS TO PLUMBING & HVAC PENETRATIONS ARE BY ROOFING CONTRACTOR.
4. PROVIDE MINIMUM R-38 INSUL AT ALL ROOFS OCCURRING ABOVE INTERIOR BUILDING AREA. SEE DETAILS.
5. SEE EXTERIOR ELEVATIONS FOR ADDITIONAL ROOFING DETAIL INDICATIONS.
6. SEE A5.3 FOR FLASHING DETAILS

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TITLE: ROOF PLAN & DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49TH
1.16.26
GARY S. WOLF
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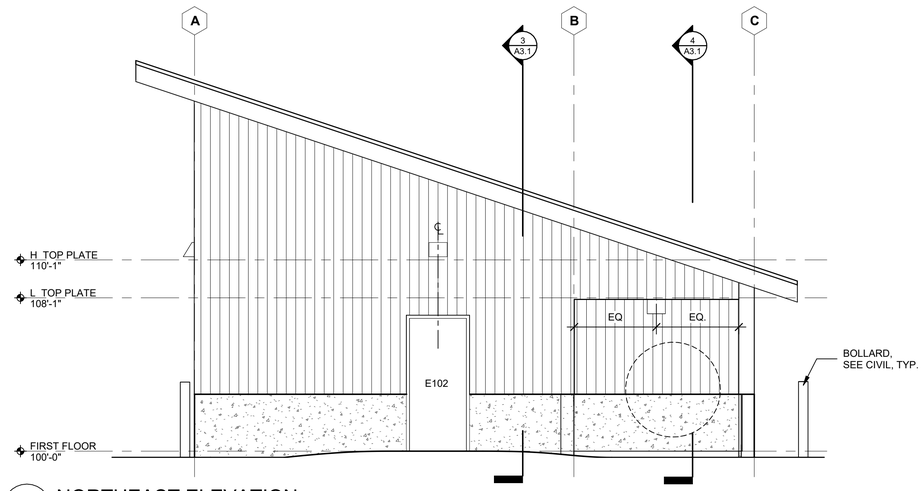
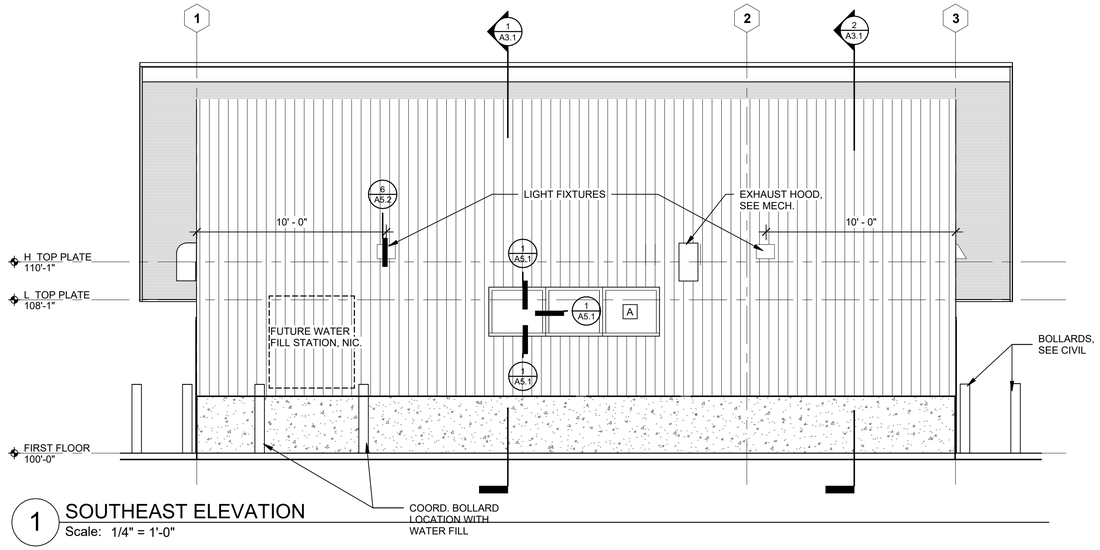
SCALE:

SHEET A1.2



2 NORTHEAST ELEVATION
Scale: 1/4" = 1'-0"



1 SOUTHEAST ELEVATION
Scale: 1/4" = 1'-0"

MATERIALS LEGEND

CAST-IN-PLACE CONCRETE

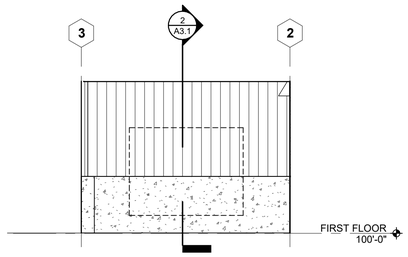
STANDING SEAM METAL ROOFING

VERTICAL METAL SIDING

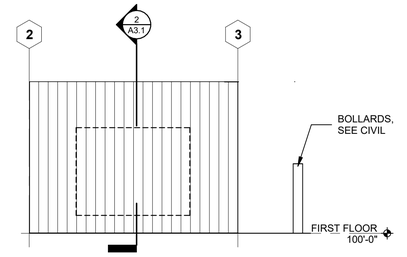
NOTE: THIS LEGEND DOES NOT INCLUDE ALL MATERIALS. SEE NOTES & REFERENCED DETAILS FOR ADDITIONAL INFORMATION.

EXTERIOR ELEVATION GENERAL NOTES

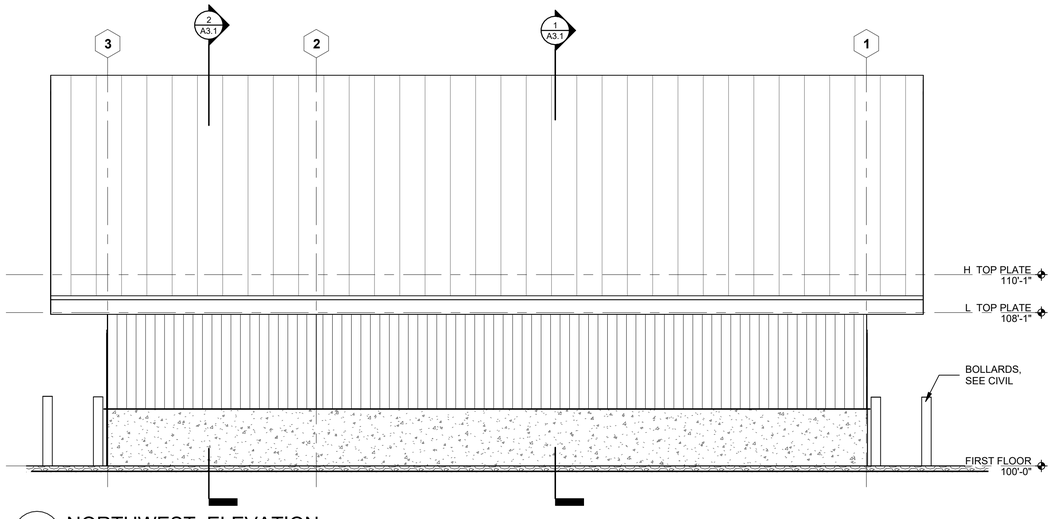
1. LOCATION AND SPACING OF WINDOW MULLIONS, MASONRY CONTROL JOINTS AND COURSE PATTERNS, ETC., ARE TO BE AS SHOWN ON EXTERIOR ELEVATIONS. WHERE NOT DIMENSIONED OR DETAILED, WINDOW MULLIONS AND MATERIAL JOINTS ARE TO BE EQUALLY SPACED AND/OR CENTERED/ALIGNED W/ ADJACENT ELEMENT (MASONRY COLUMN, EDGE OR CENTER LINE OF WINDOW OR DOOR OPENING, ETC.) AS SHOWN.
2. SEE SHEET AX.X FOR ALUMINUM LOUVER TYPES AND SEE MECH FOR COORDINATION WITH DUCTWORK.
3. REFER TO DETAILS FOR DIMENSION REFERENCE POINTS.
4. CJ'S EXTEND FULL HEIGHT OF MASONRY, TYP. WHERE "CJ" IS INDICATED AT INSIDE CORNERS THE JOINT SHALL PENETRATE THE MASONRY SURFACE ON WHICH THE LABEL OCCURS. SEE DETAILS FOR ADDITIONAL CJ LOCATIONS.
5. ALL WINDOW AND LOUVER DIMENSIONS ARE FOR ROUGH OR MASONRY OPENING, UNLESS NOTED OTHERWISE. SEE PLANS FOR ADDITIONAL DIMENSION INFORMATION.
6. 100'-0" IS THE DATUM ELEVATION AND CORRESPONDS TO THE REFERENCED FLOOR SLAB ELEVATION 1078.00'. SEE CIVIL FOR FURTHER INFORMATION.
7. EXTERIOR WALL FINISHES EXTEND FULL HEIGHT TO SOFFITS (NOT SHOWN WHERE EAVES OBSCURE VIEW). SEE BUILDING SECTIONS & DETAILS.
8. SEE REFLECTED CEILING PLANS (RCP) FOR SHEET METAL CLAD SOFFIT COLORS. SHEET METAL CLAD FINS & VERT FACE OF SOFFIT TO MATCH COLOR OF ASSOCIATED SOFFIT AS NOTED ON RCP



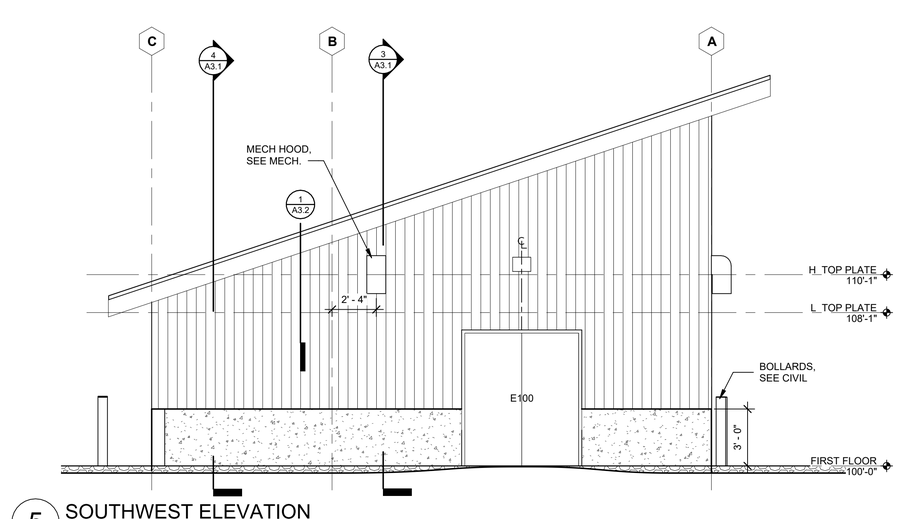
4 NW ELEVATION 2
Scale: 1/4" = 1'-0"



3 SE ELEVATION 2
Scale: 1/4" = 1'-0"



6 NORTHWEST ELEVATION
Scale: 1/4" = 1'-0"



5 SOUTHWEST ELEVATION
Scale: 1/4" = 1'-0"

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TITLE: EXTERIOR ELEVATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49TH
1.16.26
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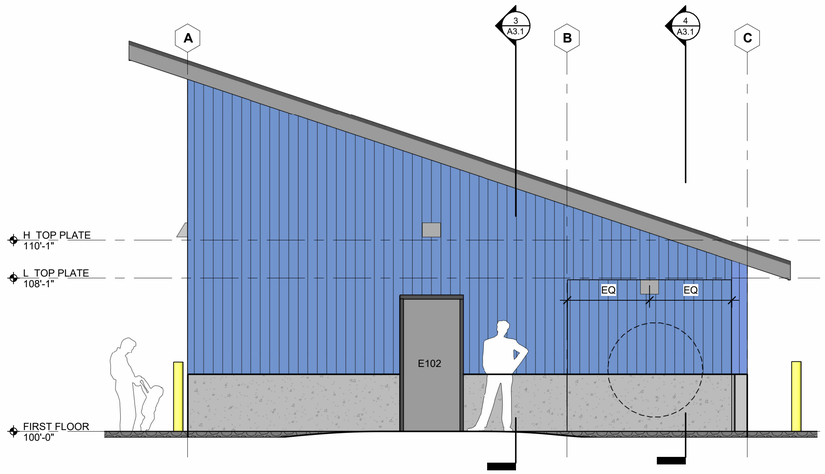
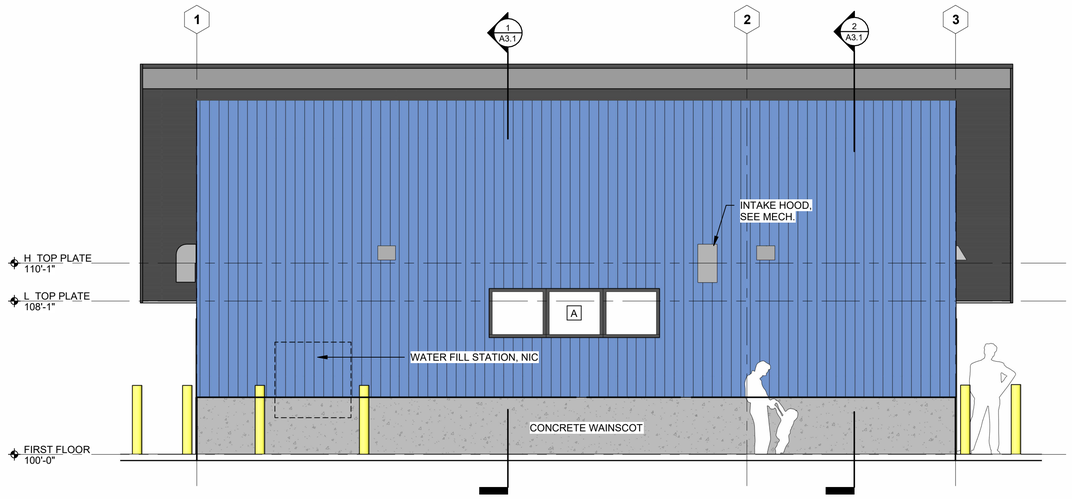
SHEET A2.1



2 NORTHEAST ELEVATION COLOR
Scale: 1/4" = 1'-0"



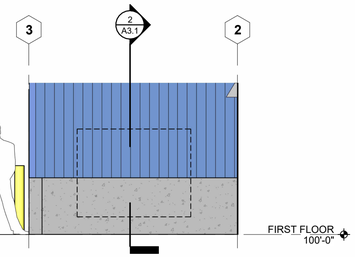
1 SOUTHEAST ELEVATION COLOR
Scale: 1/4" = 1'-0"

MATERIALS LEGEND

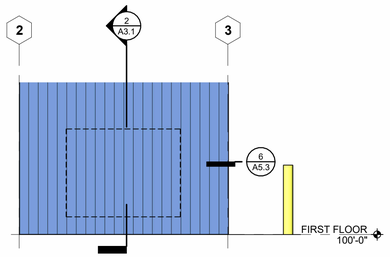
- CAST-IN-PLACE CONCRETE
- STANDING SEAM METAL ROOFING
- VERTICAL METAL SIDING

NOTE: COLORED ELEVATIONS ARE PROVIDED FOR MATERIAL AND FINISH REFERENCE. CONFIRM COLOR SELECTION WITH ARCHITECT AND OWNER PRIOR TO ORDERING MATERIAL.

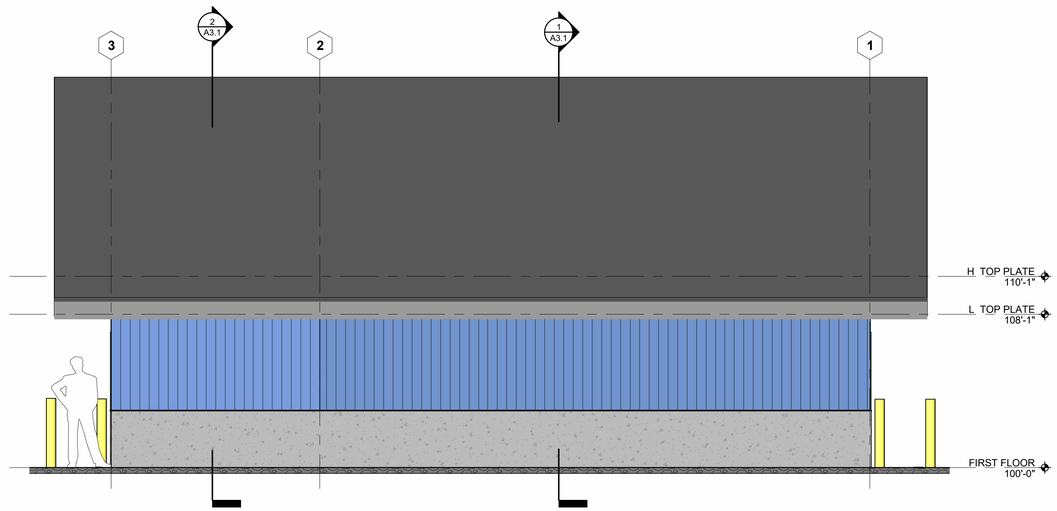
NOTE: THIS LEGEND DOES NOT INCLUDE ALL MATERIALS. SEE NOTES & REFERENCED DETAILS FOR ADDITIONAL INFORMATION.



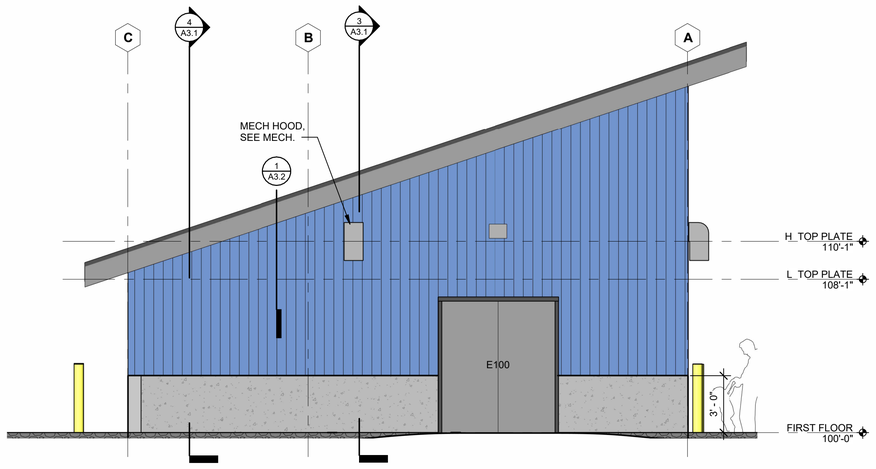
4 NW ELEVATION 2 COLOR
Scale: 1/4" = 1'-0"



3 SE ELEVATION 2 COLOR
Scale: 1/4" = 1'-0"



6 NORTHWEST ELEVATION COLOR
Scale: 1/4" = 1'-0"



5 SOUTHWEST ELEVATION COLOR
Scale: 1/4" = 1'-0"

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TITLE: ELEVATIONS - COLOR

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

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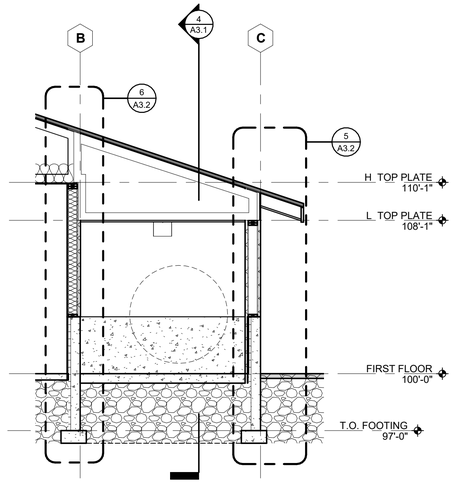
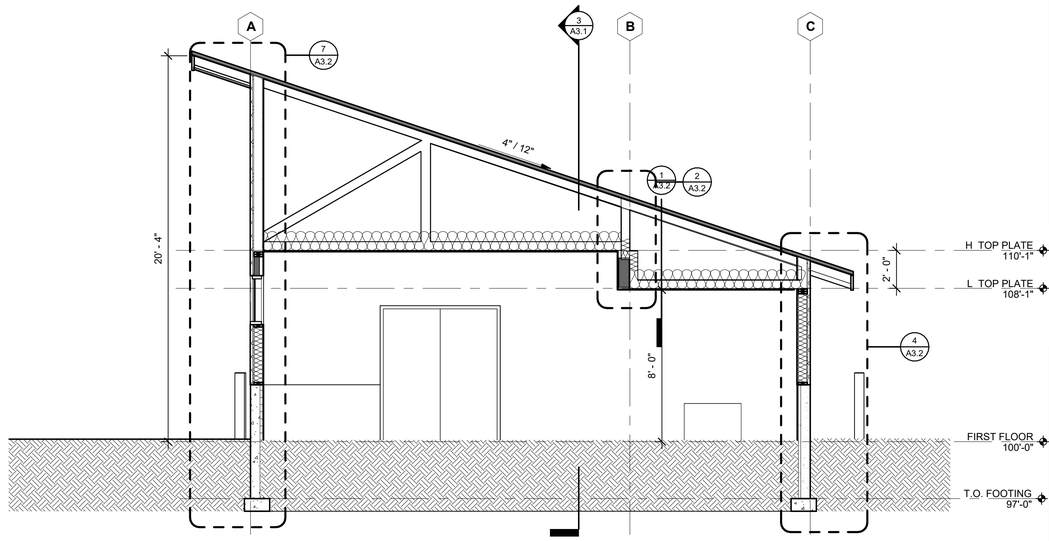
SCALE:

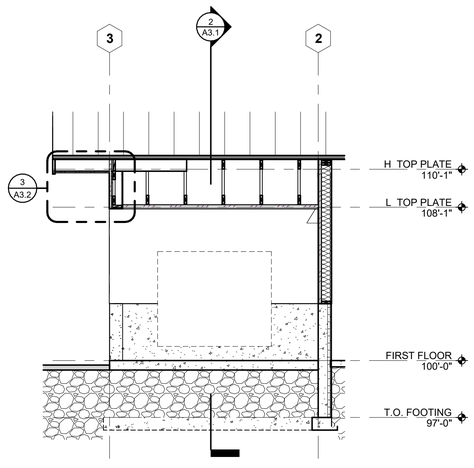
SHEET A2.2



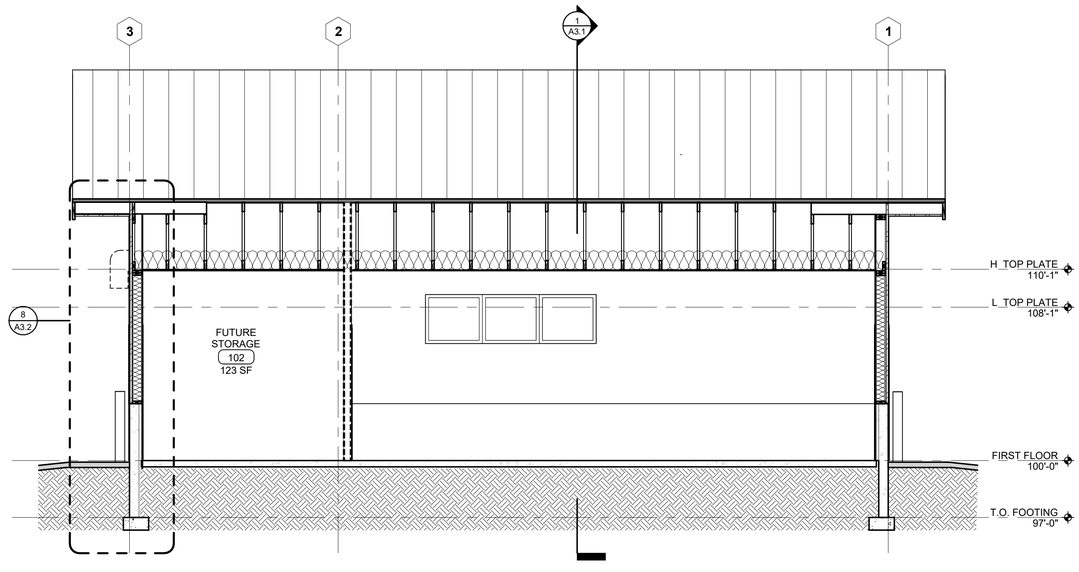
2 BUILDING SECTION 2
Scale: 1/4" = 1'-0"



1 BUILDING SECTION 1
Scale: 1/4" = 1'-0"



4 BUILDING SECTION 4
Scale: 1/4" = 1'-0"



3 BUILDING SECTION 3
Scale: 1/4" = 1'-0"

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TITLE: BUILDING SECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

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STATE OF ALASKA
49TH
1.16.26
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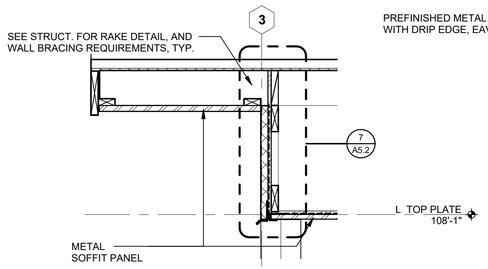
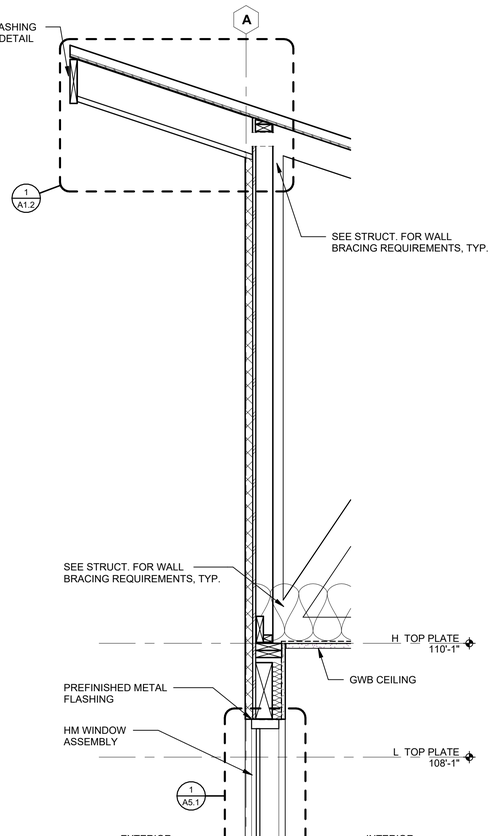
BY:
DATE: 6/30/25
SCALE:

SHEET: A3.1



3 WALL SECTION 2
Scale: 3/4" = 1'-0"



7 WALL SECTION 7
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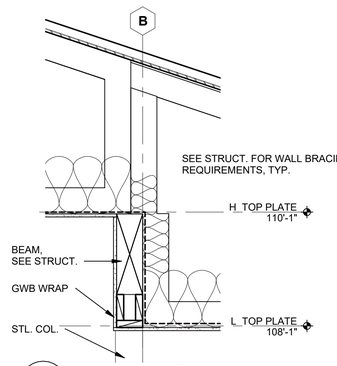
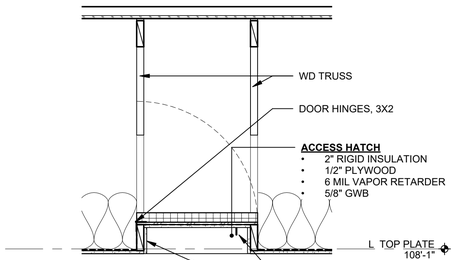


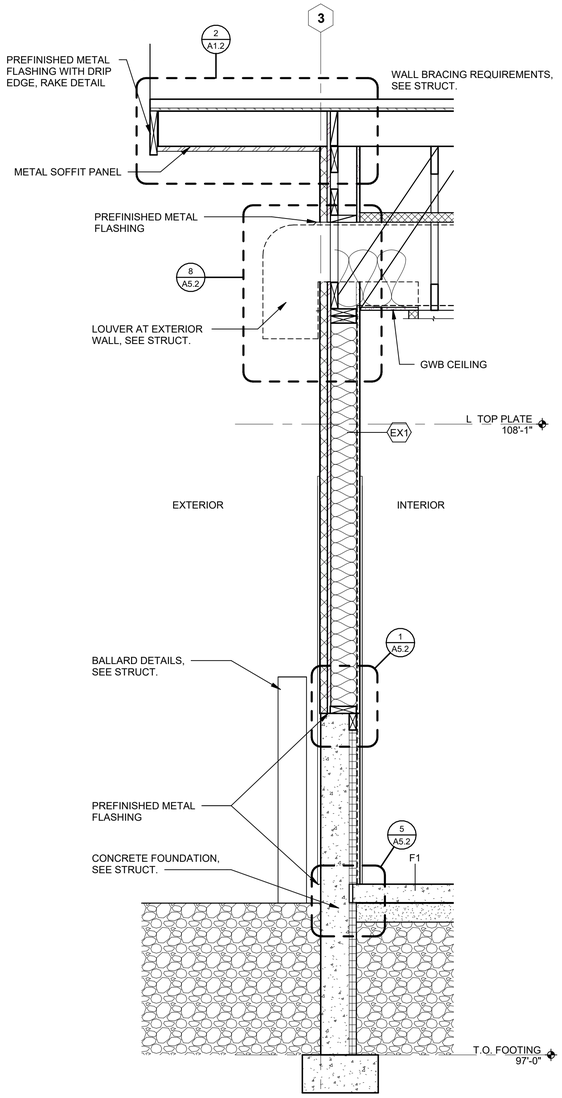
2 WALL SECTION 1
Scale: 3/4" = 1'-0"



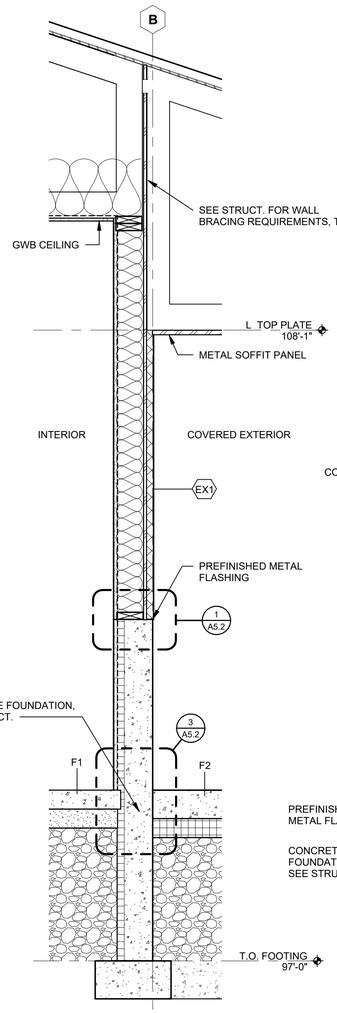
1 ATTIC ACCESS
Scale: 3/4" = 1'-0"

SHEET NOTES:

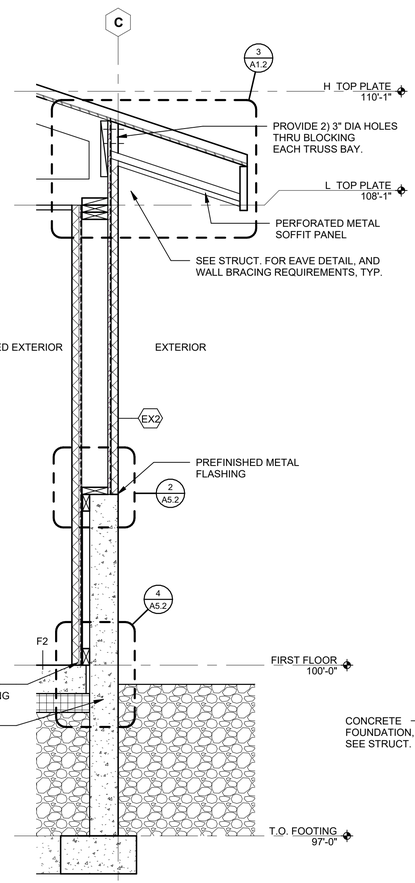
1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



8 WALL SECTION 8
Scale: 3/4" = 1'-0"



6 WALL SECTION 5
Scale: 3/4" = 1'-0"



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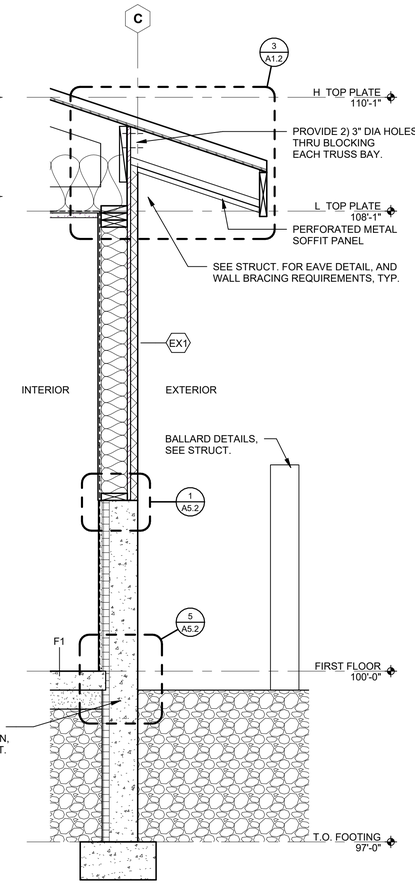

4 WALL SECTION 3
Scale: 3/4" = 1'-0"

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TITLE: WALL SECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

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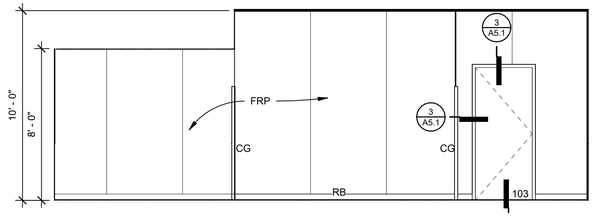
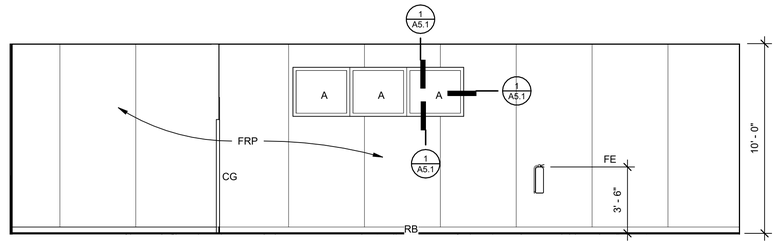
SHEET: A3.2



2 WEST INT. ELEVATION
Scale: 1/4" = 1'-0"



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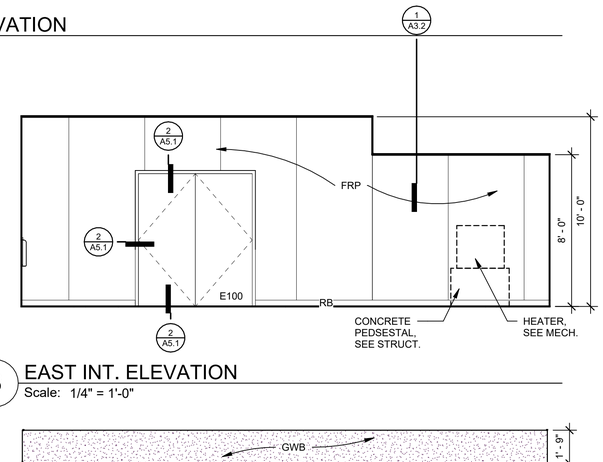
Scale: 1/4" = 1'-0"



3 EAST INT. ELEVATION
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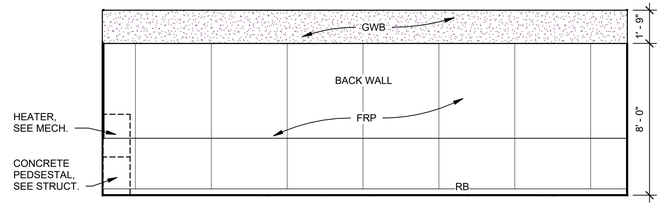

4 SOUTH INT. ELEVATION
Scale: 1/4" = 1'-0"

FINISH MATERIAL SCHEDULE

PAINT	PT-1	SHERWIN WILLIAMS	SW 7649 SILVERPLATE
	PT-2	SHERWIN WILLIAMS	SW 7660 EARL GREY
	PT-3	SHERWIN WILLIAMS	SW 7048 URBANO BRONZE
WALL BASE	RB-1	6" ROPPE	668 NIGHT HAWK
WALL COVERING	FRP	MARLITE STANDARD	LIGHT GREY

FINISH ABBREVIATIONS

AL	ALUMINUM
APC	ACOUSTICAL PANEL CEILING
AWP	ACOUSTICAL WALL PANEL
CLR	COLOR
CONC	CONCRETE
CPT	CARPET
CT	CERAMIC TILE
EM	ENTRY MAT
EP	EPOXY PAINT
EXP	EXPOSED
FF	FACTORY FINISHED
FIN	FINISH
GLZ	GLAZING
GYP	GYPSUM BOARD
LN	LINOLEUM
MATL	MATERIAL
MCSP PANEL	MINERAL COMPOSITE SCULPTURAL
MTL	METAL
PT	PAINT
RAF	RESILIENT ATHLETIC FLOORING
RB	RUBBER BASE
RFT	RESILIENT FLOORING TILE
RSS	RUBBER STAIR STRINGER
SC	SEALED CONCRETE
SLR	SEALER
STL	STEEL
SWC	SANITARY WALL COVERING
SV	SHEET VINYL
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VRB	VENTILATING RUBBER BASE
VWC	VINYL WALL COVERING
WP	WALL PADS

ROOM FINISH SCHEDULE

ROOM NUMBER	NAME	CEILING	FLOOR MAT	BASE CLR	NORTH WALL FIN	EAST WALL FIN	SOUTH WALL FIN	WEST WALL FIN	NOTES
100	PUMP ROOM	GWB	SC	RB	FRP	FRP	FRP	FRP	
101	WORK ROOM	GWB	SC	RB	FRP	FRP	FRP	FRP	
102	FUTURE STORAGE	GWB	SC	RB	FRP	FRP	FRP	FRP	
103	ELEC/COMM	GWB	SC	RB	FRP	FRP	FRP	FRP	

INTERIOR FINISH GENERAL NOTES

1. AN ASTERISK (*) IN THE FINISH SCHEDULE REFERENCES CODED NOTES IN THE REMARKS COLUMN.
2. PAINT ALL INTERIOR MECHANICAL LOUVERS AND EQUIPMENT TO MATCH ADJACENT SURFACE, UNLESS NOTED OTHERWISE.
3. PAINT ALL DOORS PAINT COLOR PT-3
4. PAINT ALL DOOR & RELITE FRAMES PAINT COLOR PT-2 UNLESS NOTED OTHERWISE.
5. ALL GYP BD CEILINGS TO BE PAINT PT-1, UNO.
6. FOR ALL PRODUCTS, FOLLOW MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
7. ELEVATED CONCRETE PEDESTAL TO BE SEALED CONCRETE.

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TITLE: INTERIOR ELEVATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

103

STATE OF ALASKA
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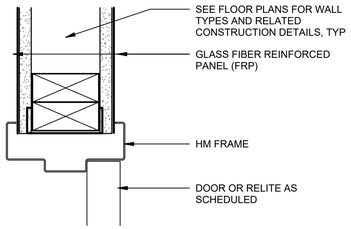
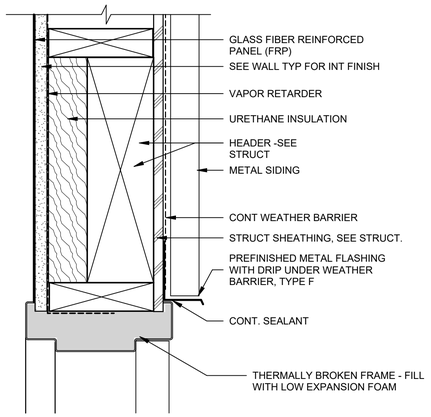


HEAD DETAIL



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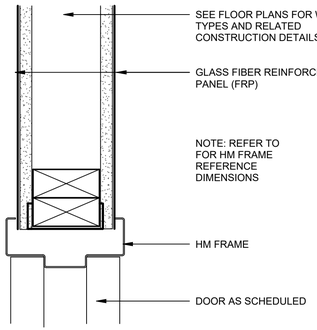
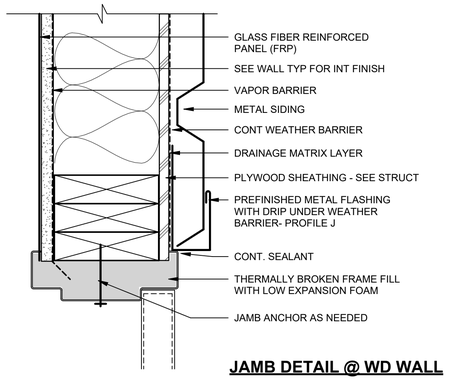
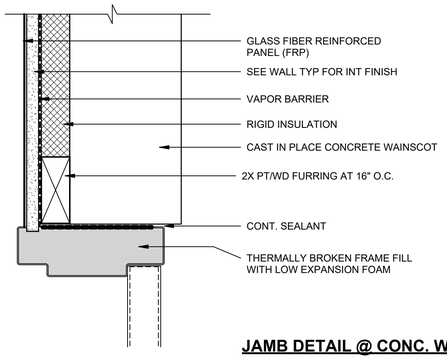


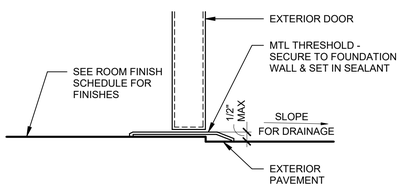
JAMB DETAIL



JAMB DETAIL @ WD WALL



JAMB DETAIL @ CONC. WAINSCOT



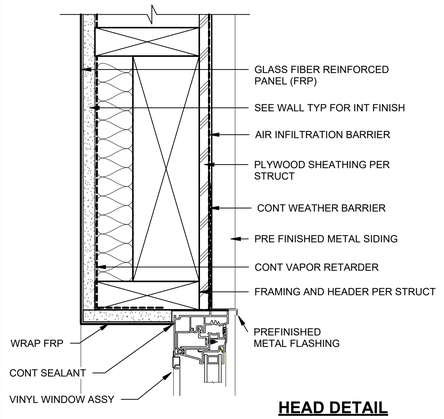
SILL DETAIL

3 INTERIOR DOOR - HM HJS TYP.
Scale: 3" = 1'-0"

2 EXTERIOR DOOR - HM HJS TYP
Scale: 3" = 1'-0"

SHEET NOTES:

1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



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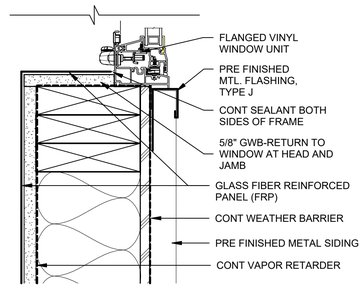

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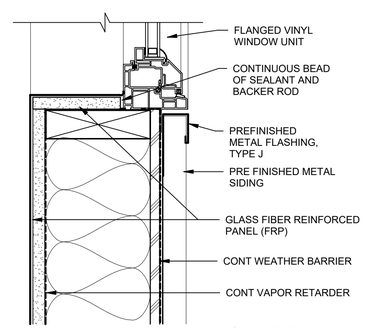

SILL DETAIL

1 EXTERIOR WINDOW - VINYL MTL HJS
Scale: 3" = 1'-0"

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TITLE: WINDOW & DOOR DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49TH
1.16.26
GARY S. WOLF
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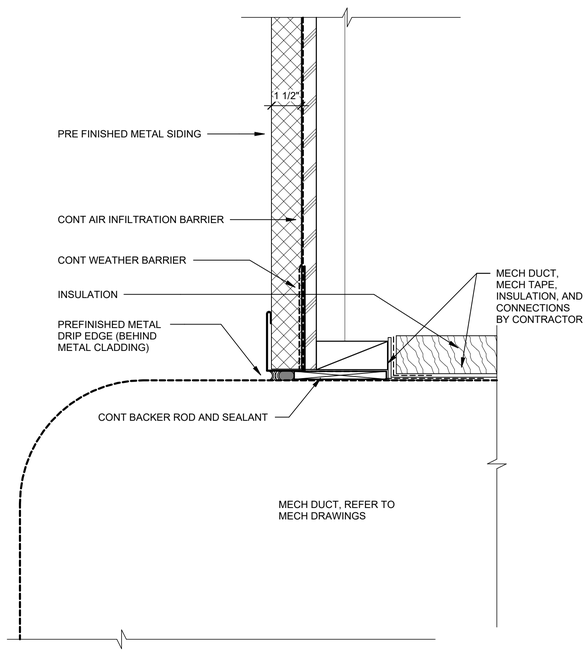
BY:
DATE: 01/16/2026
SCALE:

SHEET: A5.1



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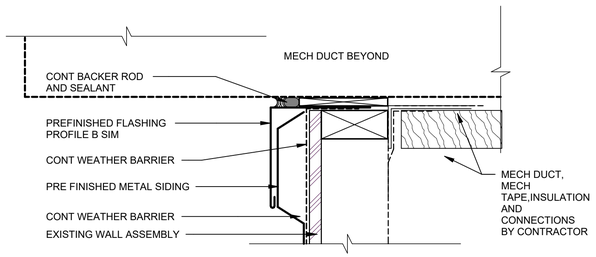

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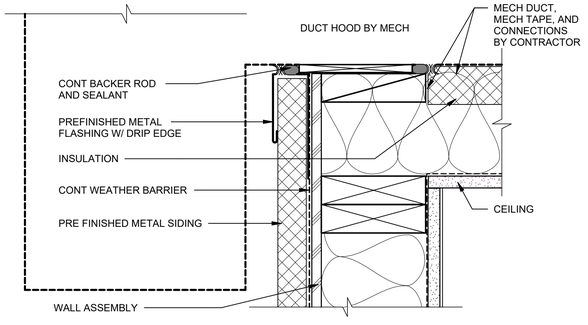
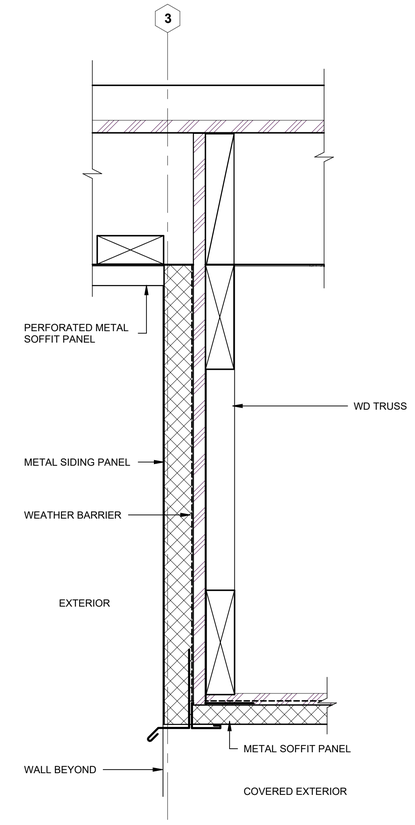


SILL DETAIL

8 LOUVER AT EXTERIOR WALL
Scale: 3" = 1'-0"

SHEET NOTES:

1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



7 WALL DETAIL 7 - RAKE
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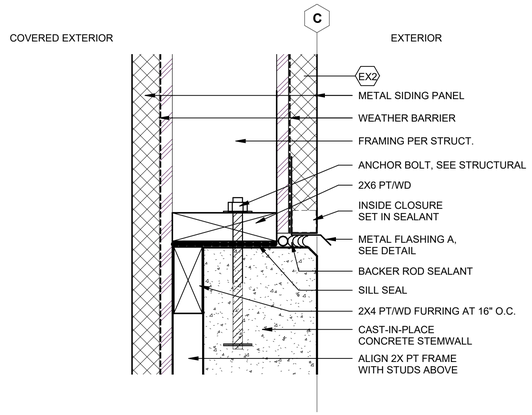
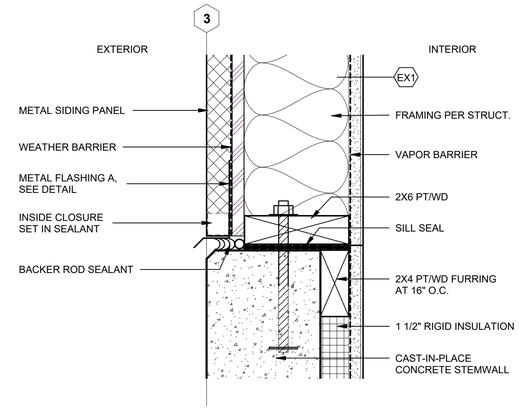
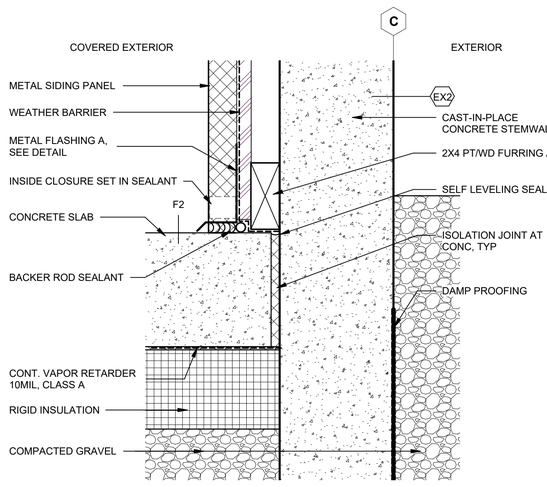


2 EXT. WALL - UPPER
Scale: 3" = 1'-0"



1 WALL DETAIL 1
Scale: 3" = 1'-0"



4 EXT. WALL - BASE
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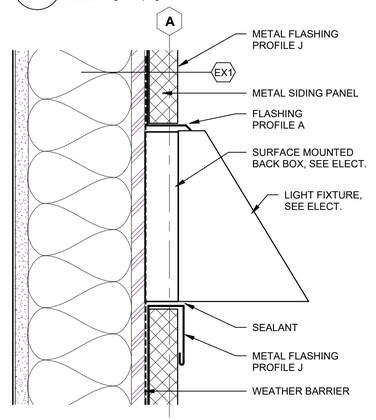

6 LIGHT FIXTURE DETAIL, TYP.
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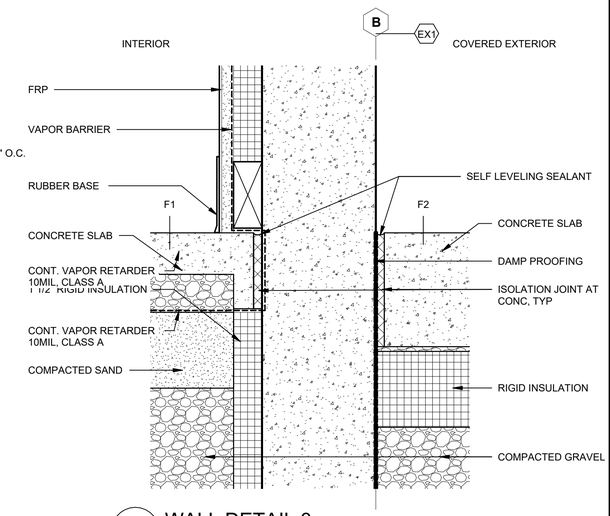

3 WALL DETAIL 3
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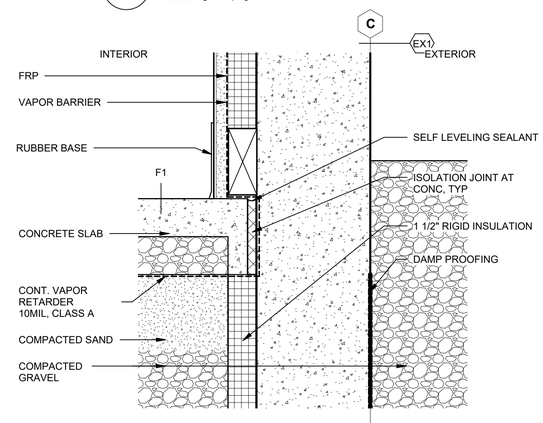

5 WALL DETAIL 5
Scale: 3" = 1'-0"

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TITLE: WALL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

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STATE OF ALASKA 49TH 1.16.26 GARY S. WOLF A8257 REGISTERED PROFESSIONAL ARCHITECT

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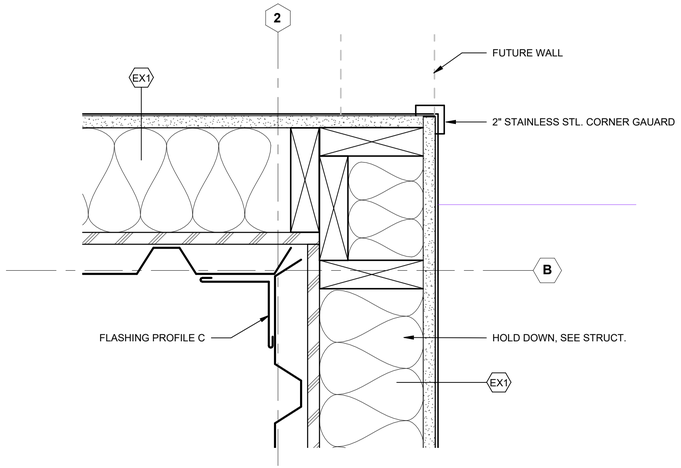
SHEET A5.2



3 PLAN DETAIL 5
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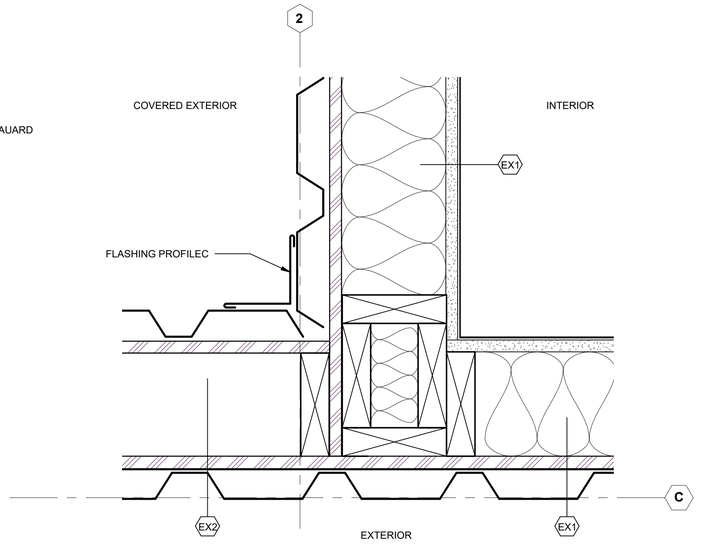
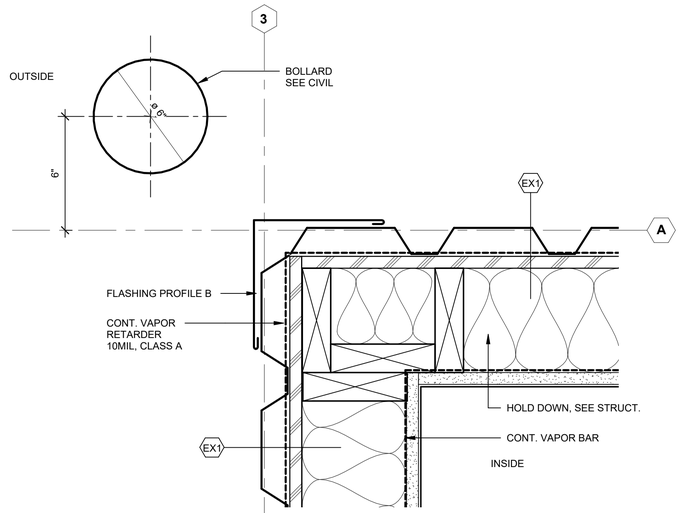


2 PLAN DETAIL 6 UPPER
Scale: 3" = 1'-0"



1 PLAN DETAIL 1
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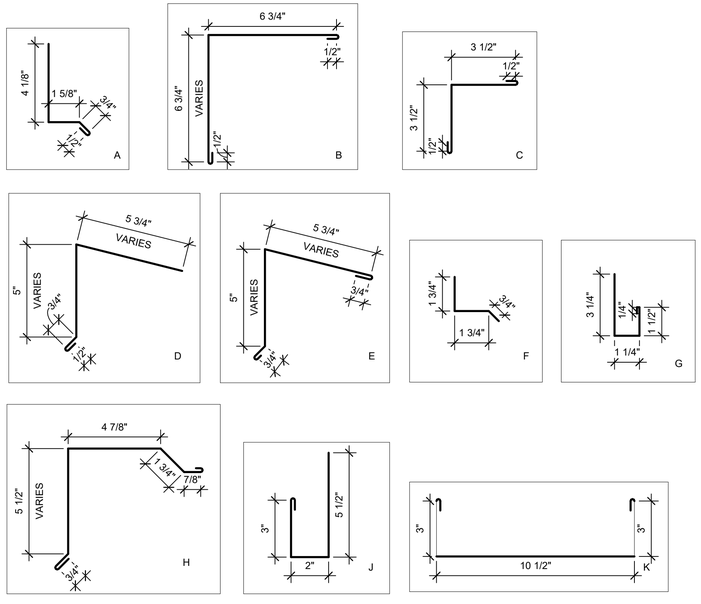
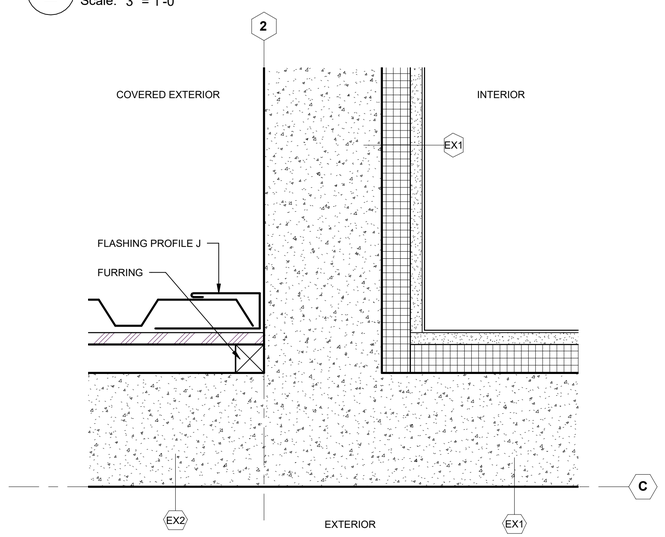
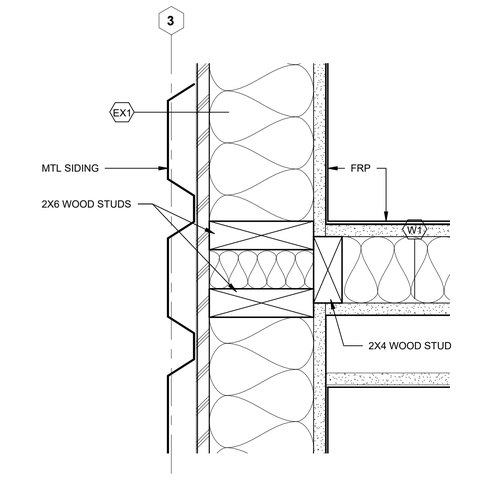


8 FLASHING PROFILES
Scale: 3" = 1'-0"



5 PLAN DETAIL 3 LOWER
Scale: 3" = 1'-0"



4 PLAN DETAIL 2
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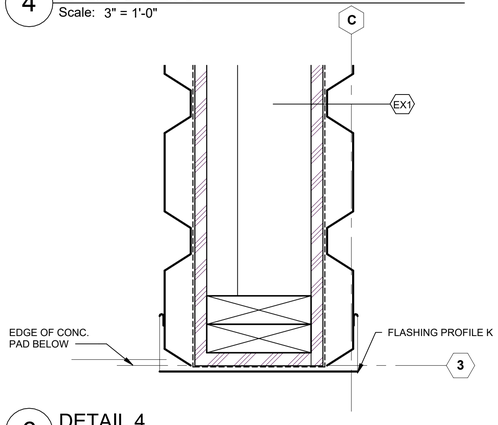

6 DETAIL 4
Scale: 3" = 1'-0"

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TITLE: PLAN DETAILS

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VALDEZ, ALASKA

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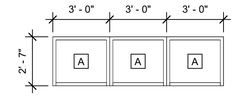
SHEET A5.3



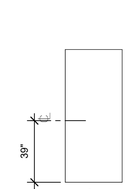
WINDOW TYPE

VINYL WINDOW NOTES:

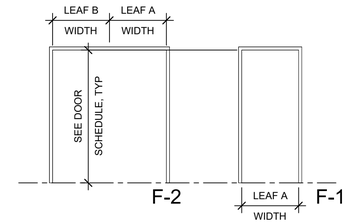
1. BASIS OF DESIGN - JELDWEN, PREMIUM, LOW-E 366, ARGON
   U-VALUE - 0.27 OR LOWER
   SHGC - 0.24 OR LOWER
   VT - 0.55 OR HIGHER
   FINISH - DK BRONZE
2. GLASS TYPE - CARDINAL 366 OR EQUAL

MAN DOOR SCHEDULE

DOOR NO	TO ROOM	PR	DOOR LEAF A	DOOR LEAF B	DOOR HT	DOOR			FRAME			HARDWARE GROUP	REMARKS / CODED NOTES
						TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
103	ELEC/COMM		3'-0"	0"	7'-0"	A	STL	PT	F-1	STL	PT	01	
E100	PUMP ROOM	PR	3'-0"	3'-0"	7'-0"	A	STL	PT	F-2	STL	PT	03	INSULATED/THERMALLY BROKEN
E102	FUTURE STORAGE		3'-0"	0"	7'-0"	A	STL	PT	F-1	STL	PT	02	INSULATED/THERMALLY BROKEN



DOOR - TYPES



FRAME TYPES - DOOR

DOOR ABBREVIATIONS

AL	ALUMINUM
BOF	BOTTOM OF FRAME
FF	FACTORY FINISH
GL	GLASS
H	HINGE (JAMB)
HR	HOUR
MFR	MANUFACTURER
PL	PLASTIC LAMINATE
PR	PAIR OF DOORS
PT	PAINT
S	STRIKE (JAMB)
SST	STAINLESS STEEL
STL	STEEL
STN	STAIN & VARNISH
TOF	TOP OF FRAME
WD	WOOD

GENERAL DOOR & RELITE NOTES

1. ALL DOORS TO BE 1 3/4" THICK, UNLESS NOTED OTHERWISE
2. SEE SHEET A5.1 FOR INTERIOR STEEL FRAME DOOR AND RELITE DETAILS
3. LABEL COLUMN NUMBERS INDICATES THE RATING IN MINUTES, UNLESS NOTED OTHERWISE
4. GLAZING DIMENSIONS FOR DOOR TYPES ARE TO INSIDE OF FRAME (CLEAR GLAZING AREA). ACTUAL CUTOUT AND TOTAL FRAME WILL BE SLIGHTLY LARGER
5. RELITE GLAZING AND STOP TO OCCUR ON CORRIDOR SIDE OF FRAME, UNLESS NOTED OTHERWISE
6. ALL DOOR HANDLES TO BE LEVER TYPE COMPLYING WITH ADA
7. DOORS AND FRAMES ARE TO BE PAINTED

REVISION	BY	DATE	APPRVL REV

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TITLE: SCHEDULES

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

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BY:
DATE: 1/16/26
SCALE:

SHEET: A6.1

ABBREVIATIONS

AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
APA	AMERICAN PLYWOOD ASSOCIATION
ARCH	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLKG	BLOCKING
BM	BEAM
BNDRY	BOUNDARY
BOC	BOTTOM OF CONCRETE
BOD	BOTTOM OF DECK
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BTWN	BETWEEN
CIP	CAST IN PLACE (CONCRETE)
CJP	COMPLETE JOINT PENETRATION
CLR	CLEAR
COL	COLUMN
CONN	CONNECTION
CONT	CONTINUOUS
CVN	CHARPY V NOTCH
DIAM	DIAMETER
DWGS	DRAWINGS
(E)	EXISTING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
EOR	ENGINEER OF RECORD
EW	EACH WAY
EQ	EQUAL
F'C	CONCRETE COMPRESSIVE STRENGTH
F'M	MASONRY COMPRESSIVE STRENGTH
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FT	FEET
FTG	FOOTING
GA	GAGE OR GAUGE
GALV	GALVANIZED
GLB	GLUE-LAMINATED BEAM
HORIZ	HORIZONTAL
HS	HEADED STUD
HSH	HORIZONTAL SLOTTED HOLE
HSS	HOLLOW STRUCTURAL SECTION
LVL	LAMINATED VENEER LUMBER
MAX	MAXIMUM
MECH	MECHANICAL
MF	MOMENT FRAME
MIN	MINIMUM
MT	MAGNETIC PARTICLE STRIP
NA	NOT APPLICABLE
NFS	NON FROST SUSCEPTIBLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OWSJ	OPEN WEB STEEL JOIST
PDF	POWER DRIVEN FASTENER
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REQ'D	REQUIRED
REINF	REINFORCING
RT	RADIOGRAPHIC TEST
SDI	STEEL DECK INSTITUTE
SJI	STEEL JOIST INSTITUTE
SQ	SQUARE
STD	STANDARD
TBD	TO BE DETERMINED
TEMP	TEMPERATURE
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TS	TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC
VERT	VERTICAL
W	WIDE FLANGE DESIGNATION
WF	WIDE FLANGE
WP	WORK POINT
WWF	WELDED WIRE FABRIC
W/	WITH

SCHEDULE OF CONSTRUCTION MATERIALS

CONCRETE	LOCATION	28-DAY STRENGTH	MAX. W/C RATIO	AIR ENTRAINMENT
	EXTERIOR CONCRETE (EXPOSED TO FREEZING)	4,500 P.S.I.	0.45	6% +/- 1%
	INTERIOR SLABS (NOT EXPOSED TO FREEZING)	4,000 P.S.I.	0.45	3%
	FOOTINGS, FOUNDATION WALLS	3,000 P.S.I.	0.50	5% +/- 1%
	NOTE: CONCRETE DESIGN PERFORMED USING 3000 P.S.I.			

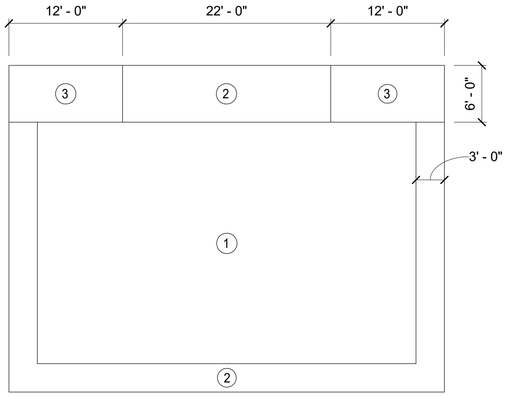
REINFORCING	APPLICATION	TYPE	COMMENTS
	FABRICATED AND STRAIGHT BARS	ASTM A615, GRADE 60	SEE LAP SPLICE SCHEDULE FOR LAP LENGTHS
	FIELD BENT	ASTM A615, GRADE 40	

STRUCTURAL STEEL	APPLICATION	TYPE	GRADE	Fy
	ANCHOR RODS	ASTM F1554	GRADE 36	
	HSS COLUMNS	ASTM A500	GRADE C	46 KSI ROUND
	PLATES	ASTM A572	GRADE 50	50 KSI

WOOD	APPLICATION		SPECIES	GRADE	COMMENTS
	DIMENSION LUMBER	STRUCTURAL WALL STUDS	HEM-FIR	NO. 2	
		PLATES AND LEDGERS	HEM-FIR	NO. 2	
		SAWN BEAMS	DOUG. FIR-LARCH	NO. 1	
		POSTS	DOUG. FIR-LARCH	NO. 1	
		BLOCKING, MISC FRAMING	HEM-FIR	STD & BETTER	

WOOD PANEL SHEATHING	APPLICATION	GRADE	MIN. THICK.	SPAN RATING	EXPOSURE
	ROOF	APA RATED	3/4"	48/24	EXPOSURE 1
	SHEAR WALLS	APA RATED	15/32"	32/16	EXPOSURE 1

ROOF DECK WIND UPLIFT ZONE DIAGRAM



STRUCTURAL DESIGN CRITERIA SCHEDULE

CRITERIA	DESCRIPTION	VALUE	COMMENTS
CODE	IBC 2021		
SEISMIC	ANALYSIS PROCEDURE	ELF	PER ASCE 7-16
	SEISMIC DESIGN CATEGORY	E	
	RISK CATEGORY	II	
	SEISMIC IMPORTANCE FACTOR, IE	1.0	
	SITE CLASS	D-	
	0.2S SPECTRAL RESPONSE ACCELERATION, Ss	1.50	
	1.0S SPECTRAL RESPONSE ACCELERATION, S1	0.77	
	0.2S SPECTRAL RESPONSE COEFFICIENT, Sds	1.20	
	1.0S SPECTRAL RESPONSE COEFFICIENT, Sd1	0.87	
	STRUCTURAL SYSTEM		LIGHT FRAME WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS
	RELIABILITY/REDUNDANCY	1	
	RESPONSE MODIFICATION FACTOR, R	6.5	
	OMEGA	3	
	Cs (STRENGTH DESIGN)	0.185	
	V (STRENGTH DESIGN)	11.7 KIPS	
WIND	BASIC WIND SPEED (3 SECOND GUST)	133 MPH	PER ASCE 7-16 BASIC WIND SPEED MAP
	RISK CATEGORY	II	
	EXPOSURE FACTOR	C	
	INTERNAL PRESSURE COEFFICIENT, GCpi	±0.18	ENCLOSED BUILDING
COMP. & CLADDING PRESSURES		10 Ft^2 / 100 Ft^2	WIND VALUES SHOWN ARE ULTIMATE LOADS MULTIPLY BY 0.6 FOR ALLOWABLE LOADS
	ROOF INTERIOR - ZONE ①	48.4 PSF 41.9 PSF	VALUES MAY BE NEGATIVE OR POSITIVE
	ROOF PERIMETER - ZONE ②	51.2 PSF 45.1 PSF	VALUES MAY BE INTERPOLATED BETWEEN 10 SQFT AND 100 SQFT
	ROOF CORNER - ZONE ③	100.7 PSF 71.3 PSF	ZONE 5 EXISTS FOR WALLS WITHIN 3 FT OF WALL CORNERS
	WALL INTERIOR - ZONE ④	41.8 PSF 36.1 PSF	
	WALL CORNER - ZONE ⑤	51.6 PSF 40.1 PSF	
ROOF LIVE LOADS	GROUND SNOW LOAD	160 PSF	
	SNOW LOAD EXPOSURE FACTOR	1.0	
	THERMAL FACTOR Ct	1.0	
	SNOW IMPORTANCE FACTOR	1.0	
	FLAT ROOF SNOW LOAD	135 PSF	
	SNOW DRIFT LOADS	PER ASCE 7-16	
FLOOR LIVE LOADS	1ST LEVEL SLAB ON GRADE	100 PSF	
FOUNDATIONS	ALLOWABLE SOIL BEARING PRESSURE	3000 PSF	PRESUMPTIVE BEARING PRESSURE PER IBC TABLE 1806.2

DEFERRED SUBMITTALS

DEFERRED SUBMITTAL ITEMS SHALL BE REVIEWED BY THE EOR AND THEN SUBMITTED TO THE BUILDING OFFICIAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CALCULATION AND DRAWINGS STAMPED BY AN ALASKA REGISTERED PROFESSIONAL ENGINEER FOR THE FOLLOWING CONTRACTOR DESIGNED ITEMS:

- PREMANUFACTURED WOOD TRUSSES
- SEISMIC RESTRAINT OF ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS

AS-BUILT DRAWINGS
CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS ON SITE, MODIFIED TO REFLECT ALL DESIGN CHANGES TO THE ORIGINAL DRAWING SET.

REVISION	BY	DATE	APPRVL REV

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625 South Cobb Street, Suite 202
Palmer, AK 99645
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AK. LIC# AECC250

TITLE: DESIGN CRITERIA

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET: S1.1

STATEMENT OF SPECIAL INSPECTIONS

THE FOLLOWING SPECIAL INSPECTIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL EMPLOYED BY THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT.

SPECIAL INSPECTOR QUALIFICATIONS:
THE SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THEIR COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING.

INSPECTION TASKS:
INSPECTION TASKS ARE LISTED IN THE ATTACHED TABLES AND IN THE 2021 EDITION OF THE IBC CHAPTER 17.

REPORT REQUIREMENTS:
REPORTS SHALL BE COMPLETED ON A DAILY BASIS AND DISTRIBUTED ON A WEEKLY BASIS. COPIES OF REPORTS SHALL BE DISTRIBUTED TO THE GENERAL CONTRACTOR, THE ENGINEER OF RECORD AND THE ARCHITECT OF RECORD. REPORTS SHALL INDICATE WHETHER THE WORK WAS OR WAS NOT COMPLETED IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR. IF THEY ARE NOT CORRECTED, DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.
A FINAL REPORT DOCUMENTING THE SPECIAL INSPECTIONS PERFORMED AND THE CORRECTION OF ANY DISCREPANCIES SHALL BE DISTRIBUTED AS NOTED ABOVE.

REQUIRED INSPECTION OF SOILS

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	PERIODIC	
2	VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	PERIODIC	
3	PERFORM CLASSIFICATION AND TESTING OF FILL MATERIALS.	PERIODIC	
4	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS	
5	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.	PERIODIC	

SPECIAL INSPECTION FOR WIND RESISTANCE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	STRUCTURAL WOOD: FIELD GLUING OF ELEMENTS PART OF THE MAIN WINDFORCE-RESISTING SYSTEM NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WIND FORCE RESISTING SYSTEM INCLUDING: WOOD SHEAR WALLS, DRAG STRUTS, HOLDOWNS AND DIAPHRAGMS.	CONTINUOUS PERIODIC	
2	ARCHITECTURAL COMPONENTS: ROOF AND WALL CLADDING.	PERIODIC	

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REFERENCE FOR CRITERIA	
			REF. STANDARD	IBC REFERENCE
1	INSPECTION OF REINFORCING STEEL AND PLACEMENT	PERIODIC	ACI 318: CH 20, 25.2, 25.3 26.6.1-26.6.3	
2	REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 b. INSPECT SINGLE-PASS FILLET WELDS MAXIMUM 5/16" b. INSPECT ALL OTHER WELDS	 PERIODIC PERIODIC CONTINUOUS	AWS D1.4 ACI 318: 26.6.4	
3	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	PERIODIC	ACI 318: 17.8.2	
4	INSPECTION OF ANCHORS POST INSTALLED IN HARDENED CONCRETE MEMBERS a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4. a.	 CONTINUOUS PERIODIC	 ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5	VERIFY USE OF REQUIRED MIX DESIGN	PERIODIC	ACI 318: CH 19, 26.4.3, 26.4.4	1904.1, 1904.2
6	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	CONTINUOUS	ASTM C172 ASTM C31 ACI 318: 26.5, 26.15	
7	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	ACI 318: 26.5	
8	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TECHNIQUES	PERIODIC	ACI 318: 26.5.3-26.5.5	
9	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	PERIODIC	ACI 318: 26.11.1.2(b)	

SPECIAL INSPECTION FOR SEISMIC RESISTANCE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	STRUCTURAL WOOD: FIELD GLUING OF ELEMENTS PART OF THE MAIN WINDFORCE-RESISTING SYSTEM NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WIND FORCE RESISTING SYSTEM INCLUDING: WOOD SHEAR WALLS, DRAG STRUTS, HOLDOWNS AND DIAPHRAGMS.	CONTINUOUS PERIODIC	
2	ARCHITECTURAL COMPONENTS: ROOF AND WALL CLADDING. INTERIOR AND EXTERIOR NON-BEARING WALLS. INTERIOR AND EXTERIOR VENEER SYSTEMS.	PERIODIC	

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AK. LIC# AECC250

TITLE: SPECIAL INSPECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

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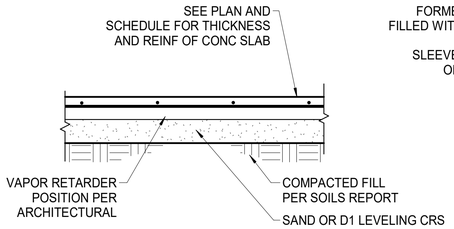
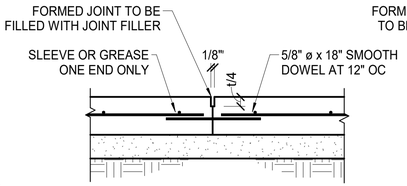
SCALE:

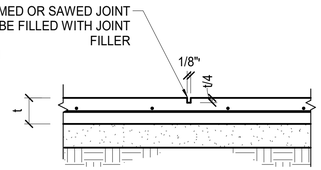
SHEET S1.2



TYPICAL INTERIOR SLAB ON GRADE



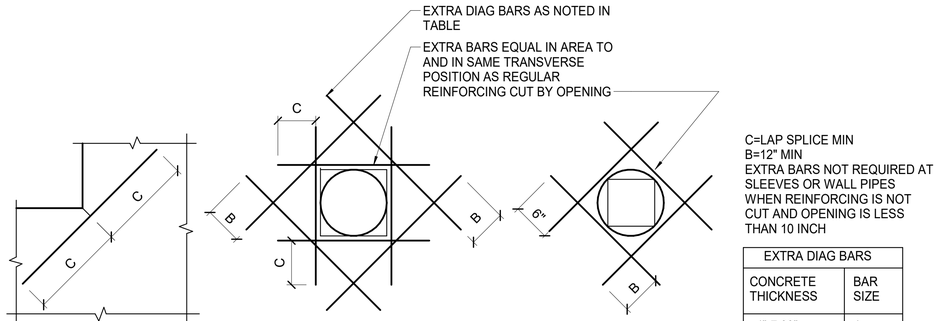
TYPICAL SLAB CONSTRUCTION JOINTS



TYPICAL SLAB CONTROL JOINT

1 TYPICAL SLAB JOINTS

3/4" = 1'-0"



C=LAP SPLICE MIN
B=12" MIN
EXTRA BARS NOT REQUIRED AT SLEEVES OR WALL PIPES WHEN REINFORCING IS NOT CUT AND OPENING IS LESS THAN 10 INCH

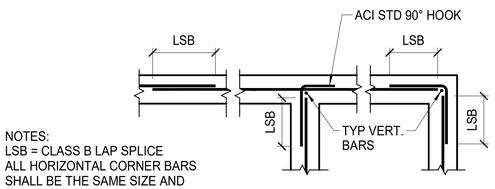
EXTRA DIAG BARS	
CONCRETE THICKNESS	BAR SIZE
4"-7.99"	4
8"-9.99"	5
10"-11.99"	5 T&B
12"-18"	6 T&B

RE-ENTRANT CORNERS

OPENING REINFORCING

2 TYPICAL WALL OPENING REINFORCING

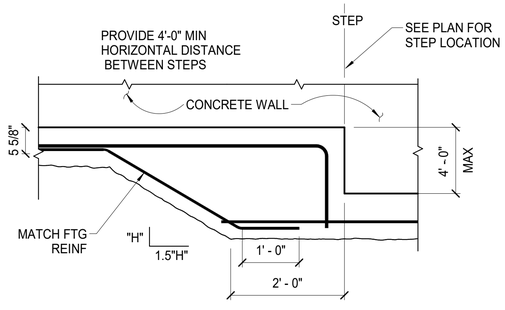
1" = 1'-0"



SINGLE CURTAIN PLAN - 8" WALLS

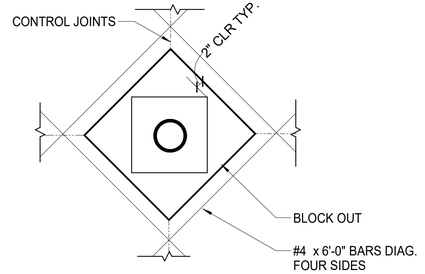
3 TYPICAL WALL CORNER REINFORCING

3/4" = 1'-0"



4 TYPICAL STEP FOOTING

3/4" = 1'-0"



5 COLUMN ISOLATION JOINTS

3/4" = 1'-0"

SLAB REINFORCING SCHEDULE

THICKNESS	TYPE	REINFORCING	CONCRETE COVER
4"	ON GRADE	#3 @ 16" OC EACH WAY	2" FROM TOP
6"	ON GRADE	#3 @ 16" OC EACH WAY	2" FROM TOP

NOTES:

CONCRETE WALL REINFORCING SCHEDULE

MARK	THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING	POSITION	REMARKS
6C	6"	#5 @ 16" OC	#5 @ 12" OC	CENTERED	TYPICAL CONCRETE STEM WALL

NOTES:
ALL HORIZONTAL REINFORCING SHALL TERMINATE AT WALL ENDS, INTERSECTIONS AND JAMBS WITH A STANDARD HOOK.

STRIP FOOTING REINFORCING SCHEDULE

MARK	FTG WIDTH	FTG DEPTH	T.O.F. ELEV.	LONGITUDINAL REINFORCING	TRANSVERSE REINFORCING
SF3	3'-0"	12"	SEE PLAN	(4) #5 TOP & BOTTOM	#5 AT 12" OC

NOTES:

ACI STANDARD 90° HOOK DIMENSIONS

BAR SIZE	#3	#4	#5	#6	#7	#8
MIN. BEND DIAM. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
EXTENSION LENGTH (L)	6"	6"	8"	9"	11"	12"

NOTE: REFERENCE ACI 318-14 SEC. 25.3

LAP SPLICES IN WALLS, FOOTINGS AND SLABS-ON-GRADE (3000 PSI)

BAR SIZE	#3	#4	#5	#6	#7	#8
CLASS B SPLICE	22"	29"	36"	43"	63"	72"

NOTE: INCREASE TABULATED LAP LENGTH BY 20% FOR BUNDLES OF 3 BARS.

REINFORCING CLEARANCE/COVER

EXPOSURE CONDITION	MIN. COVER	TOLERANCE*
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"	-3/8", +1"
EXPOSED TO EARTH OR WEATHER #5 AND SMALLER BARS:	1 1/2"	-1/4", +1/2"
EXPOSED TO EARTH OR WEATHER #6 AND LARGER BARS:	2"	-1/4", +1/2"
NOT EXPOSED TO EARTH, WEATHER OR IN CONTACT WITH GROUND:	3/4"	-1/4", +3/8"
TIES AND STIRRUPS	1 1/2"	-1/4", +1/2"

NOTES: "-" INDICATES TOLERANCE DECREASE TOWARDS MEMBER FACE. "+" INDICATES AWAY FROM MEMBER FACE.

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AK. LIC# AECC250

TITLE: CONCRETE REINFORCING SCHEDULES AND TYPICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
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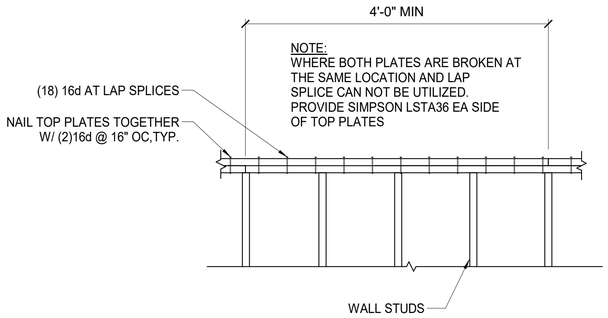
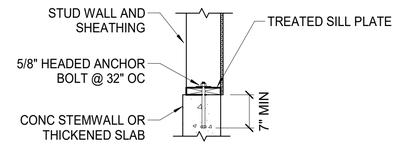
BY: DNB
DATE: 01/16/2026
SCALE:

SHEET: S1.3

HEADER SCHEDULE				
MARK	SIZE	TRIMMER STUDS	KING STUDS	NOTES
H1	4x12	(1) 2x6	(2) 2x6	
H2	5.5x12 GLB	(2) 2x6	(4) 2x6	
NOTE: ALL HEADERS ARE LOCATED AT THE TOP OF OPENING.				

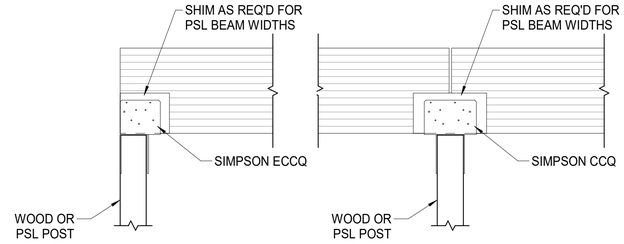


1 TYPICAL TOP PLATE SPLICE
3/4" = 1'-0"

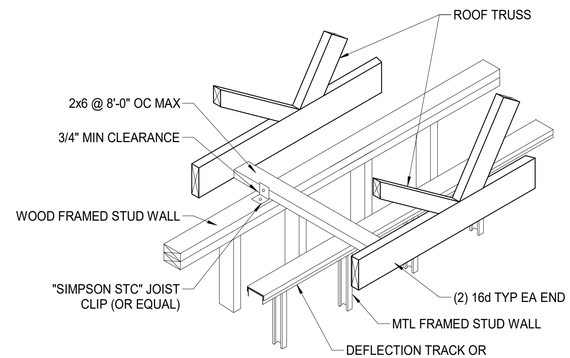


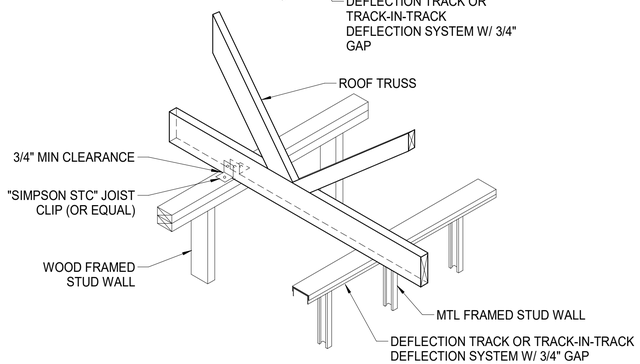
NOTE:
1. ANCHOR SIZE AND SPACING AND SILL PLATE SIZE SPECIFIED THIS DETAIL FOR ALL NON-SHEAR STRUCTURAL BEARING WALLS. SIZE AND SPACING FOR SHEAR WALLS CAN BE FOUND IN THE SHEAR WALL SCHEDULE.
2. ALL ANCHORS SHALL BE HOT-DIPPED GALVANIZED ASTM A307 BOLTS OR THREADED RODS.
3. ALL ANCHORS SHALL HAVE A GALV STD WASHER BETWEEN SILL PLATE AND NUT.
4. ALL ANCHORS SHALL BE PLACED A MINIMUM OF 3" AWAY FROM EDGE OF CONC AND LOCATED NO CLOSER THAN 6" FROM END OF WALL.

2 TYP SILL PL ANCHOR - NON SHEAR WALL
3/4" = 1'-0"

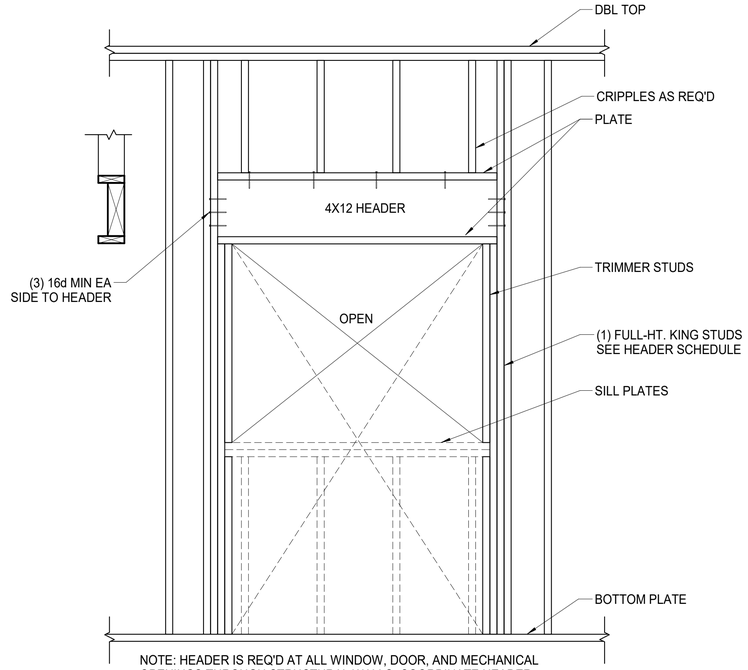


3 TYPICAL TIMBER POST CAP DETAIL
3/4" = 1'-0"



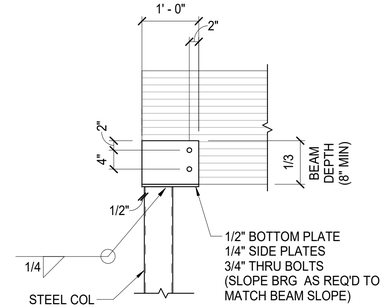


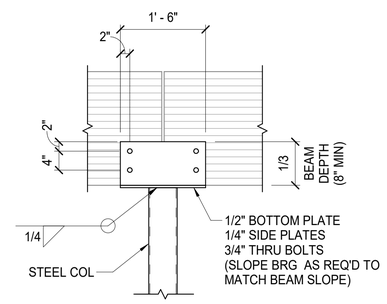
4 NON-BEARING PARTITION DETAILS
3/4" = 1'-0"



NOTE: HEADER IS REQ'D AT ALL WINDOW, DOOR, AND MECHANICAL OPENINGS THROUGH STRUCTURAL WALLS, COORDINATE HEADER POSITION WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

5 TYPICAL HEADER DETAIL
3/4" = 1'-0"





6 TYPICAL GLB COLUMN CAPS
3/4" = 1'-0"

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AK. LIC# AECC250

TITLE: WOOD FRAMING SCHEDULES AND TYPICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
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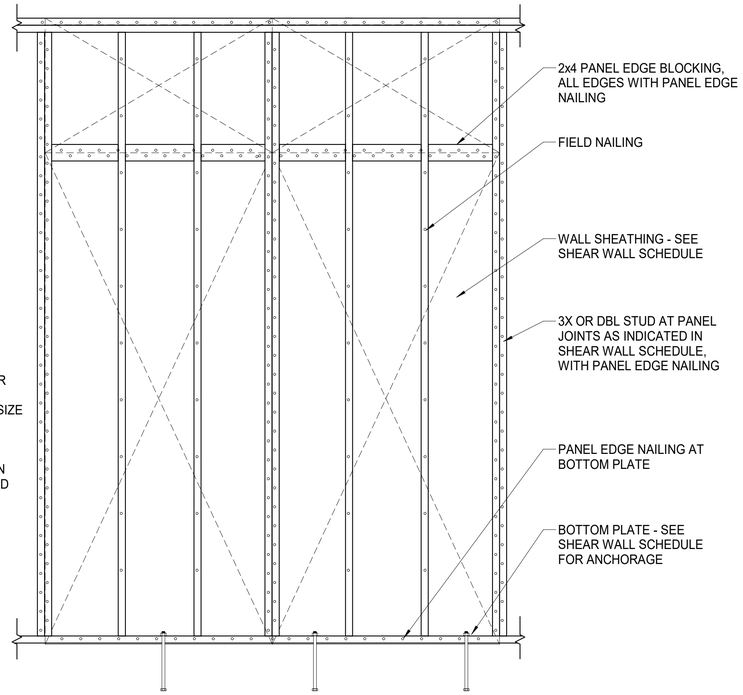
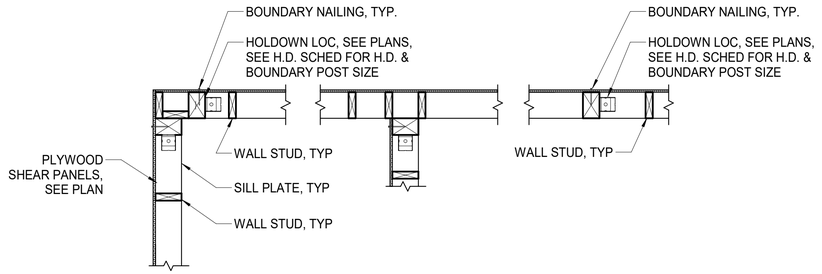
DATE: 01/16/2026
SCALE:

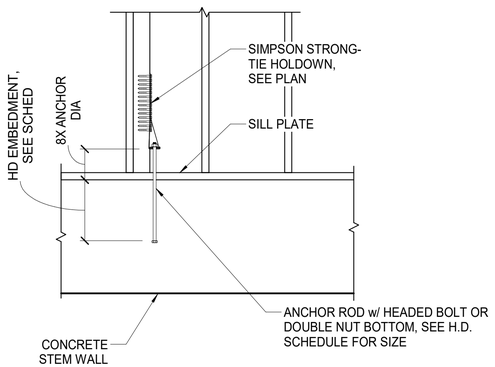
SHEET S1.4

NOTES:
1. PANELS ARE SHOWN VERTICAL, BUT MAY BE PLACED HORIZONTAL.
2. MIN. EDGE DISTANCE FOR NAILS SHALL BE 3/8".
3. MIN. SHEATHING SHEET SIZE SHALL BE 2'-0"x4'-0".
4. NAILS SHALL NOT BE OVERDRIVEN.
5. NAILS SHALL BE COMMON WIRE TYPE OR APPROVED EQUAL.

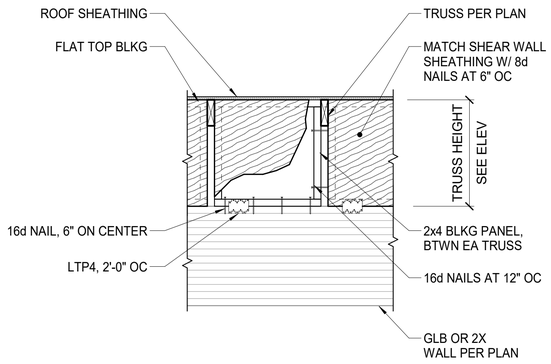


1 SHEAR WALL NAILING DETAIL
3/4" = 1'-0"



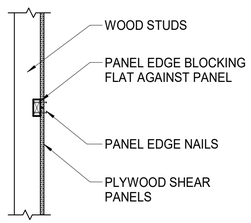


2 TYPICAL HOLDOWN DETAIL AT FOUNDATION
3/4" = 1'-0"



CONTRACTOR OPTION: BLKG PANEL MAY BE SPECIFIED BY TRUSS MFR.

5 SHEAR PANEL
3/4" = 1'-0"



3 PANEL EDGE BLOCKING
3/4" = 1'-0"

WOOD SHEAR WALL SCHEDULE

MARK	WOOD PANELS			NAIL SIZE	NAIL SPACING		PANEL JOINT STUDS	SILL OR BOTTOM PLATE ATTACHMENT					
	APA Grade	Thick.	Span rating		Edges	Field		Fastener	Detail	Dia.	Spacing	Embed.	Washer
6	Sheathing	15/32"	32/16	8d	6"	12"	2x	Anchor Rod	-	5/8"	32"	7"	4 / S1.5
4	Sheathing	15/32"	32/16	8d	4"	12"	2x	Anchor Rod	-	5/8"	16"	7"	4 / S1.5

NOTES:
1. WOOD STRUCTURAL PANELS SHALL CONFORM TO THE REQUIREMENTS FOR ITS TYPE IN DOC PS1 OR PS2.
2. APPLY SHEATHING TO THE SIDE OF WALL INDICATED BY THE SYMBOL. PANELS MAY BE INSTALLED HORIZONTALLY OR VERTICALLY. DOUBLE SHEATHED WALLS SHALL HAVE PANELS APPLIED TO BOTH FACES.
3. ALL PANEL EDGES SHALL BE LOCATED ON STUDS, BLOCKING LAID FLAT, PLATES OR RIM JOISTS. WHERE SHEATHING IS APPLIED TO BOTH FACES OF WALL, OFFSET PANEL EDGES TO FALL ON DIFFERENT STUDS.
4. STAGGER PANEL EDGE NAILING AT PANEL JOINTS.
5. ANCHOR RODS SHALL BE HOT-DIPPED GALVANIZED ASTM A307 HEADED BOLTS. FIRST AND LAST ANCHORS SHALL BE LOCATED 6" FROM END OF EACH WALL SEGMENT OR END WALL HOLDOWN.
6. SEE TYPICAL PLATE WASHER DETAIL FOR SILL PLATE ANCHOR INSTALL AND LOCATION REQUIREMENTS.
7. SEE HOLDOWN SCHEDULE FOR HOLDOWNS AND BOUNDARY POST SIZES.
8. ANCHOR ROD EMBEDMENT IS THE DISTANCE FROM TOP OF CONCRETE TO TOP OF NUT OR BOLT HEAD.

WOOD DIAPHRAGM SCHEDULE

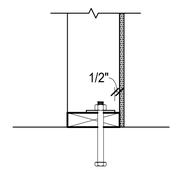
AREA DESCRIPTION	SHEATHING			NAIL SIZE	NAIL SPACING			NOMINAL THICKNESS OF FRAMING MEMBERS	PANEL EDGE BLOCKING
	APA Grade	Thick.	Span Rating		Edges (2,3)	Boundary	Field		
ROOF	Sheathing	3/4"	48/24	8d	6"	6"	12"	2x	NONE

NOTES:
1. APPLY SHEATHING PERPENDICULAR TO FRAMING MEMBERS UNLESS NOTED OTHERWISE.
2. LOCATE PANEL ENDS OVER FRAMING MEMBERS AND STAGGER LOCATION OF ENDS JOINTS BY A MINIMUM OF 2'-0" UNLESS SHOWN OTHERWISE.
3. SEE SCHEDULE FOR PANEL EDGE BLOCKING REQUIREMENTS.
4. STAGGER PANEL EDGE NAILING AT BLOCKED JOINTS.
5. NAILS SHALL BE LOCATED AT LEAST 3/8" FROM THE EDGES OF PANELS. HEADS OF NAILS SHALL BE DRIVEN FLUSH WITH THE SURFACE.
6. PANELS SHALL NOT BE LESS THAN 4' x 8' EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING WHERE ALL EDGES ARE SUPPORTED BY AND FASTENED TO FRAMING MEMBERS OR BLOCKING.

HOLDOWN SCHEDULE

MARK	HOLDOWN	ANCHOR ROD		BOUNDARY POST SIZE	COMMENTS
		Diam.	Embed.		
HD1	SIMPSON DTT2Z	1/2"	20"	4x6 OR (2) 2x6	

NOTES:
1. HOLDOWNS ARE SIMPSON STRONG-TIE OR EQUAL.
2. ANCHOR RODS SHALL BE GALVANIZED ASTM F1554 GRADE 36 HEADED BOLTS OR ASTM A36 THREADED ROD WITH DBL NUT AT BOTTOM.
3. ROD COUPLERS WITH 125% STRENGTH OF THE ROD MAY BE USED TO EXTEND RODS.
4. BOUNDARY POSTS ARE DF No. 1.



SINGLE-SIDED SHEAR WALL

NOTE: 0.229"x3"x3" MIN SIZE PLATE WASHER TO BE USED FOR EACH SILL PLATE ATTACHMENT BOLT. PLATE WASHER MUST BE WITHIN 1/2" OF SHEATHING FACE. SLOTTED HOLE IN PLATE WASHER PER AWC MAY BE USED PROVIDED A STD CUT WASHER BE PLACED BETWEEN PLATE WASHER AND NUT.

4 TYP SILL PLATE ANCHOR - SHEAR WALLS
1 1/2" = 1'-0"

REVISION | BY | DATE | APPRVL REV

PND ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: WOOD SHEAR WALL SCHEDULES AND TYPICAL DETAILS

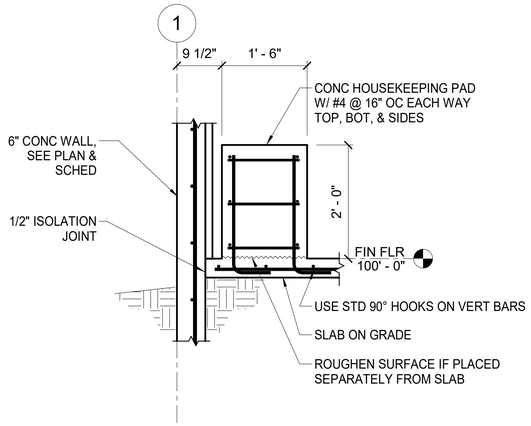
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S1.5



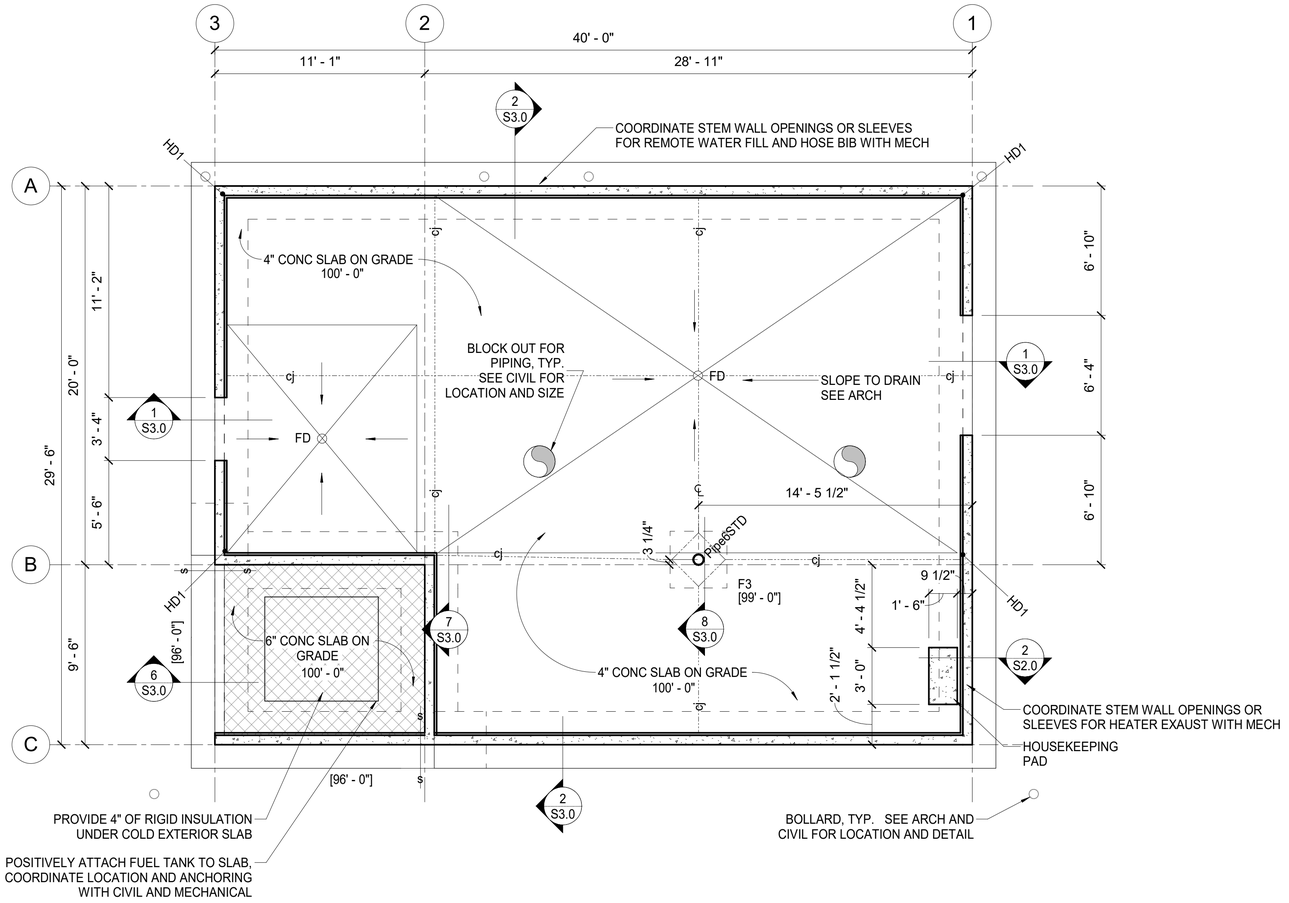
2 DETAIL
3/4" = 1'-0"

FOUNDATION SHEET NOTES

1. REFERENCE ELEVATION - TOP OF CONCRETE SLAB ELEVATION = EL. 100'-0". SEE CIVIL FOR ACTUAL ELEVATION.
2. ALL CONCRETE STEM WALLS ARE 6C UNO.
3. ALL STRIP FOOTINGS ARE SF3 UNO. TOP OF STRIP FOOTING IS 97'-0" UNO.
4. INSTALL CONTROL / CONSTRUCTION JOINTS AT 12' OC MAX, EA WAY

LEGEND

[X-XX"]	INDICATES T.O. FOOTING/SLAB ELEVATION
HDx	INDICATES HOLDOWN
FD	INDICATES FLOOR DRAIN
F?	INDICATES SPREAD FOOTING TYPE, SEE SCHED
s s	INDICATES CONC STEP FTG



1 FOUNDATION PLAN
1/4" = 1'-0"

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ENGINEERS, INC.
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AK. LIC# AECC250

TITLE: FOUNDATION & SLAB PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

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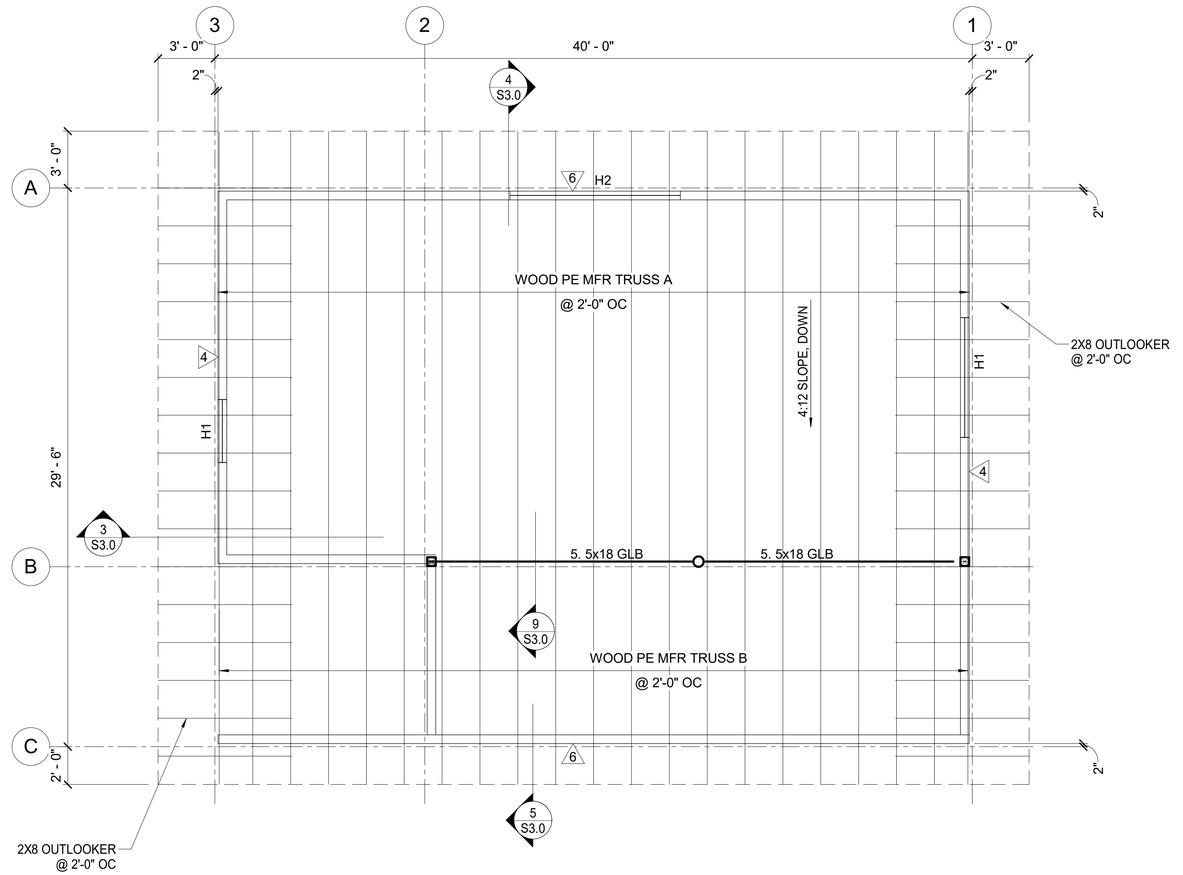
SCALE:

SHEET S2.0



ROOF SHEET NOTES

1. ROOF SHEATHING IS 3/4" PLYWOOD. ORIENT PANELS PERPENDICULAR TO FRAMING MEMBERS. SEE DIAPHRAGM SCHEDULE FOR BLOCKING AND NAILING REQUIREMENTS AT PANEL JOINTS.
2. SEE SECTIONS FOR ROOF ELEVATIONS.

LEGEND

H? INDICATES HEADER TYPE, SEE SCHED

X INDICATES SHEAR WALL BELOW, SEE SHEAR WALL SCHED

1 ROOF FRAMING PLAN
1/4" = 1'-0"

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AK. LIC# AECC250

TITLE: ROOF FRAMING PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
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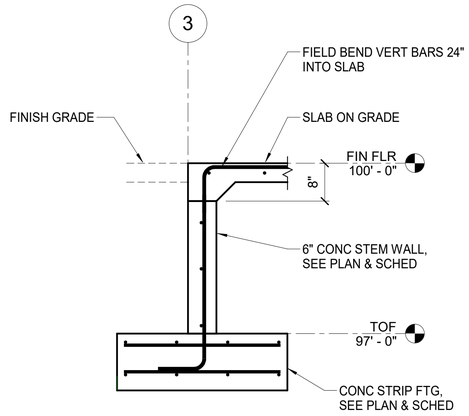
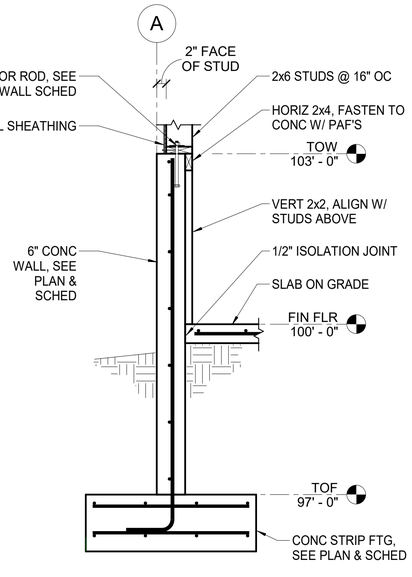
BY: DNB
DATE: 01/16/2026
SCALE:

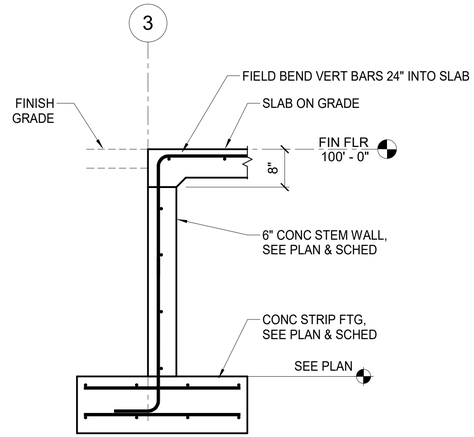
SHEET S2.1



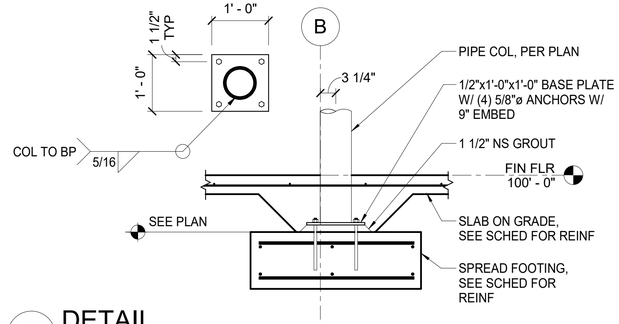
1 DETAIL
3/4" = 1'-0"



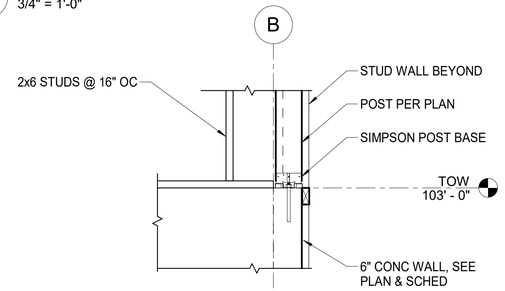
2 DETAIL
3/4" = 1'-0"



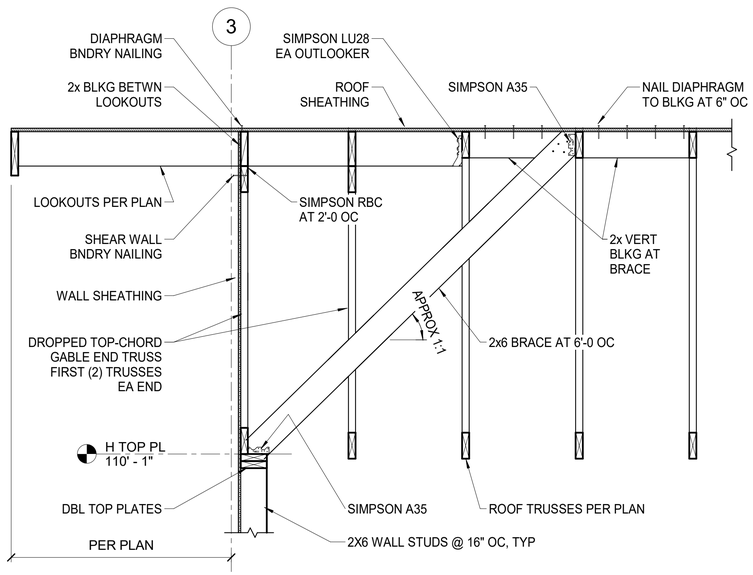
6 DETAIL
3/4" = 1'-0"



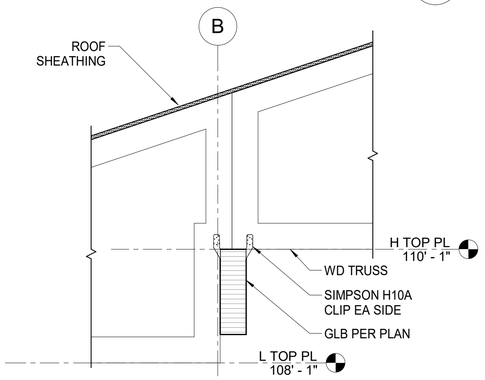
8 DETAIL
3/4" = 1'-0"



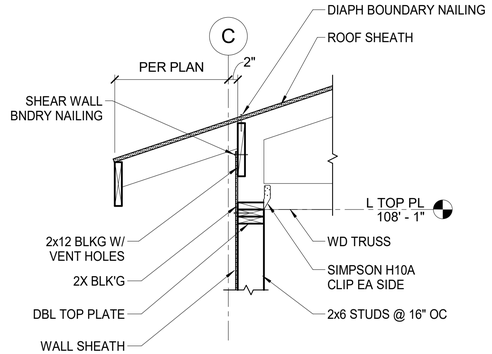
7 DETAIL
3/4" = 1'-0"



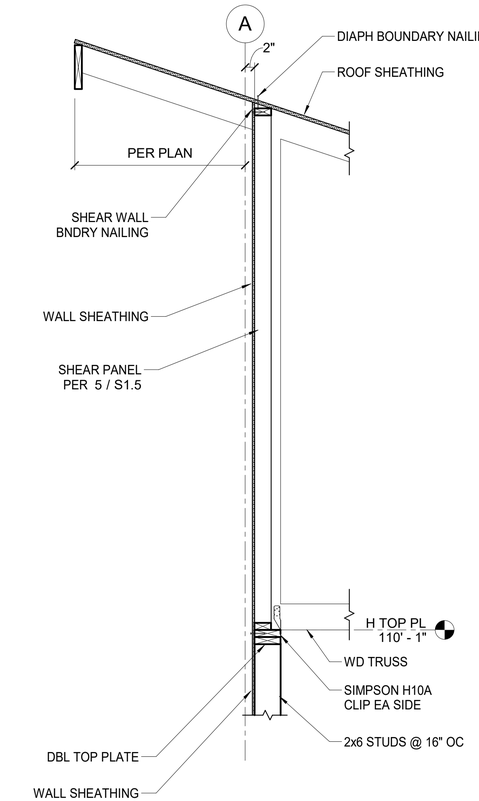
3 DETAIL
3/4" = 1'-0"



9 DETAIL
3/4" = 1'-0"



5 DETAIL
3/4" = 1'-0"



4 DETAIL
3/4" = 1'-0"

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PND ENGINEERS, INC.
625 South Cobb Street, Suite 202
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PH 907.707.1081
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AK. LIC# AECC250

TITLE: DETAILS

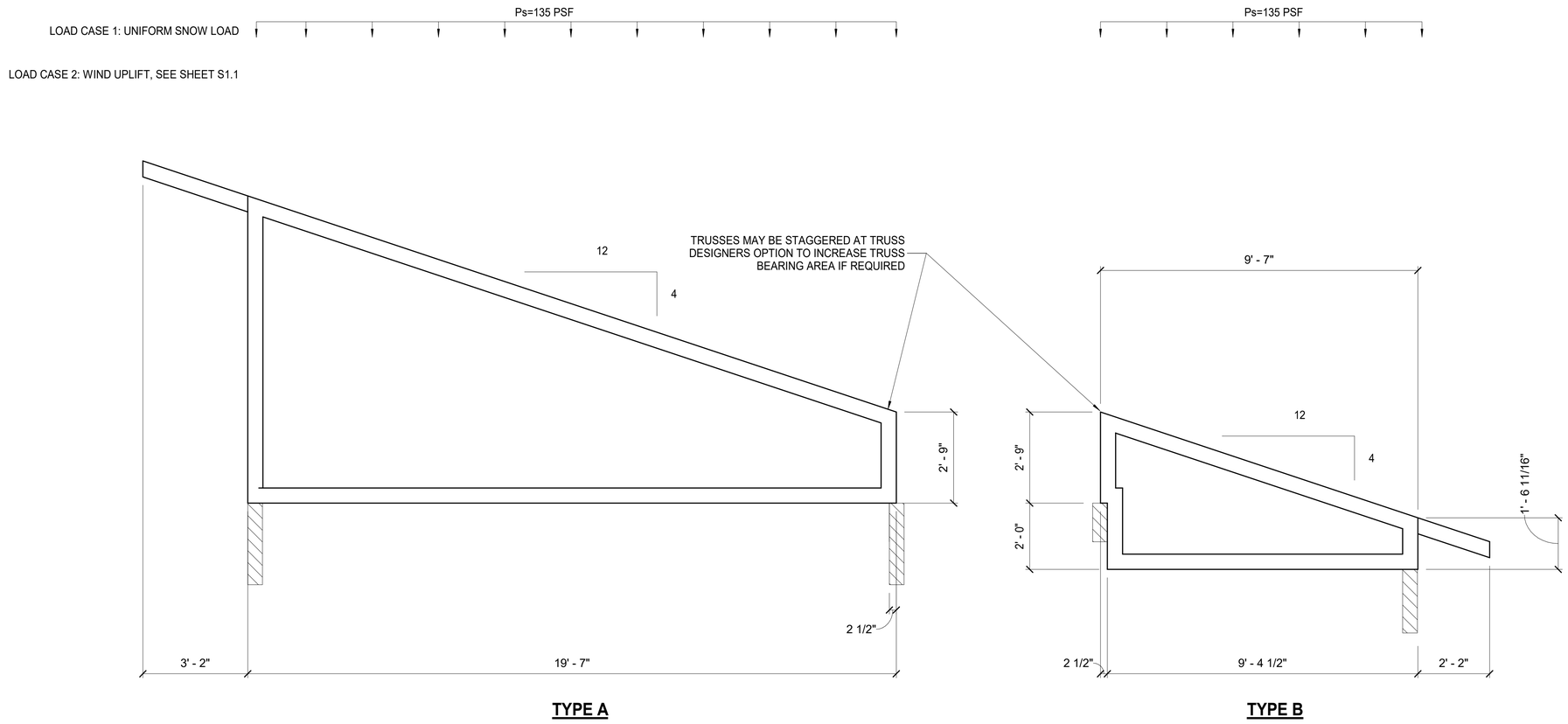
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S3.0



TYPE A **TYPE B**

1 TRUSS ELEVATIONS
1/2" = 1'-0"

SHEET NOTES:

ROOF TRUSS DESIGN LOADS

DEAD LOADS
- = 15 PSF TOP CHORD
- = 10 PSF BOTTOM CHORD

SNOW LOADS
- =135 PSF UNIFORM BALANCED SNOW LOAD

WIND UPLIFT
- = PER WIND LOADS ON S1.1

EQUIPMENT LOADS
- = AS INDICATED

PRE-ENGINEERED WOOD TRUSSES

MATERIALS:

1. LUMBER: AS REQUIRED BY THE TRUSS MANUFACTURER. MINIMUM GRADE TO BE HEM-FIR OR DOUGLAS FIR-LARCH NO. 2 KD 15 PERCENT MC, EXCEPT FOR WEBS, WHICH MAY BE MINIMUM GRADE OF HEM-FIR OR DOUGLAS FIR-LARCH NO. 3, KD 15 PERCENT MC.

2. CONNECTIONS: ALL INTERNAL TRUSS CONNECTIONS ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER. CONNECTORS SHALL BE DEFORMED PLATE TYPE, OF MINIMUM 20 GAUGE GALVANIZED STEEL SHEET. ALL JOINTS ARE TO BE DESIGNED USING METHODS AS SET FORTH IN ANSI/TPI STANDARDS 2014.

3. HANGERS: ALL TRUSS TO TRUSS HANGERS SHALL BE MINIMUM 16 GA., AND SHALL BE PROVIDED BY THE TRUSS SUPPLIER. SPECIFICATIONS AND REFERENCE STANDARDS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION, ERECTION, HANDLING AND BRACING REQUIREMENTS ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
   - A. NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
   - B. TIMBER CONSTRUCTION STANDARDS.
   - C. TPI 1, NATIONAL DESIGN STANDARDS FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION
   - D. TP1 DSB, RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES
   - E. TPI HIB, COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING & BRACING METAL PLATE CONNECTED WOOD TRUSSES.

DESIGN:

1. ALL TRUSSES ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER FOR THE LOADS INDICATED ON THE DRAWINGS.

2. WHERE TRUSSES ARE REQUIRED TO FRAME INTO OTHER TRUSSES, DESIGN OF THE HANGERS SHALL BE THE RESPONSIBILITY OF THE TRUSS SUPPLIER. THE TRUSS SUPPLIER SHALL MAKE NECESSARY PROVISIONS IN THE SUPPORTING TRUSS TO ACCEPT THE TYPE OF HANGER REQUIRED.

SUBMITTALS:

1. TRUSS DESIGNS ARE TO BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. TRUSS SUBMITTAL SHALL INCLUDE THE FOLLOWING INFORMATION:
   - A. DESIGN INFORMATION FOR EACH TYPE OF TRUSS SUPPLIED.
   - B. LAYOUT DRAWING INDICATING LOCATION OF EACH SPECIFIC TRUSS TYPE.
   - C. TRUSS HANGER TYPE AND LOCATION, FOR ALL TRUSSES FRAMING INTO TRUSSES.
   - D. TRUSS DESIGNS AND LAYOUT DRAWING STAMPED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF ALASKA.

2. SUBMITTALS WHICH DO NOT INCLUDE THE ABOVE LISTED INFORMATION WILL BE RETURNED TO THE CONTRACTOR PRIOR TO REVIEW.

APPRVL	REV	DATE	BY	REVISION

P N D
ENGINEERS, INC.
625 South Cobb Street, Suite 202
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AK. LIC# AECC250

TITLE: TRUSS ELEVATION AND NOTES

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
David Bentti
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S4.0

LEGEND

- HOT WATER
- COLD WATER
- FUEL OIL SUPPLY (FOS)
- PIPE UP
- PIPE DOWN
- TEE UP
- TEE DOWN
- CAP
- TRAP
- UNION
- DIRECTION OF FLOW
- ISOLATION VALVE
- CHECK VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- WATER HAMMER ARRESTOR
- HOSE BIBB
- FLOOR CLEANOUT
- FLOOR DRAIN
- SUPPLY AIR UP & DOWN
- RETURN AIR UP & DOWN
- EXHAUST AIR UP & DOWN
- DETAIL NUMBER (5 / M2)
- SHEET LOCATED ON
- SHEET NOTES (1)
- THERMOSTAT (T)
- HUMIDISTAT (H)

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AMPS	AMPERES
APD	AIR PRESSURE DROP
BDD	BACKDRAFT DAMPER
BLDG	BUILDING
BTUH	BRITISH THERMAL UNIT/HOUR
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATING
CONT	CONTINUED
CO	CLEANOUT
CONN	CONNECTION
CU	COPPER
CW	COLD WATER
dB	DECIBLES
DEG	DEGREE
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
(E)	EXISTING
E/A	EXHAUST AIR
EFF	EFFICIENCY
EF-X	EXHAUST FAN DESIGNATOR
EH-X	ELECTRIC HEATER DESIGNATOR
ENT	ENTERING
ET-X	EXPANSION TANK DESIGNATOR
EXH	EXHAUST
F	FAHRENHEIT
FLA	FULL LOAD AMPS
FOT-X	FUEL OIL TANK DESIGNATOR
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB-X	HOSE BIBB DESIGNATOR
HP	HORSEPOWER
HW	HOT WATER
IN	INCHES
KW	KILOWATTS
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MFGR	MANUFACTURER
MPT	MALE PIPE THREAD
MTD	MOUNTED
NC	NOISE CRITERIA
NO.	NUMBER
NTS	NOT TO SCALE
O/A	OUTSIDE AIR
PH	PHASE
PSI	POUND PER SQUARE INCH
R/A	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
S/A	SUPPLY AIR
SH-X	SPACE HEATER DESIGNATOR
SPVB	SPILL-RESISTANT PRESSURE VACUUM BREAKER
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
T'STAT	THERMOSTAT
TYP	TYPICAL
W/	WITH
W.C.	WATER COLUMN
WHA-X	WATE HAMMER ARRESTOR
WH-X	WATER HEATER DESIGNATOR

ELECTRIC HEATER SCHEDULE

			CAPACITY		ELECTRICAL DATA			
SYMBOL	MANUFACTURER	MODEL	MBH	CFM	AMPS	KW	VOLTS/PHASE	REMARKS
EH-1	QMARK	MWUH7504	19.2	270	27.1	5.6	208/1	HORIZONTAL ELECTRIC UNIT HEATER W/ INTEGRAL THERMOSTAT AND THERMAL OVERHEAT PROTECTION. PROVIDE W/ WALL MOUNTING BRACKET.
EH-2	QMARK	CWH1202DSF	5.1	65	7.3	1.5	208/1	RECESSED WALL ELECTRIC HEATER W/ INTEGRAL THERMOSTAT AND THERMAL OVERHEAT PROTECTION. PROVIDE W/ RECESS MOUNTING FRAME.

FAN SCHEDULE

						TSP		MOTOR DATA					
SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	CFM	IN W.C.	RPM	HP	VOLTAGE/PHASE	DRIVE	SONES	REMARKS
EF-1	GREENHECK	SQ-90-VG	EXHAUST	PUMP HOUSE	500	0.29	1,505	1/6	120/1	DIRECT	7.0	INLINE DIRECT DRIVE FAN, VARIGREEN MOTOR, PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.

HOSE BIBB SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CW	SERVICE	FINISH	REMARKS
HB-1	WOODFORD	B65	3/4"	PUMP HOUSE	CHROME	ANTI-SIPHON AND FROST-PROOF, CHROME PLATED LOCKABLE RECESSED BOX, REMOVABLE KEY, MPT OUTLET CONNECTION.

SPACE HEATER SCHEDULE

								ELECTRICAL		
SYMBOL	MANUFACTURER	MODEL	LOCATION	HEATING CAPACITY	FUEL TYPE	FUEL GPH	EXHAUST	WATTS	VOLTS/PHASE	REMARKS
SH-1	TOYOSTOVE	L-731	PUMP HOUSE	40 MBH (HIGH)	FUEL OIL #1	0.30 (HIGH)	DIRECT VENT	260	120/1	DIRECT VENT THROUGH WALL HEATER W/ DIRECT VENT KIT, CORD AND PLUG CONNECTION, PROVIDE WITH TOYOTOMI OIL LIFTEX PUMP MODEL OPT-91UL.

TANK SCHEDULE

							TANK CAPACITY				
SYMBOL	MANUFACTURER	MODEL	LOCATION	FUNCTION	MEDIUM	MATERIAL	(GAL)	DIAMETER	LENGTH	LABEL	REMARKS
FOT-1	GREER TANK	500 GAL	PUMP HOUSE	FUEL STORAGE	FUEL OIL #1	STEEL	500	4'-2"	6'-0"	UL-142	DOUBLE WALL, SADDLE MOUNTED, TRIM PER PLANS.

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	MODEL	WASTE	VENT	TRAP	ELECTRICAL	TRIM/REMARKS
FD-1	FLOOR DRAIN	J.R. SMITH	2005	4"	4"	4"	N/A	SQUARE TOP.
FS-1	FLOOR SINK	J.R. SMITH	9812-880-CB24	8"	6"	8"	N/A	FIBERGLASS CATCH BASIN, PROVIDE W/ GALVANIZED STEEL GRATE, 8" PIPE ADAPTOR.
HD-1	HUB DRAIN	J.R. SMITH	9654	4"	4"	4"	N/A	STAINLESS STEEL HUB DRAIN WITH SCHEDULE 10 BUTTWELD OUTLET.
TP-1	TRAP PRIMER	PPP INC.	MPB-500-115V	--	--	--	120V/6.3W	SURFACE MOUNT ELECTRIC TRAP PRIMER W/ BOX, PROVIDE W/ DISTRIBUTION UNIT.

AIR INLET/OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	USE	MATERIAL	FINISH	CFM	FACE SIZE (IN.)	NC	REMARKS
(A)	TITUS	50F	EGGCRATE	O/A	ALUMINUM	WHITE	PER PLANS	PER PLANS	<25	1/2" X 1/2" X 1/2" GRID CORE, SURFACE MOUNTED FRAME, BORDER TYPE I.

REVISION	BY	DATE	APPRVL REV

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Corporate No.: AECC542
RSA JOB # M4082

TITLE: MECHANICAL LEGEND, ABBREVIATIONS, AND SCHEDULE

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA — BRIAN P. PEKAR — ME-11249 — 1/16/26 — REGISTERED PROFESSIONAL ENGINEER

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SHEET M1 OF 3 SHEETS

BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

GENERAL NOTES

A. ALL INTERIOR AND EXTERIOR HOODS, DUCTWORK, GRILLES, AND PIPING SHALL BE SHOP PRIMED AND PAINTED TO MATCH ADJOINING FINISHES.

SHEET NOTES

1. SH–1, INSTALL PER MANUFACTURER INSTRUCTIONS WITH OIL LIFTEX PUMP. MAINTAIN CLEARANCES TO COMBUSTIBLES. MOUNT SH–1 A MINIMUM OF 24" AFF.
2. EH–1,2, INSTALL PER MANUFACTURER INSTRUCTIONS. MAINTAIN CLEARANCES TO COMBUSTIBLES. MOUNT EH–1 A MINIMUM OF 6" FROM CEILING.
3. EXTEND FOT–1 VENT BEYOND EAVE AND MINIMUM 12' AFG AND 3' ABOVE ROOF.
4. EXTEND SIDE WALL VENT 6" FROM EDGE OF SIDING, AHAP. TRIM AND PAINT TO MATCH SIDING.
5. TRANSITION FROM 6" V TO 8" V BEFORE VENT TEE.
6. PLUMBING VENT IN ATTIC SPACE, ROUTE AROUND ELEC/COMM ROOM.
7. SLEEVE CONCRETE FOR EXHAUST TO ENSURE PROPER ANGLE/DRAINAGE FOR INSTALL.
8. PROVIDE WATTS LF008PCQT SPILL–RESISTANT PRESSURE VACUUM BREAKER TO HOSE BIBB HB–1, AND INTERIOR HOSE CONNECTION.

SECTION 23 09 93 – SEQUENCE OF OPERATION

ELECTRIC HEATERS – EH–1, EH–2:

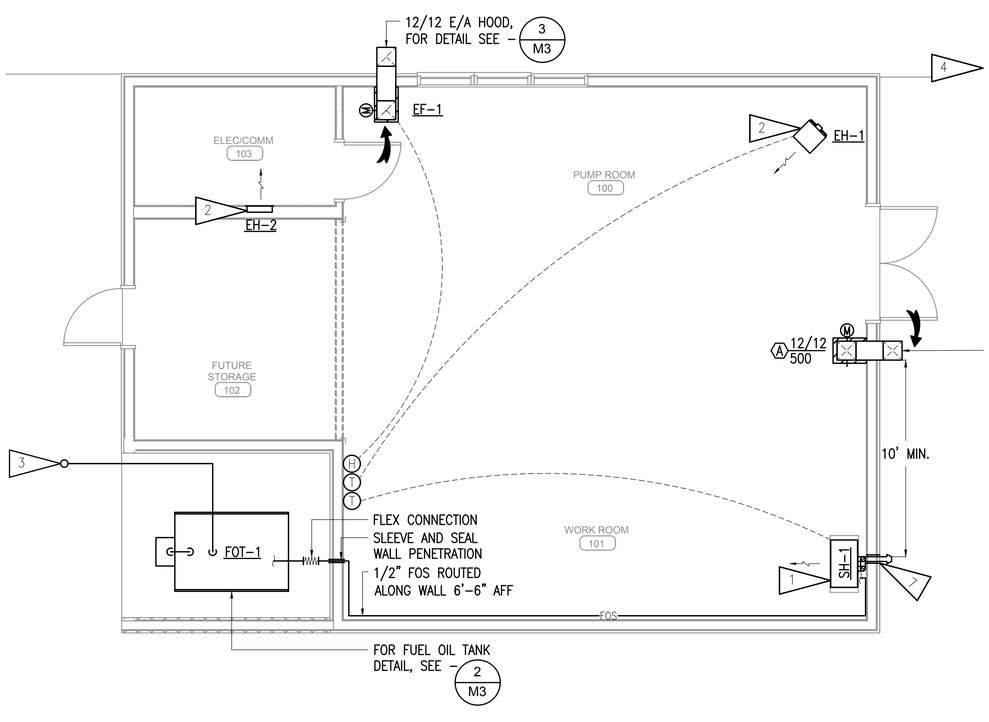
A. UNIT SHALL OPERATE TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 55 DEG F. FAN AND HEATER SHALL CYCLE ON/OFF TO MAINTAIN SETPOINT.

SPACE HEATER – SH–1:

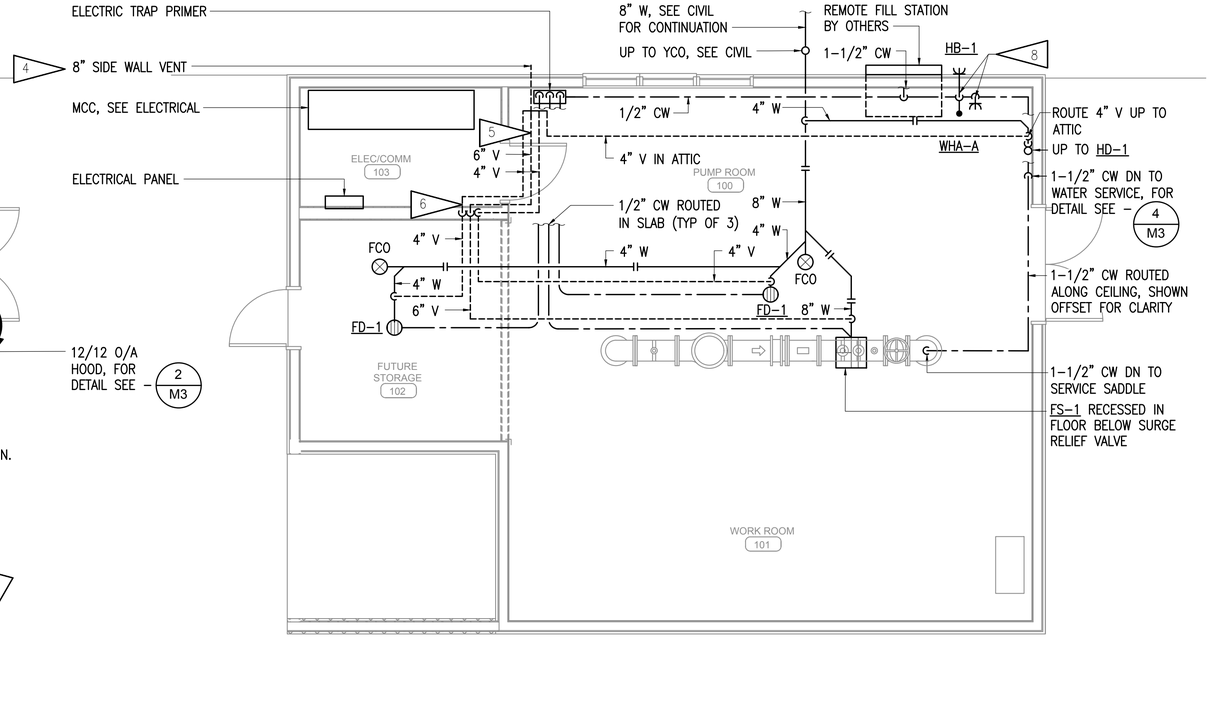
A. UNIT SHALL OPERATE TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 65 DEG F. FAN AND HEATER SHALL CYCLE ON/OFF TO MAINTAIN SETPOINT.

EXHAUST FANS– EF–1:

A. WHEN HUMIDITY IS GREATER THAN 60% RH, FAN SHALL BE IN OPERATION.
B. THE EXHAUST FAN MAY BE PLACED INTO MANUAL OVERRIDE USING A SPRING–WOUND TIMER LOCATED IN THE PUMP ROOM.



1 MECHANICAL PLAN
1/4" = 1'-0"



2 PLUMBING PLAN
1/4" = 1'-0"

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TITLE: MECHANICAL PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
BRIAN P. PEKAR
ME–11249
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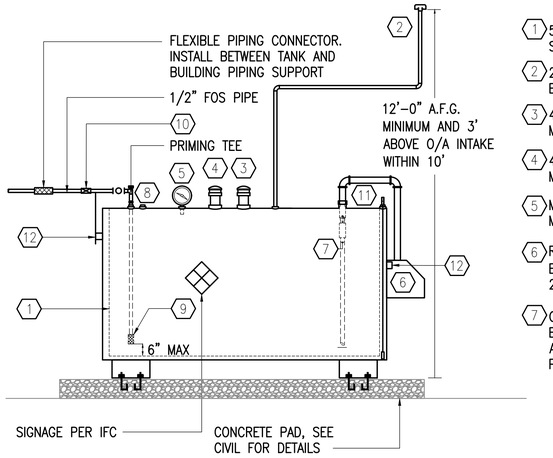
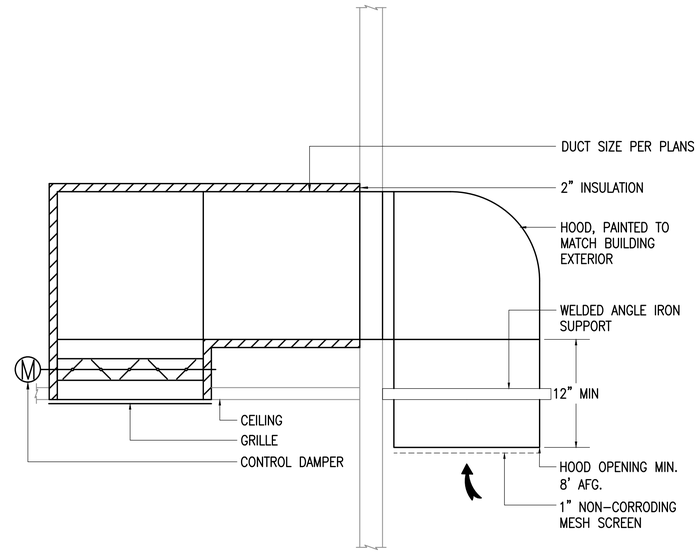
BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

SHEET M2 OF 3 SHEETS

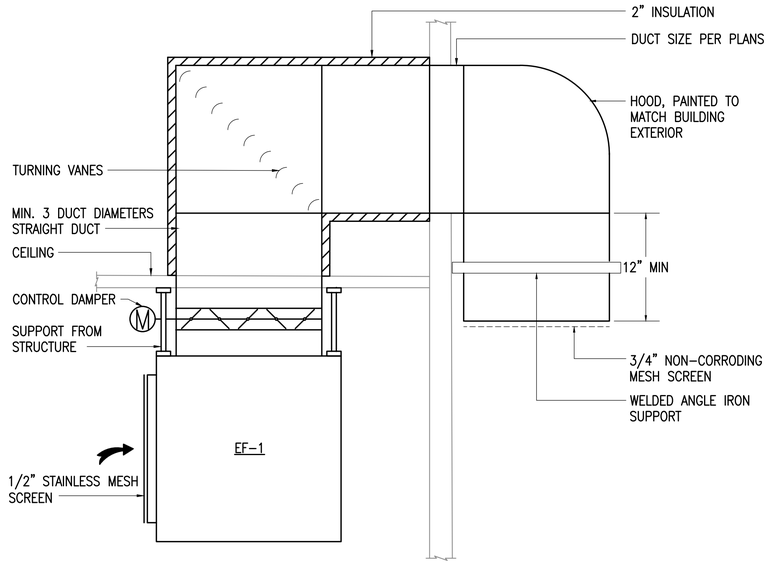


1. 500 GALLON DOUBLE WALL FUEL OIL STORAGE TANK.
2. 2" PRIMARY TANK VENT, MORRISON BROTHERS FIG. 922.
3. 4" PRIMARY TANK EMERGENCY VENT, MORRISON BROTHERS FIG. 244
4. 4" SECONDARY TANK EMERGENCY VENT, MORRISON BROTHERS FIG. 244.
5. MECHANICAL CLOCK TYPE TANK GAUGE, MORRISON BROTHERS FIG. 818.
6. REMOTE SPILL CONTAINER, MORRISON BROTHERS FIG. 515. PROVIDE W/ FIG. 246, 800A, 800DC, AND 691B.
7. OVERFILL PREVENTION VALVE, MORRISON BROTHERS FIG. 9095. COORDINATE APPROPRIATE FLOW RATE WITH LOCAL PURVEYOR OF FUEL.
8. 4" FPT TAPPING, W/PLUG.
9. PROVIDE 3/4" SINGLE POPPET FOOT VALVE OPW MODEL 99-0033 OR APPROVED EQUAL, PROVIDE TANK BUSHING AS REQUIRED FOR CONNECTION TO 3/4" FOS DROP TUBE.
10. ANTI SIPHON VALVE, MORRISON BROTHERS FIG. 912. PROVIDE (1) PER FOS LINE. COORDINATE REQUIRED RELIEF PRESSURE WITH SITE ELEVATION.
11. KRUEGER SENTRY LEAK GAUGE
12. MOUNTING CLIPS

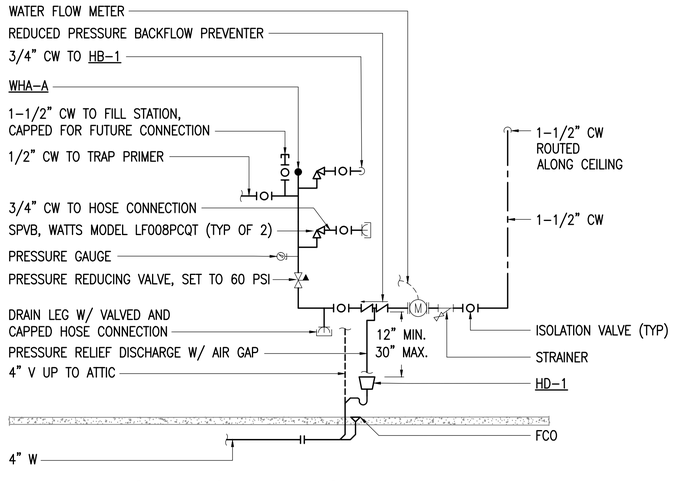
1 FUEL TANK DETAIL
NOT TO SCALE



2 EXTERIOR WALL HOOD DETAIL
NO SCALE



3 EXHAUST FAN HOOD DETAIL
NO SCALE



4 WATER SERVICE PIPING DETAIL
NO SCALE

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TITLE: MECHANICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
BRIAN P. PEKAR
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BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

SHEET M3 OF 3 SHEETS

LEGEND

P	PHOTOCELL	$F	FRACTIONAL HORSEPOWER MOTOR STARTER
	LIGHT FIXTURE – SURFACE MTD ON WALL		DISCONNECT SWITCH
	STRIPLIGHT – PENDANT OR SURFACE MTD CLG	VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
A	FIXTURE TAG (LETTER INDICATES TYPE)	1	NOTE TAG (No. INDICATES NOTE)
$	SINGLE POLE SWITCH	AFF	ABOVE FINISHED FLOOR
$a	SINGLE POLE SWITCH (LOWERCASE LETTER INDICATES SWITCHING)	AFG	ABOVE FINISHED GRADE
$3	THREE WAY SWITCH	C	CONDUIT
	CONDUIT, CONCEALED	EM	DENOTES EMERGENCY POWER
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)	K	KELVIN
—UG/E—	UNDERGROUND ELECTRICAL LINE	LED	LIGHT EMITTING DIODE
—UG/COM—	UNDERGROUND COMMUNICATION LINE	LM	LUMENS
	PANEL	NEC	NATIONAL ELECTRICAL CODE
	DUPLEX RECEPTACLE	TYP	TYPICAL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER	UON	UNLESS OTHERWISE NOTED
J	JUNCTION BOX	WP	WEATHERPROOF
	MOTOR (SIZED AS NOTED)	XFMR	TRANSFORMER

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	BUILDING INTERIORS NON–HAZARD	LITHONIA #ZL1D L48 5000LM FST MVOLT 40K 80CRI WH	48" LED STRIP LIGHT, LENSED, WHITE HOUSING. PROVIDE WITH OPTION #E7W WHERE SPECIFIED AS EMERGENCY ON PLANS.	SURFACE	CEILING	5,541LM 4000K	120/277V LED	41
A2	ELECTRICAL ROOM	LITHONIA #ZL1D L48 7000LM FST MVOLT 40K 80CRI WH	SAME AS TYPE A1 EXCEPT HIGHER LUMEN OUTPUT. PROVIDE WITH OPTION #E7W WHERE SPECIFIED AS EMERGENCY ON PLANS.	SURFACE	CEILING	7,596LM 4000K	120/277V LED	59
B1	BUILDING EXTERIOR	LITHONIA #WDGE2 LED P2 40K 80CRI VW MVOLT SRM PBBW DDBXD	LED WALLPACK WITH –40°C RATING, WIDE DISTRIBUTION, SURFACE–MOUNTED BACK BOX, AND DARK BRONZE HOUSING.	WALL	10'–0" AFG	2,076LM 4000K	120/277V LED	15
B2	BUILDING EXTERIOR	LITHONIA #WDGE2 LED P1 40K 80CRI VW MVOLT SRM PBBW DDBXD	SAME AS TYPE B1 EXCEPT LOWER LUMEN OUTPUT.	WALL	8'–0" AFG	1,289LM 4000K	120/277V LED	10
C	BUILDING INTERIORS	HOLOPHANE #EMXH L24 7000LM FPFL MD MVOLT GZ10 40K 80CRI DWHXD CR	24" LINEAR LED FIXTURE FOR CORROSIVE AREAS, CAST AND EXTRUDED ALUMINUM HOUSING WITH FROSTED POLYCARBONATE LENS AND WHITE FINISH.	SURFACE	CEILING	5,442LM 4000K	120/277V LED	46.3

MOTOR CONTROL CENTER 'MCC-WH5

MFR/MODEL: SIEMENS MCC — VOLTS: 277/480V,3PH,4W — ENCLOSURE: NEMA 1 — 400 A

MTG SPACE: AS REQUIRED — MTG: PAD MOUNTED

NOTE	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	TYPE	SERVICE	AMPS	POLE	NOTE
a	3	*	PANEL 'LS' VIA 30KVA XFMR	FEDR	5442 49883			MOTR	WELL PUMP	*	3	a
a	3	*	^^^	FEDR		5402 49883		MOTR	^^^	*	3	a
a	3	*	^^^	FEDR			3885 49883	MOTR	^^^	*	3	a
	3	-	SPACE						SPACE	-	3	
	3	-	^^^						^^^	-	3	
	3	-	^^^						^^^	-	3	
	3	-	SPACE						SPACE	-	3	
	3	-	^^^						^^^	-	3	
	3	-	^^^						^^^	-	3	
TOTAL V-A					55325	55285	53768		164,379 VA			
TOTAL AMPS					200	200	194		198 A			

MINIMUM RECOMMENDED AIC RATING: 18,000 A.I.C.

TOTRE	LTG	REC	MOTR	LG MTR	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL)	0.00	0.00	149.65	37.41	0.00	0.00	0.00	0.00	149.6 KVA	180 A
CONNECTED LOAD IN KVA (BRANCH PANELS)	0.59	2.35	0.86	0.22	1.77	0.00	9.16	0.00	14.7 KVA	18 A
TOTAL CONNECTED LOAD IN KVA:	0.59	2.35	150.51	37.41	1.77	0.00	9.16	0.00	164.4 KVA	198 A
DEMAND LOAD IN KVA:	0.74	2.35	150.51	37.41	1.77	0.00	11.44	0.00	204.2 KVA	246 A

PANEL NOTES:
a SEE ONE-LINE DIAGRAM FOR BREAKER SIZE

PANEL OPTIONS:
MAIN LUGS ONLY
INTEGRAL SPD
POWER MONITORING

PANEL 'LA'

MFR/MODEL: INTEGRAL TO MCC — VOLTS: 120/208V,3PH,4W — ENCLOSURE: NEMA 1 — 100 A

MTG: MCC

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	1	20	LTG - INTERIOR & EXTERIOR	LTG	591 2818			HEAT	EH-1	35	2	2	
	3	1	20	RECP - S. EXT, ELEC/COM, STOR.	RECP		720 2818		HEAT	^^	35	2	4	
	5	1	20	RECP - WORK RM 101	RECP			900 759	HEAT	EH-2	15	2	6	
	7	1	20	RECP - SH-1 & WELL PUMP	MISC	274 759			HEAT	^^	15	2	8	
	9	1	15	EF-1	MOTR		864		MISC	ELECTRIC TRAP PRIMER	20	1	10	
	11	1	20	RECP - N. EXT, PUMP RM, TRAP PRIMER	RECP			726 500	MISC	RTU	20	1	12	
	13	1	20	SPARE		1000			MISC	GENERATOR BATTERY CHARGER	20	1	14	
	15	1	20	SPARE			1000		HEAT	GENERATOR BLOCK HEATER	20	2	16	
	17	1	-	SPACE				1000	HEAT	^^	20	2	18	
	19	1	-	SPACE						SPACE	-	1	20	
	21	1	-	SPACE						SPACE	-	1	22	
	23	1	-	SPACE						SPACE	-	1	24	
	25	1	-	SPACE						SPACE	-	1	26	
	27	1	-	SPACE						SPACE	-	1	28	
	29	1	-	SPACE						SPACE	-	1	30	
TOTAL V-A						5442	5402	3885		14,730 VA				
TOTAL AMPS						45	45	32		41 A				

MINIMUM RECOMMENDED AIC RATING: 10,000 A.I.C.

	LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	0.59	2.35	0.86	0.22	1.77	0.00	9.16	0.00	14.7 KVA	41 A
DEMAND LOAD IN KVA:	0.74	2.35	1.08	0.22	1.77	0.00	11.44	0.00	17.6 KVA	49 A

PANEL NOTES:

PANEL OPTIONS:
MAIN CIRCUIT BREAKER (SEE ONE-LINE FOR SIZE)
INTEGRAL SPD

REVISION	BY	DATE	APPRVL REV

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RSA JOB # M4082

TITLE: ELECTRICAL LEGEND AND SCHEDULE

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA — 14TH — DAVIN K. BLUBAUGH — EE–13893 — 12/5/2025 — REGISTERED PROFESSIONAL ENGINEER

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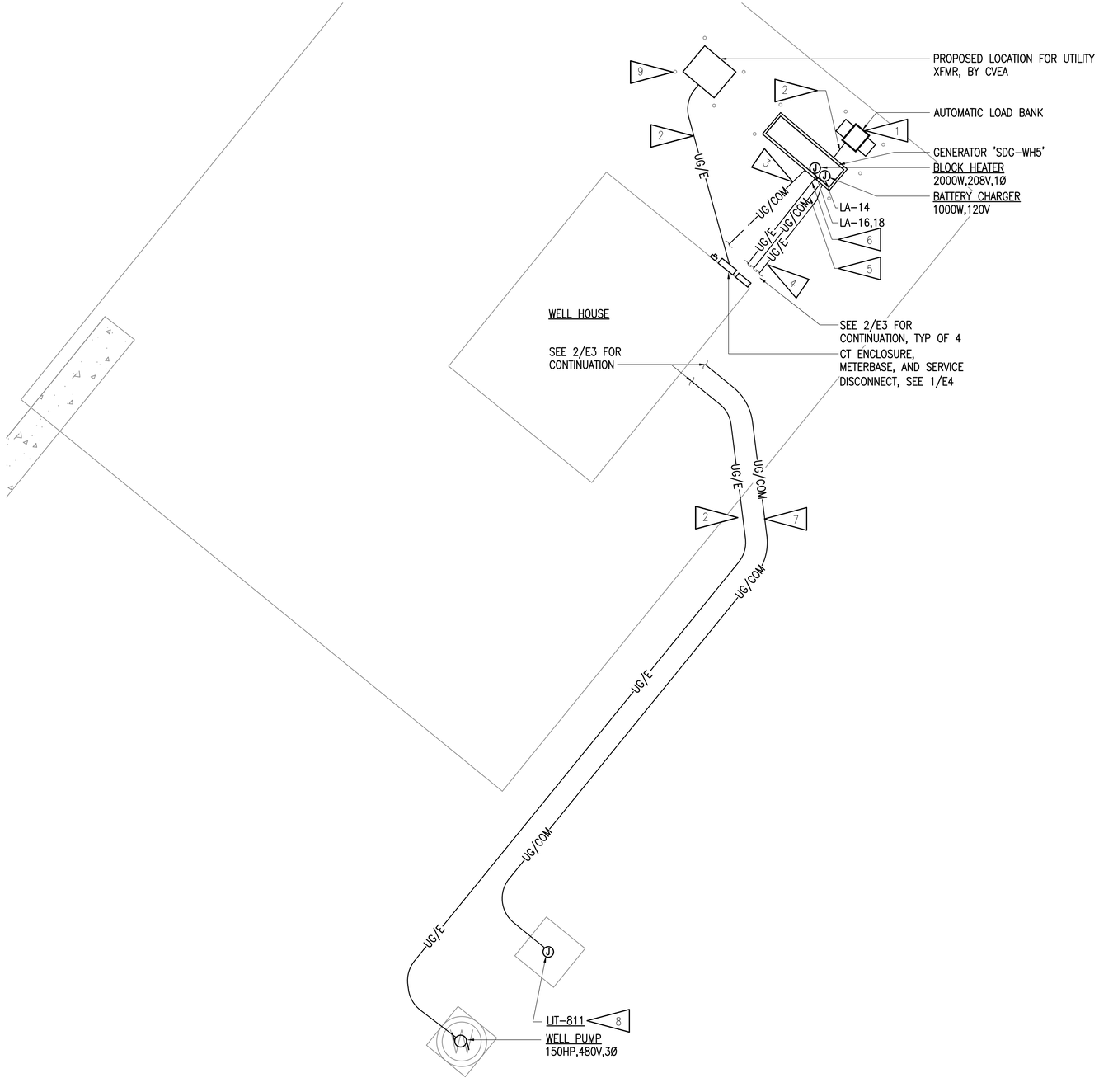
SHEET E1 OF 5 SHEETS — BY: CSZ,DB — DATE: 01/16/2026 — SCALE: AS NOTED



1 ELECTRICAL SITE PLAN - PUMP STATION 5

1" = 10'-0"

GENERAL NOTES:

A. REFERENCE AND COORDINATE WITH THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR APPLICABLE REQUIREMENTS PRIOR TO BEGINNING WORK.

B. REFERENCE 3/E4 FOR TRENCHING REQUIREMENTS.

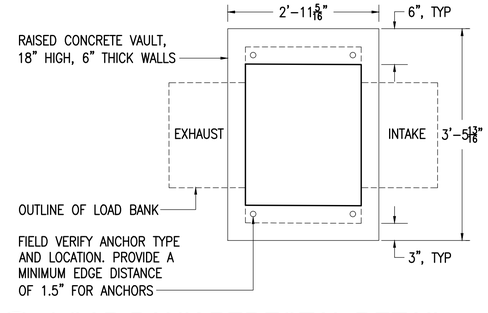
C. CONDUIT AND CONDUCTORS BETWEEN THE BUILDING, GENERATOR, AND LIFT PUMP SHALL BE ROUTED UNDERGROUND AND STUB UP BELOW THE EQUIPMENT.

D. CONDUIT AND WIRING ASSOCIATED WITH ALL INSTRUMENTATION, CONTROL, AND SIGNALING ARE NOT SHOWN ON THESE SHEETS. REFERENCE THE INSTRUMENTATION DRAWINGS FOR REQUIREMENTS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

E. FIELD COORDINATE WITH COPPER VALLEY ELECTRIC ASSOCIATION (CVEA) FOR NEW ELECTRICAL SERVICE TO BUILDING. EXACT LOCATION AND ROUTING TO BE DETERMINED BY UTILITY.

SHEET NOTES: (#)

1. PROVIDE NEW RAISED CONCRETE PEDESTAL BELOW LOAD BANK AS SHOWN WITHIN DETAIL 2. ORIENT LOAD BANK TO PEDESTAL SUCH THAT THE EXHAUST END IS FACING AWAY FROM THE SIDEWALK.
2. UNDERGROUND ELECTRICAL LINE. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
3. PROVIDE (2)1" UNDERGROUND CONDUIT WITH PULL STRING FROM GENERATOR CONTROL PANEL TO RTU IN BUILDING. SEE 2/E3 FOR CONTINUATION. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR CABLING REQUIRED.
4. PROVIDE (2) 1" UNDERGROUND CONDUIT WITH 3#10 AWG, CU, XHHW EACH FROM PANEL 'LA' TO GENSET FOR CONNECTION TO GENERATOR BATTERY CHARGER AND ENGINE BLOCK HEATER.
5. UNDERGROUND CONDUIT FROM ATS TO GENSET FOR START/STOP WIRING. SEE 1/E4 FOR DETAILS.
6. UNDERGROUND CONDUIT FROM ATS TO GENERATOR FOR STANDBY POWER CONNECTION. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
7. PROVIDE 1" UNDERGROUND CONDUIT WITH PULL STRING FROM JUNCTION BOX INSIDE TO JUNCTION BOX FOR LIT-811 CABLING. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR CABLING REQUIRED.
8. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH INSTRUMENTATION DRAWINGS PRIOR TO ROUGH-IN.
9. BOLLARDS, TYP. SEE CIVIL PLANS FOR DETAILS.



2 LOAD BANK PEDESTAL DETAIL

SCALE AS SHOWN

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TITLE: ELECTRICAL SITE PLAN - PUMP STATION 5

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
12/5/25
REGISTERED PROFESSIONAL ENGINEER

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BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

SHEET E2 OF 5 SHEETS

GENERAL NOTES:

A. SEE SHEET E2 FOR ADDITIONAL GENERAL NOTES.

B. ALL INTERIOR AND EXTERIOR LIGHTING SHALL BE CONNECTED TO PANEL 'LA' CIRCUIT 1.

C. ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH PHOTOCELL LOCATED ON EXTERIOR OF THE BUILDING.

D. MOUNT ALL RECEPTACLES ON THE INTERIOR OR EXTERIOR OF THE EXTERIOR WALLS OF THE BUILDING AT +48" AFF, TO AVOID CONFLICTS WITH CONCRETE WALL.

E. CONDUIT AND WIRING ASSOCIATED WITH ALL INSTRUMENTATION, CONTROL, AND SIGNALING ARE NOT SHOWN ON THESE SHEETS. REFERENCE THE INSTRUMENTATION DRAWINGS FOR REQUIREMENTS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

F. LIGHTING CONTROL WIRING NOT SHOW BUT SHALL BE PROVIDED BY THE CONTRACTOR TO COMPLY WITH SPECIFICATIONS. CIRCUIT NUMBERS, AND LIGHTING CONTROLS SHOWN IN EACH ROOM.

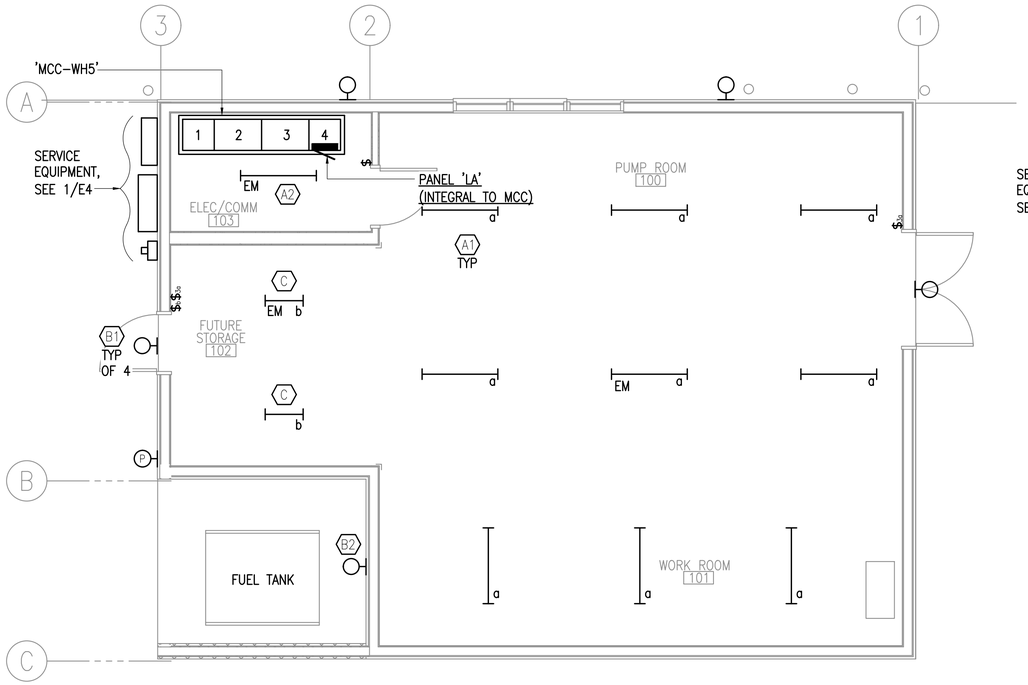
G. CONNECT ALL EMERGENCY LIGHTING TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT.

H. OCCUPANCY AND EXIT REQUIREMENTS PER IBC DO NOT REQUIRE EMERGENCY LIGHTING FOR THIS BUILDING. EMERGENCY LIGHTS ARE FOR CONVENIENCE OF OCCUPANTS IN CASE OF POWER LOSS.

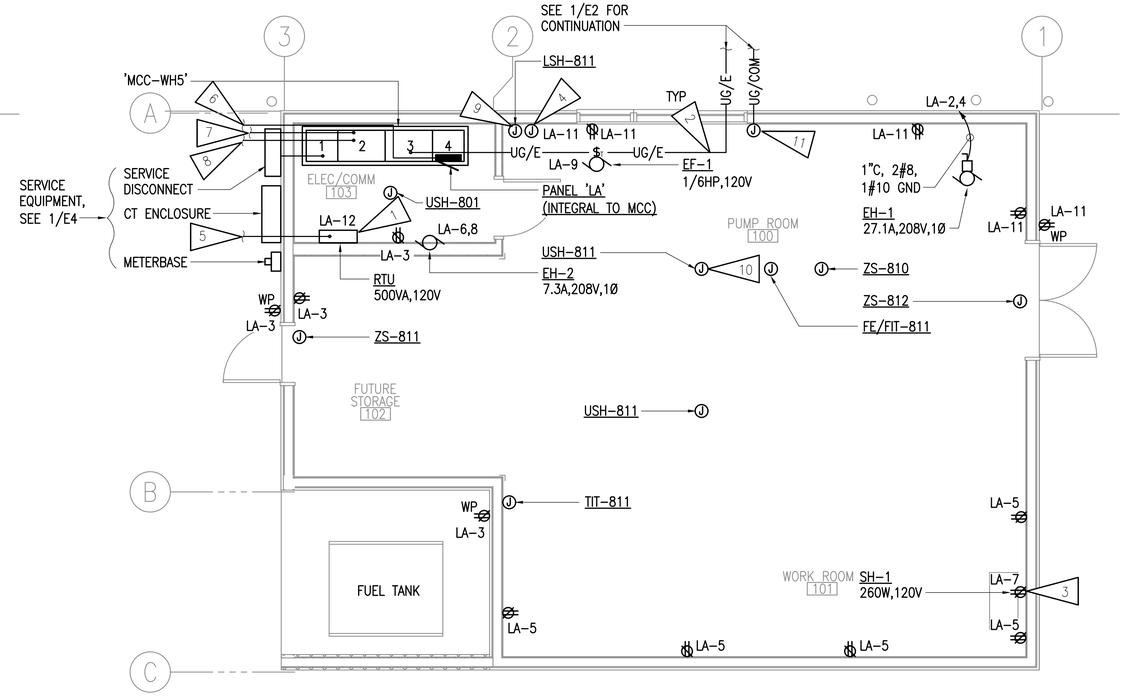
I. COORDINATE LOCATION AND CONNECTION REQUIREMENTS OF ALL DEVICES ENDING IN "–811" AND "–801" WITH INSTRUMENTATION DRAWINGS PRIOR TO ROUGH–IN.

SHEET NOTES: <#>

1. ROUTE 1.5" CONDUIT WITH PULL STRING FROM CONTROL PANEL TO ROOF FOR CONNECTION TO NEW CELLULAR/WIRELESS ANTENNA. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR ANTENNA CONNECTION PRIOR TO ROUGH–IN.
2. UNDERGROUND ELECTRICAL LINE. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
3. SH–1 LIFT PUMP SHALL UTILIZE RECEPTACLE FOR POWER REQUIREMENTS.
4. JUNCTION BOX FOR CONNECTION TO ELECTRIC TRAP PRIMER. COORDINATE WITH MECHANICAL FOR EXACT LOCATION PRIOR TO ROUGH–IN.
5. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR CONTROL PANEL, SEE 1/E2 FOR CONTINUATION.
6. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR BATTERY CHARGER AND ENGINE BLOCK HEATER, SEE 1/E2 FOR CONTINUATION.
7. UNDERGROUND CONDUIT FROM ATS TO GENSET FOR ATS/GENERATOR CONTROL WIRING. SEE 1/E4 FOR DETAILS. SEE 1/E2 FOR CONTINUATION.
8. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR SEE 1/E2 FOR CONTINUATION.
9. FIELD COORDINATE JUNCTION BOX MOUNTING LOCATION TO BE 1" AFF.
10. MOUNT ON DISCHARGE SIDE OF PCV.
11. PROVIDE 6"X6"X6" JUNCTION BOX FOR INSTRUMENTATION EQUIPMENT LIT–811 CABLING.



1 ELECTRICAL LIGHTING PLAN
1/4" = 1'-0"



2 ELECTRICAL POWER AND SIGNAL PLAN
1/4" = 1'-0"

APPRVL	REV	DATE	BY	REVISION

RSA
Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
(907) 276-2520
Corporate No.: AECC542

RSA JOB # M4082

TITLE: ELECTRICAL PLANS - PUMP STATION 5

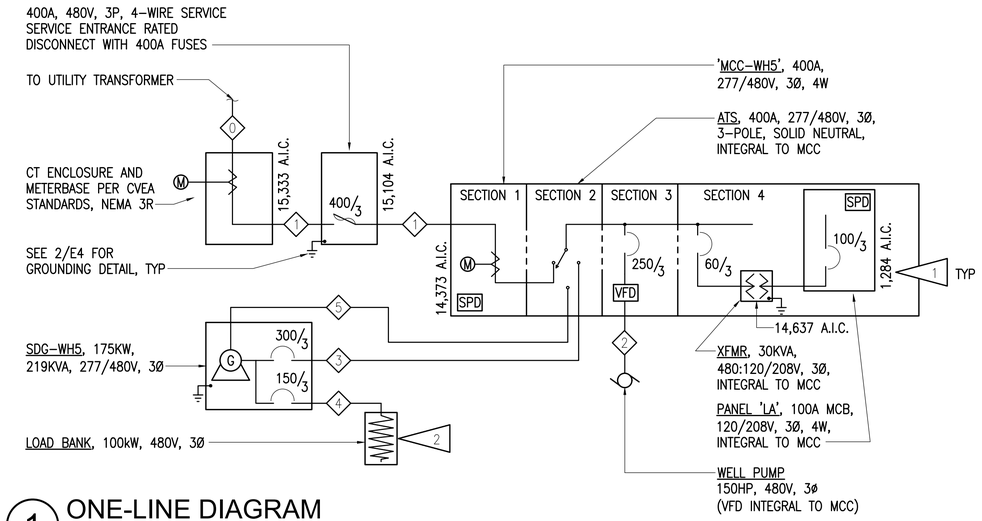
PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA — DAWN K. BLUBAUGH — EE–13893 — 1/15/26 — REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 15179 • ELY, NEVADA 89315 • (775) 289–5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348–8624

SHEET E3 OF 5 SHEETS

BY: CSZ_DB
DATE: 01/16/2026
SCALE: AS NOTED



1 ONE-LINE DIAGRAM
NO SCALE

FEEDER SCHEDULE	
FEEDER TAG	CONDUIT AND CONDUCTOR SIZE AND QUANTITY
◇0	CONDUIT ONLY, SIZED AS REQUIRED BY CVEA, CONDUCTORS BY CVEA
◇1	(2) 2"C, 4#3/0 AWG, 1#2 AWG GND CU, XHHW
◇2	2"C, 3#4/0 AWG, 1#4 AWG GND CU, XHHW
◇3	3"C, 4#350 KCMIL, 1#4 AWG GND CU, XHHW
◇4	1.5"C, 3#1/0 AWG, 1#6 AWG GND CU, XHHW
◇5	1"C AND GENERATOR START/STOP WIRING PER MANUFACTURER

GENERAL NOTES:

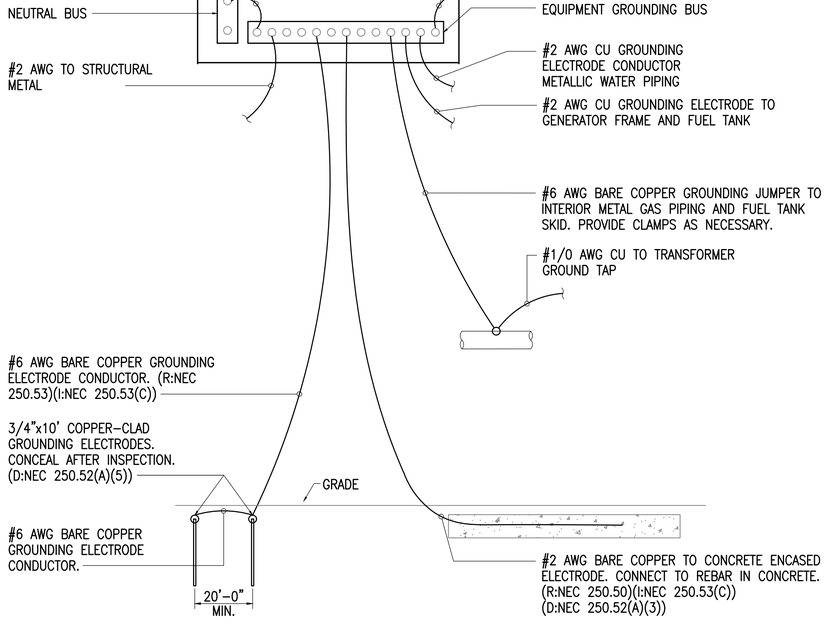
A. SEE SHEET E2 FOR GENERAL NOTES.

B. SERVICE ENTRANCE EQUIPMENT SHALL BE ASSEMBLED IN CONFORMANCE WITH THE LOCAL SERVING UTILITY'S STANDARDS. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF WITH CVEA.

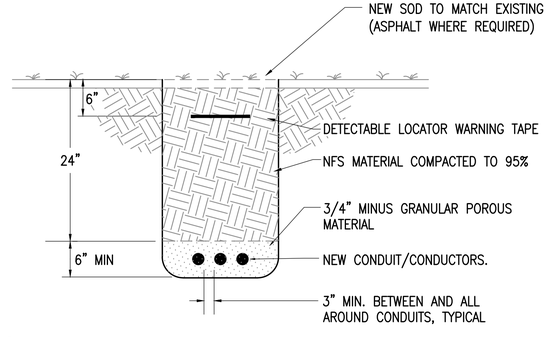
SHEET NOTES: ◁#

1. EQUIPMENT CALCULATED AIC. PANELBOARDS SHALL HAVE CALCULATED AIC INSTALLED ON NAMEPLATES.

2. PROVIDE ADDITIONAL CONTROL AND SIGNAL WIRING BETWEEN LOAD BANK AND GENERATOR IN ACCORDANCE WITH LOAD BANK MANUFACTURER'S INSTRUCTIONS.



2 GROUNDING DETAIL
NO SCALE



3 TRENCHING DETAIL
NO SCALE

CALL BEFORE YOU DIG	
THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCEMENT OF EXCAVATION. THE FOLLOWING IS A PARTIAL LIST:	
LOCATE CALL CENTER OF ALASKA	278–3121
COPPER VALLEY ELECTRIC ASSOCIATION	811

REVISION	BY	DATE	APPRVL REV

RSA Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
(907) 276-2520
Corporate No.: AECC542
RSA JOB # M4082

TITLE: ELECTRICAL DETAILS

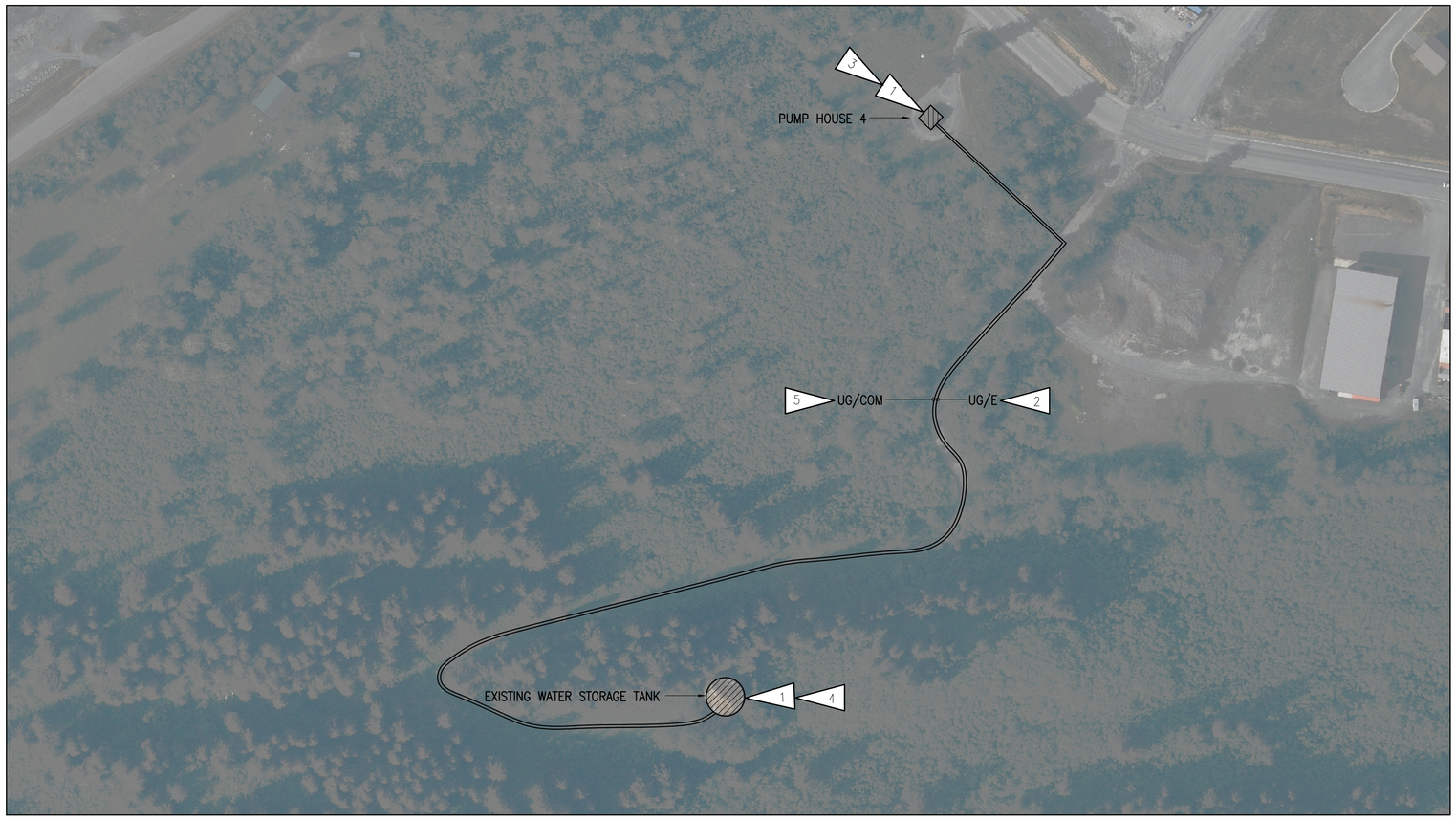
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49TH
DAVIN K. BLUBAUGH
EE-13893
12/5/25
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289–5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348–8624

BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

SHEET E4 OF 5 SHEETS



1 ELECTRICAL SITE PLAN - PUMP STATION 4
NOT TO SCALE

GENERAL NOTES:

A. SEE SHEET E2 FOR GENERAL NOTES.

B. IN-GRADE PULL BOXES ARE NOT SHOWN BUT SHALL BE PROVIDED AT A MAXIMUM OF 200FT INTERVALS. PROVIDE ADDITIONAL PULL BOXES AS REQUIRED.

C. FOR BIDDING PURPOSES, CONTRACTOR SHALL ASSUME DISTANCE FROM PUMP HOUSE 4 BUILDING TO WATER STORAGE TANK IS APPROXIMATELY 2,400 FEET. CONTRACTOR SHALL ROUTE ALL CONDUITS INTO EXISTING MAN HOLE LOCATED AT THE WATER STORAGE TANK.

D. REFERENCE THE INSTRUMENTATION DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR THE PUMP HOUSE 4 AND WATER STORAGE TANK INSTALLATION.

SHEET NOTES:

1. PROVIDE 0.5"C, 3#12 AWG CU XHHW FROM SPLICE BOX TO SPARE 20A, 1-POLE BREAKER IN EXISTING PANELBOARD IN THE BUILDING.
2. PROVIDE 2"C, 3#4 AWG CU XHHW FROM SPLICE BOX IN PUMP HOUSE 4 TO THE EXISTING WATER TOWER.
3. PROVIDE JUNCTION BOX FOR SPLICING #3 AWG CONDUCTORS TO #12 AWG.
4. PROVIDE 0.5"C, 3#12 AWG CU XHHW FROM SPLICE BOX TO EQUIPMENT IN WATER STORAGE TANK. COORDINATE WITH OWNER FOR EXACT EQUIPMENT REQUIRING CONNECTION.
5. PROVIDE 2"C WITH PULL STRINGS FROM THE EXISTING PUMP HOUSE 4 TO THE EXISTING WATER STORAGE TANK.

DB	△	10/27/2025	CSZ	ADDENDUM #4
APPRVL REV		DATE	BY	REVISION

RSA
Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
(907) 276-0520
Corporate No.: AECC542

RSA JOB # M4082

TITLE
ELECTRICAL DETAILS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
DAWN K. BLUBAUGH
EE-13893
11/5/25
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151179 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

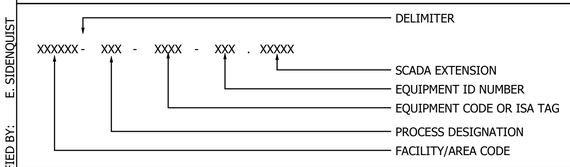
SHEET **E5** OF **5** SHEETS

BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

LAST MODIFIED BY: E. SIDENQUIST

LAST MODIFIED DATE: 01/16/25 3:44 PM

#.#



WWSS FACILITY / AREA CODE DESIGNATION EXAMPLE

NAMED FACILITY	**CODE**	**AREA**	**CODE**
WELL 5	W5	CHEMICAL	CHM

RESULTING CODE:

WELL 5 CHEMICAL	W5CHM

W5	WELL 5 GENERAL

#.#

ANSI / ISA DESIGNATION

FIRST LETTER				SECOND OR SUCCEEDING LETTERS					
MEASURED OR INITIATING VARIABLE		MODIFIER		READOUT OR PASSIVE FUNCTION		OUTPUT FUNCTION		MODIFIER FUNCTION	
A	ANALYSIS	D	DIFFERENTIAL	A	ALARM	B	USER'S CHOICE	B	USER'S CHOICE
B	BURNER, COMBUSTION	F	RATIO (FRACTION)	B	USER'S CHOICE	C	CONTROL	H	HIGH
C	USER'S CHOICE	J	SCAN	E	SENSOR (PRIMARY ELEMENT)	K	CONTROL STATION	L	LOW
D	USER'S CHOICE	K	TIME RATE OF CHANGE	G	GLASS, VIEWING DEVICE	N	USER'S CHOICE	M	MIDDLE, INTERMEDIATE
E	VOLTAGE	M	MOMENTARY	I	INDICATION	S	SWITCH	N	USER'S CHOICE
F	FLOW RATE	Q	INTEGRATE, TOTALIZER	L	LIGHT	T	TRANSMIT	U	MULTIFUNCTION
G	USER'S CHOICE	S	SAFETY	N	USER'S CHOICE	U	MULTIFUNCTION	X	UNCLASSIFIED
H	HAND	X	X- AXIS	O	ORIFICE, RESTRICTION	V	VALVE, DAMPER, LOUVER		
I	CURRENT (ELECTRICAL)	Y	Y-AXIS	P	POINT (TEST CONNECTION)	X	UNCLASSIFIED		
J	POWER	Z	Z-AXIS	R	RECORD	Y	RELAY, COMPUTE, CONVERT		
K	TIME, TIME SCHEDULE			U	MULTIFUNCTION	Z	DRIVER, ACTUATOR		
L	LEVEL			W	WELL				
M	USER'S CHOICE			X	UNCLASSIFIED				
N	USER'S CHOICE								
O	USER'S CHOICE								
P	PRESSURE, VACUUM								
Q	QUANTITY								
R	RADIATION								
S	SPEED, FREQUENCY								
T	TEMPERATURE								
U	MULTIVARIABLE								
V	VIBRATION, MECHANICAL ANALYSES								
W	WEIGHT, FORCE								
X	UNCLASSIFIED								
Y	EVENT, STATE OR PRESENCE								
Z	POSITION, DIMENSION								

GENERAL SHEET NOTES

APPRVL	REV	DATE	BY	REVISION

S & B inc.
Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE
STANDARDS SHEET

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

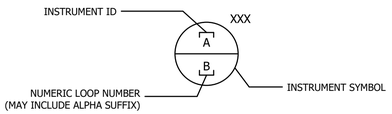
ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9090

SHEET 11 OF 24 SHEETS

BY : JES
DATE : 1/16/2026
SCALE : NTS

File Name: 23830-208__Well_5

#.# INSTRUMENTATION CALL-OUT



6.3 SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	XXX A B	XXX A B	XXX A B
PROGRAMMABLE LOGIC CONTROL	XXX A B	XXX A B	XXX A B

ANALOG INPUT
ANALOG OUTPUT
DISCRETE INPUT
DISCRETE OUTPUT
ELECTRIC SIGNAL
INTERNAL SYSTEM LINK
(SOFTWARE OR DATA LINK)

#.# COLOR PLAN

COLOR	GENERIC MEANING	ELEMENT ASSOCIATION
BLACK	BACKGROUND	
RED	EMERGENCY	A) STOP B) HIGHEST PRIORITY ALARM
YELLOW	CAUTION	A) ABNORMAL CONDITION B) SECOND PRIORITY ALARM C) CLOSED
GREEN	SAFE	A) NORMAL OPERATION B) START C) OPEN C) ON
CYAN (LIGHT BLUE)	STATIC & SIGNIFICANT	A) PROCESS EQUIPMENT IN SERVICE B) MAJOR LABELS
BLUE	NONESSENTIAL	A) STANDBY PROCESS EQUIPMENT B) LABELS, TAGS, ETC.
MAGENTA (PURPLE)	ANALYTICAL	A) RADIATION ALARMS B) QUESTIONABLE VALUES
WHITE	DYNAMIC DATA	A) MEASUREMENTS & STATE INFORMATION B) SYSTEM MESSAGES C) TREND D) ACTIVE SEQUENTIAL STEP
GRAY	INACTIVE	A) OFF B) NOT MONITORED

#.# WIRE NUMBERING

GENERAL SHEET NOTES

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208__Well_5

APPVL	REV	DATE	BY	REVISION

Stead & Associates
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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE
STANDARDS SHEET

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

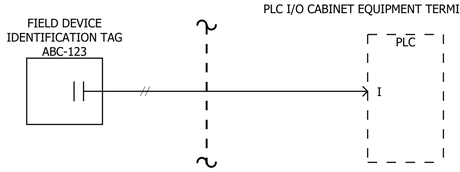
ENGINEERING
5 EAST FARR STREET FALLON, NEVADA 89406 (775) 423-6900

BY : JES
DATE : 1/16/2026
SCALE : NTS

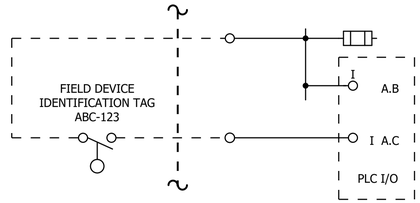
SHEET 12 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208_Well_5

DETAIL A

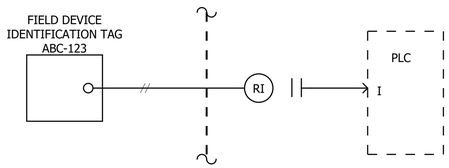


DISCRETE INPUT: DRY CONTACT IN FIELD DEVICE +24VDC SUPPLY VOLTAGE FROM PLANT I/O SYSTEM.

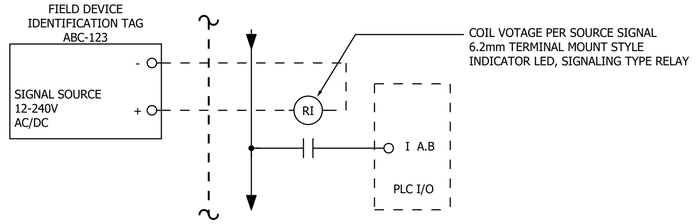


PLC INPUT CARD, DENOTED WITH BYTE.BIT MEMORY LOCATION. SUPPLY CURRENT LIMITING FUSE FOR EACH UNLESS INPUT CARD PRIVIDED PROTECTION. EXTERNAL TRANSZORB PROTECTION FOR OUTDOOR MOUNTED FIELD DEVICES FOR EQUIPMENT PROTECTION.

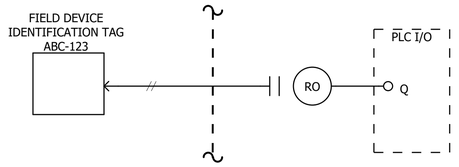
DETAIL B



FOREIGN VOLTAGE INPUT: FIELD DEVICE SOURCE VOLTAGE MATCHED BY RELAY INPUT COIL SPECIFICATION. PLANT I/O SYSTEM SIGNALED BY INTERNAL 24Vdc SUPPLY.



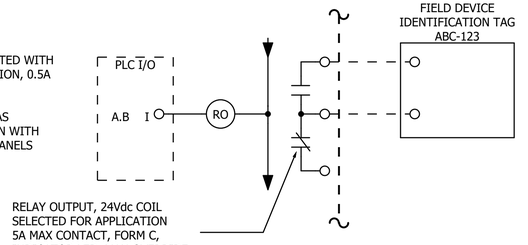
DETAIL C



PLC OUTPUT SHOWN AS RELAY OUPUT: +24Vdc SOURCE FROM OUTPUT CARD TO CONTROL RELAY IN I/O PANEL. RELAY CONTACT TO FIELD DEVICE RATED 24-120V AT 10A MAX

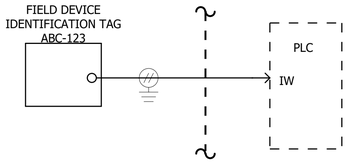
PLC OUTPUT CARD, DENOTED WITH BYTE.BIT MEMORY LOCATION, 0.5A MAX.

RELAY INTERPOSE USED AS REQUIRED FOR ISOLATION WITH THIRD PARTY CONTROL PANELS AND FIELD DEVICES.



RELAY OUTPUT, 24Vdc COIL SELECTED FOR APPLICATION 5A MAX CONTACT, FORM C, INDICATOR LED, MAN OVERRIDE, TERMINAL MOUNT STYLE UNLESS OTHERWISE SPECIFIED.

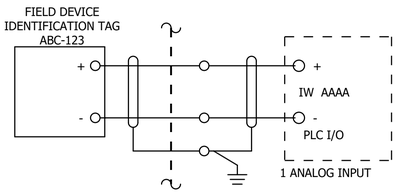
DETAIL D



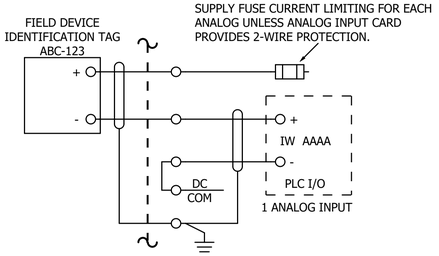
ANALOG INPUT: 4-20mAdc SIGNAL (0-10Vdc OPTIONAL). TWO-WIRE FIELD TRANSMITTERS HAVE NEGATIVE SIGNAL COMMON WITH 24Vdc POWER SYSTEM.

TYPICAL 2-WIRE DEVICE

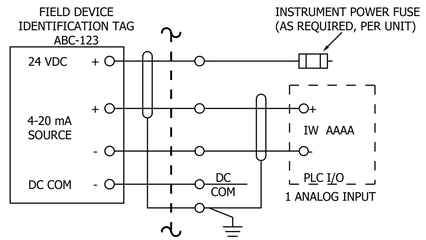
(USING PLC CARD'S INTERNAL CURRENT LIMITING)



TYPICAL 2-WIRE DEVICE

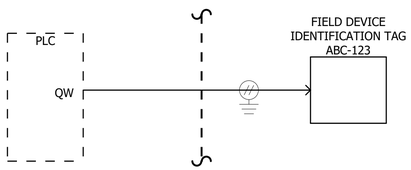


TYPICAL 4-WIRE DEVICE



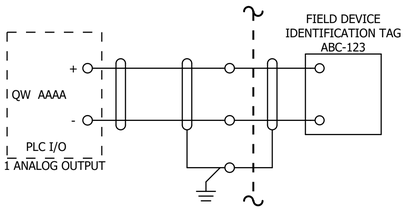
DETAIL E

ANALOG OUTPUT: 4-20mAdc SIGNAL (0-10Vdc OPTIONAL). TWO-WIRE FIELD TRANSMITTERS HAVE NEGATIVE SIGNAL COMMON WITH 24Vdc POWER SYSTEM.

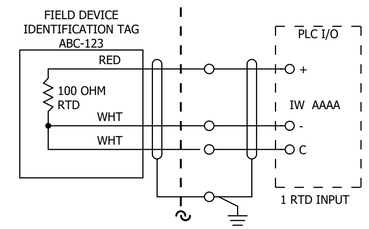


PLC ANALOG OUTPUT CARD, 4PT OR 8PT, DENOTED WITH WORD MEMORY LOCATION. 4-20mAdc OUTPUT (HARDWARE SELECTABLE TO 0-10Vdc). 15 BIT RESOLUTION.

COMMON NEGATIVE RETURN FOR ALL OUTPUT CHANNELS UNLESS SPECIFICALLY IDENTIFIED.



TYPICAL RTD DEVICE



KEY PLAN

WIRE TYPE SPECIFICATIONS

- DENOTES 2 SINGLE CONDUCTORS
- DENOTES SHIELDED PAIR CABLE
- PN — DENOTES PROFINET CABLE, SIEMENS 6XV18402AH10
- DP — DENOTES PROFIBUS CABLE, SIEMENS 6XV18300EH10
- SINGLE MODE FIBER
- CAT5e/CAT6 COPPER

GENERAL SHEET NOTES

A. WIRING CONNECTIONS ARE SHOWN AS SYMBOLIC INTERCONNECTIONS IN THE INSTRUMENTATION BLOCK DIAGRAM DRAWINGS, WIRE TYPE AND QUANTITY ARE DEFINED IN THE BLOCK DIAGRAM, CONDUCTOR PROPERTIES ARE DEFINED IN THE ELECTRICAL SPECIFICATION SECTION. BLOCK DIAGRAMS PROVIDE INTERCONNECTION REQUIREMENTS BETWEEN FIELD EQUIPMENT AND CONTROL PANELS AND ARE NOT INTENDED TO PROVIDE DIRECTION ON CONDUIT SIZE OR ROUTING.

B. FIELD AND PANEL TERMINATION OF NETWORK. DISCRETE AND ANALOG SIGNAL WIRING SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR AND VERIFIED BY THE SYSTEM INTERGRATOR PRIOR TO ENERGIZATION.

C. FIELD WIRING CONDUCTORS ARE IDENTIFIED BY PERMANENT MARKING METHODS DEFINED IN THE ELECTRICAL SPECIFICATIONS.

D. PLC/SCADA SYSTEM ABBREVIATIONS:

I:	DIGITAL INPUT(24Vdc UNLESS OTHERWISE DENOTED)
Q:	DIGITAL OUTPUT (24Vdc), TYP 0.5A MAX
IW:	ANALOG INPUT (INPUT WORD), 4-20mA
QW:	ANALOG OUTPUT (OUTPUT WORD), 4-20mA
Pn:	PROFINET NETWORK CONNECTION
ETH:	PROFINET INDUSTRIAL ETHERNET CONNECTION
HMI:	HUMAN MACHINE INTERFACE, TOUCH SCREEN FOR PROCESS VISUALIZATION
PN:	PROFINET

REVISION	BY	DATE	REV	APPRVL

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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sb-inc.com

TITLE: WIRING INTERFACE GENERAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

BY : JES
DATE : 1/16/2026
SCALE : NTS

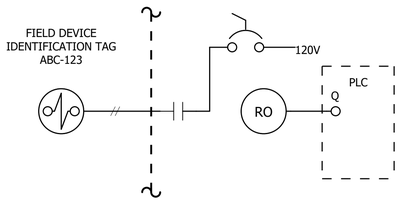
SHEET T3 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

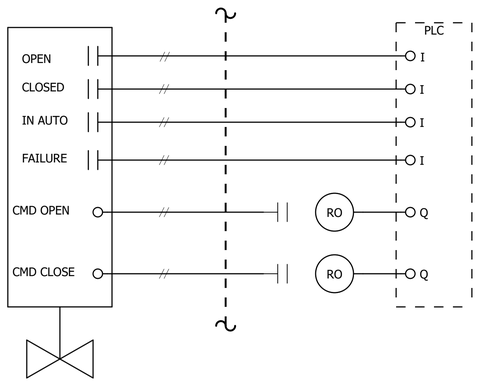
File Name: 23830-208_Well_5

DETAIL F

SOLENOID VALVE



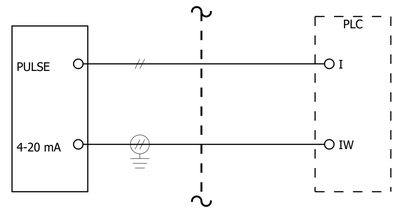
DISCRETE VALVE



APPLICATION: SPECIAL PURPOSE MOTORIZED BALL VALVES
PLC SYSTEM POSITIONS VALVE IN AUTOMATIC MODE, PROVIDES ALARM NOTIFICATION ON FAILURE TO REACH POSTION WITHIN ALLOTTED TIME, AND FOR A PROCESS FLOW VIOLATION. SCADA PROVIDES VISUALIZATION OF VALVE STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE OF VALVE

DETAIL G

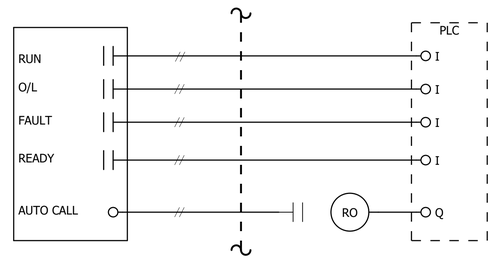
DISCRETE FLOW METER



APPLICATION: SPECIAL PURPOSE FLOWS, PLC SYSTEM MONITORS FLOW RATE AND ACCUMULATES FLOW TOTAL. RATE IS CONTINUOUSLY ANALYZED FOR CONSISTENCY. ALARMS CALCULATED FOR INVALID mA SIGNAL AND RAPID CHANGE IN FLOW. PLC STORES DAILY FLOW TOTAL, LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

DETAIL H

DISCRETE STARTER



APPLICATION: SPECIAL PURPOSE MOTOR STARTERS FOR FRACTIONAL HORSEPOWER INSTALLATIONS.
PLC SYSTEM MONITORS AUTOMATIC MODE, PROVIDES CONTROL (WHERE DEFINED BY P&ID). PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, AND FOR A PROCESS LOGIC VIOLATION. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE.

REVISION	BY	DATE	REV	APPRVL

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13200 S.E. 30th St.
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(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: **EQUIPMENT WIRING FOR DISCRETE AND VIRTUAL DATA**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

NETWORK CABLING NOTES

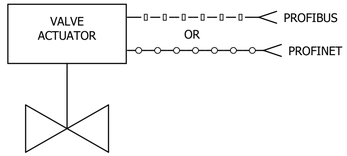
GENERAL PLANT CABLING CAN CARRY HIGH VOLTAGES AND CURRENTS. RUNNING PROFIBUS CABLES PARALLEL TO SUCH CABLES CAN LEAD TO INTERFERENCE PICKUP AND DATA TRANSMISSION ERRORS. MINIMIZE RISK OF INTERFERENCE BY FOLLOWING "INSTALLATION GUIDELINE FOR CABLING AND ASSEMBLY" AVAILABLE ONLINE AT WWW.PROFIBUS.ORG.

USE CARE TO AVOID COMMON PROFINET INSTALLATION PROBLEMS INCLUDING: OVERSTRESSED PULL TENSION, FAILURE TO FOLLOW END TAP LENGTHS IN EXCESS OF 1 METER AND FAILURE TO FOLLOW POLARITY, GROUNDING SPECIFICATIONS.

PROFINET / INDUSTRIAL ETHERNET CABLING REQUIRES HOME RUN TO NETWORK SWITCH FOR EACH DEVICE AND USE OF INDUSTRIAL CABLING AND CONNECTOR ASSEMBLIES.

DETAIL I

NETWORKED VALVE ACTUATOR



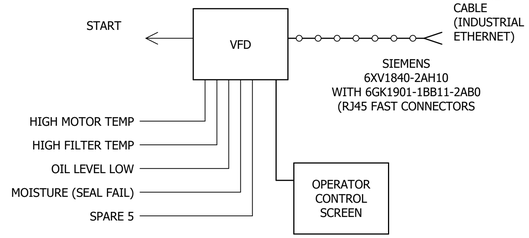
VIRTUAL I/O

VALVE POSITION XXX.X %
TORQUE APPLIED XXX FT-LBS
ACTUATOR TEM XXX DegF
FULLY CLOSED
FULLY OPEN
VALVE SELECTOR IN STOP
VALVE SELECTOR IN REMOTE
VALVE SELECTOR IN LOCAL
VALVE IN PLC CONTROL
VALVE MOTOR RUNNING
VALVE TORQUE STOPPED
VALVE OVERLOAD
CMD ERROR

APPLICATION: ALL VALVES UNLESS SPECIFICALLY IDENTIFIED. PLC SYSTEM POSITIONS VALVE IN AUTOMATIC MODE, PROVIDES ALARM NOTIFICATION ON FAILURE TO MEET SETPOINT, PROCESS FLOW VIOLATION, AND ALL VALVE INITIATED ALARM STATES. SCADA PROVIDES VISUALIZATION OF VALVE STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE OF VALVE. PROCESS FIELDBUS MAY BE PROFINET (PREFERRED) OR PROFIBUS. SEE NETWORK DIAGRAM FOR DETAILS THAT PRESCRIBE ROUTING TO DEVICE.

DETAIL J

NETWORKED VFD, SUBMERSIBLE MOTOR



VIRTUAL I/O

IN AUTO / IN HAND
CALL
RUNNING
READY
AT SPEED
FAULT-VFD FAULT ALARM
ALARM-VFD WARNING
OVERLOAD-MOTOR OVERLOAD
TEMPERATURE-VFD/MOTOR OVERTEMP

SPEED FEEDBACK
SPEED COMMAND
DC LINK VOLTAGE
MOTOR HP
MOTOR VOLTS
MOTOR AMPS
MOTOR TORQUE
LAST FAULT CODE
LAST ALARM CODE

APPLICATION: VARIABLE FREQUENCY DRIVE MOTOR STARTERS
PLC SYSTEM MONITORS MOTOR CONTROLLER VIA PROFIBUS NETWORK. VFD CONTOLLER PROVIDES ON BOARD LOGIC FOR LOCAL (HAND) AND REMOTE AUTO CONTROL, PROVIDES CONTROL (AS DEFINED BY P&ID), PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, FOR A PROCESS LOGIC VIOLATION AND ALL ALARM CONDITIONS GENERATED BY THE VFD CONTROL UNIT. POWER INFORMATION IS MONITORED FOR OVER AND UNDER LOAD CONDITIONS AS EARLY WARNING INDICATION OF PROCESS ABNORMALITIES. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTING, AND SUPERVISORY CONTROL OVERRIDES (HAND/OFF/AUTO). SCADA PROVIDES INDICATION OF ALL NETWORK DERIVED INFORMATION, ARCHIVES RUNTIME, SPEED, kW LOAD AND ALARM CONDITION.

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5050

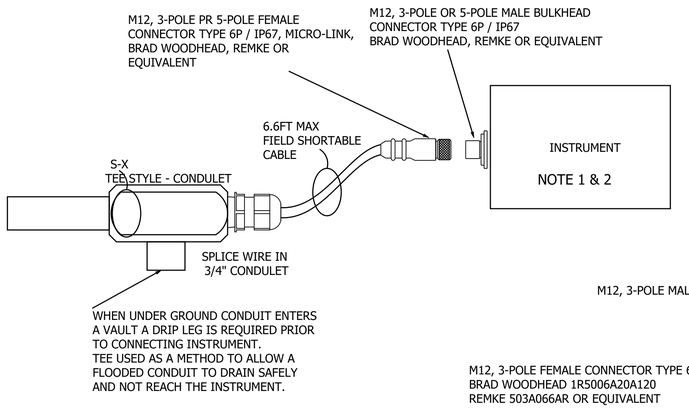
BY: JES
DATE: 1/16/2026
SCALE: NTS

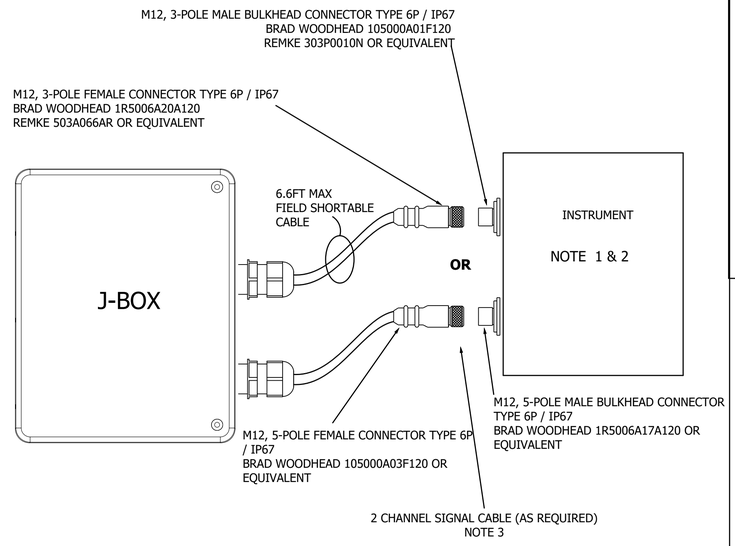
SHEET I4 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

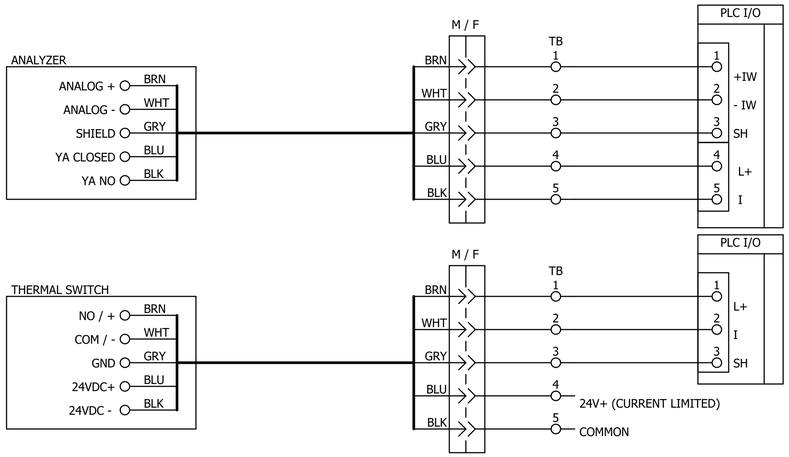
File Name: 23830-208_Well_5

DETAIL G1
TYPICAL INSTRUMENT CONNECTION DETAIL





	PINS		
3-POLE	② ① ⑤ ③ ④	1 - BROWN 2 - NOT USED 3 - BLUE 4 - BLACK 5 - NOT USED	ANALOG + ANALOG - SHIELD
5-POLE	② ① ⑤ ③ ④	1 - BROWN 2 - WHITE 3 - BLUE 4 - BLACK 5 - GRAY	ANALOG + ANALOG - YA CLOSED YA NO SHIELD



GENERAL SHEET NOTES

1. INSTRUMENTS USING 3-POLE M12 CONNECTORS ARE:
   -PRESSURE SWITCHES
   -LEVEL SWITCHES
   -LIMIT SWITCHES
   -FLOW SWITCHES
   2-WIRE TRANSMITTERS W/O FAILURE CONTACT
   -ALL ANALOG PRESSURE INSTRUMENTS
   -ULTRASONIC LEVEL PROBE
   -RADAR LEVEL PROBES
   4-WIRE TRANSMITTERS USING 120V PRIMARY POWER

2. INSTRUMENTS USING 5-POLE M12 CONNECTORS ARE:
   -ALL WATER QUALITY ANALYZERS
   DUAL ANALOG OUTPUT INSTRUMENTS ANALOG + FAIL
   THERMAL DISPERSION FLOW SWITCH
   4-WIRE TRANSMITTERS USING 24VDC PRIMARY POWER

3. AN EXAMPLE, DUAL CHANNEL INSTRUMENT IS A pH SENSOR WITH TEMPERATURE MEASUREMENT.

4. 120VAC POWER CABLES USE NEMA L5-15 LOCKING STYLE PLUG CONNECTION.

REVISION	BY	DATE	REV	APPRVL

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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE: QUICK CONNECT CABLING STANDARDS

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

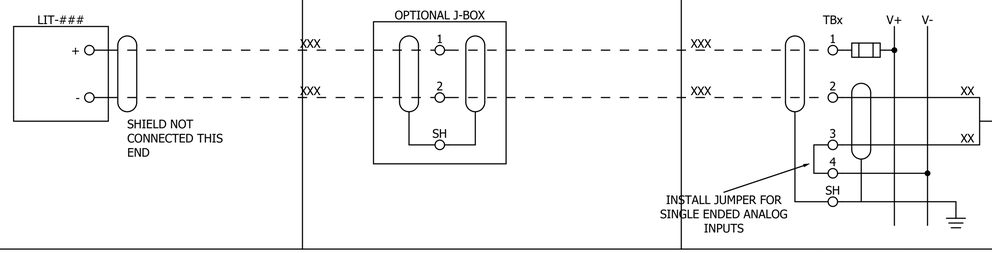
ENGINEERING
5 EAST MAIN STREET FALLON, NEVADA 89406 (775) 423-5090

BY: JES
DATE: 1/16/2026
SCALE: NTS

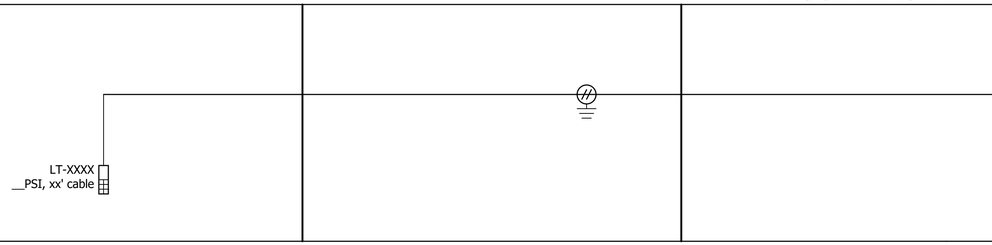
SHEET 15 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM

WIRING DIAGRAM



BLOCK DIAGRAM



GENERAL SHEET NOTES:

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Current Value	9999.99	Ft
High High Alarm	+9999.99	Ft
High Alarm	+9999.99	Ft
Low Alarm	+9999.99	Ft
Low Low Alarm	+9999.99	Ft

DETAILS Show All

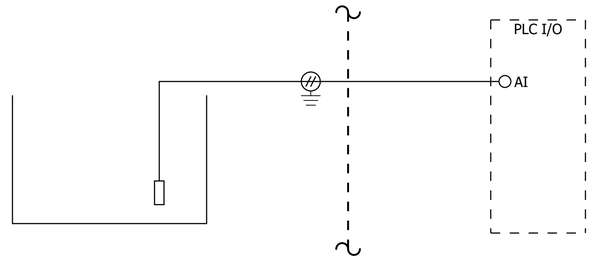
Broken Transmitter

Min EU	+9999.99	Ft
Max EU	+999999.99	Ft
Smoothing	9.99	
Deadband	99.999	

SCADA EXTENSION

DETAIL

DISCRETE LEVEL TRANSMITTER



P&ID REPRESENTATION

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13200 S.E. 30th St.
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(425) 644-1700 Fax: (425) 746-9312
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TITLE: Submersible Probe (Discrete) Detail

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5999

BY: JES
DATE: 1/16/2026
SCALE: NTS

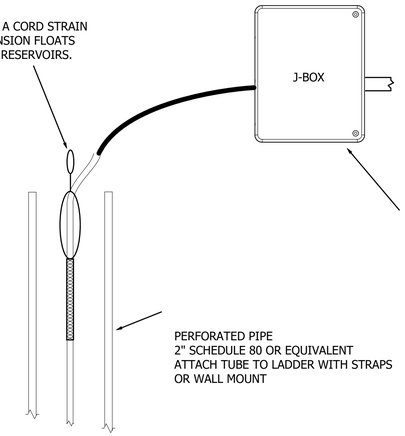
SHEET I6 OF 24 SHEETS

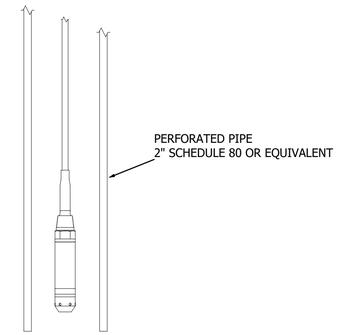
File Name: 23830-208__Well_5

LAST MODIFIED DATE: 01/16/26 12:36 PM LAST MODIFIED BY:

File Name: 23830-208_Well_5

AQUIFER STILLING WELL APPLICATION





NOTES:

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TITLE: **Submersible Probe Installation**

PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

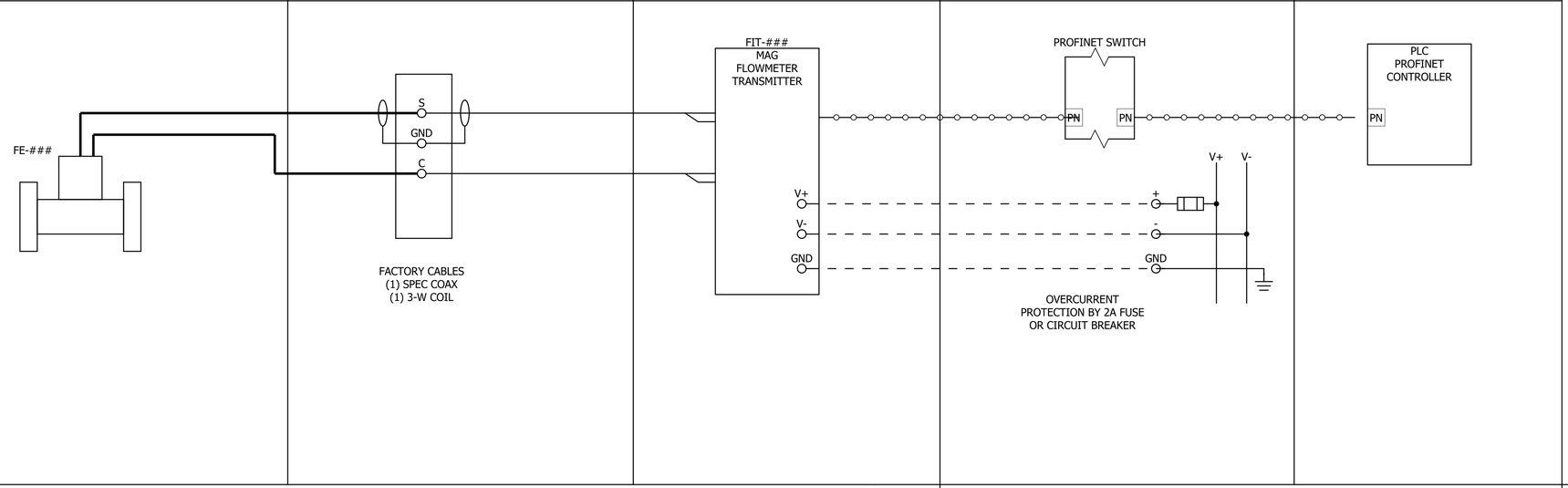
S ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5090

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 17 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

1. ALL MAGMETERS. PLC SYSTEM MONITORS FLOW RATE, TOTALIZERS, DIRECTION AND DIAGNOSTIC DATA. RATE IS CONTINUOUSLY ANALYZED FOR CONSISTENCY AND SMOOTHED BY PLC. ALARMS CALCULATED FOR INVALID DATA SIGNAL AND RAPID CHANGE IN FLOW. PLC READS AND RESETS DAILY FLOW TOTAL, READS LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE FROM FLOWMETER. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

2. ANY FLOW METER IN A VAULT SHALL BE SUPPLIED WITH A SUBMERGENCE KIT FOR FLOOD DAMAGE MITIGATION

3. USE GROUNDING RINGS PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS

4. PROFINET OPERATION VIA GSMDL SPECIFICATION FILE. UNLESS SPECIFICALLY DIRECTED CONTRARY IN THE SPECIFICATIONS, CONFIGURE FLOW RATE VARIABLE TO DISPLAY IN GPM, SECONDARY VARIABLE AS RESETABLE TOTALIZER 1 AND TERTIARY VARIABLE AS LIFETIME TOTALIZER 2. CONFIGURE EQUIPMENT ERROR AND OPERATING STATUS DATA BITS FOR DIAGNOSTICS. PROVIDE INDICATION OF NETWORK HEALTH.

REVISION	BY	DATE	REV	APPRVL

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SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Title of Instrument xxxxxxx				Alarms	In Test Mode
{tag ID}	10000	GPM		DP_Fail	
				EQ_Fail	
			Lifetime	568.000	MG
Current Hr:	2.000	MG	Today	56.000	MG
Last Hr:	2.200	MG	Yesterday	6.000	MG

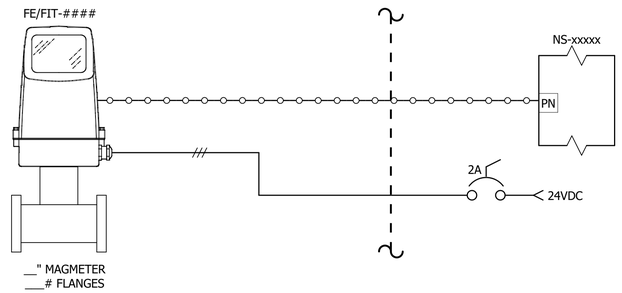
SCADA EXTENSION

Fieldbus_Network_Err
EQ_Err
Flow_Rate
Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life
Test_Mode

Today:	99999.9	kG
Yesterday:	99999.9	kG
Current Hour:	99999.9	kG
Last Hour:	99999.9	kG
Lifetime:	99999.9	MG

Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life

BLOCK DIAGRAM REPRESENTATION



MINIMUM REQUIRED I/O VARIABLES

FLOW RATE +/- XXXXX.X GPM
FLOW TOTAL 1 X,XXX.XXX MG
FLOW TOTAL 2 X,XXX.XXX MG
FLOWMETER ERROR

P&ID REPRESENTATION

TITLE: MAG Flowmeter (Networked)

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PAWS STREET FALLON, NEVADA 89406 (775) 423-9990

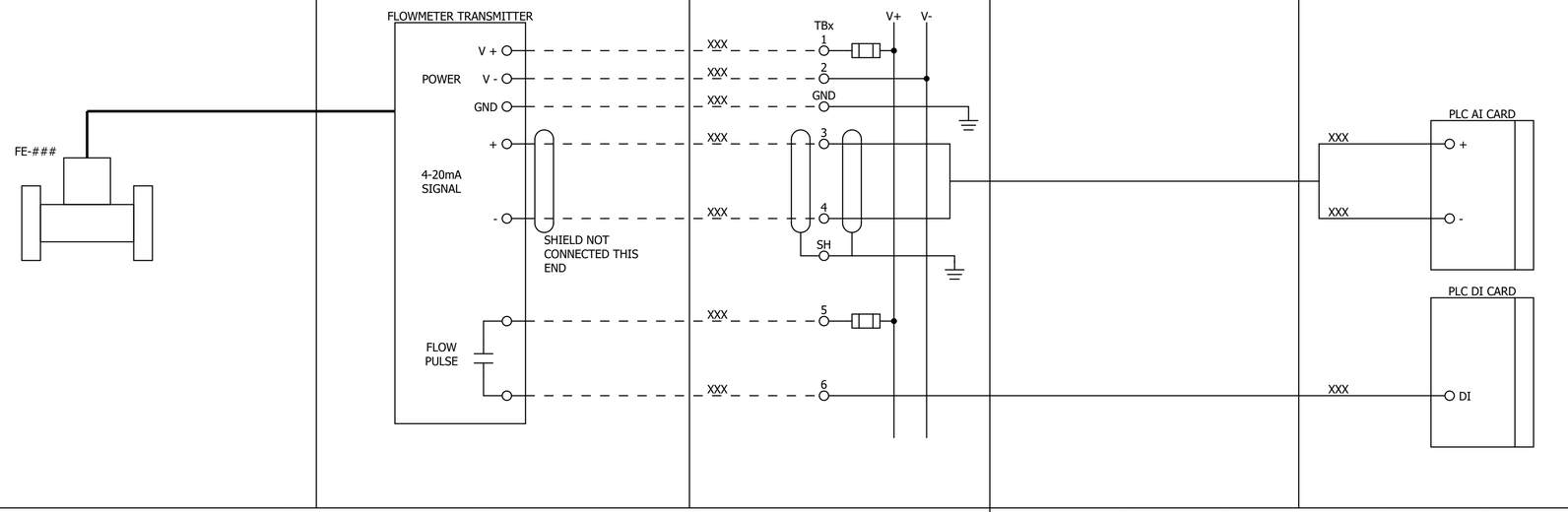
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 18 OF 24 SHEETS

File Name: 23830-208_Well_5

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

1. APPLICATION:
   ALL MAGMETERS. PLC SYSTEM MONITORS FLOW RATE, TOTALIZERS, DIRECTION AND DIAGNOSTIC DATA. RATE IS CONTINOUSLY ANALYZED FOR CONSISTENCY AND SMOOTHED BY PLC. ALARMS CALCULATED FOR INVALID DATA SIGNAL AND RAPID CHANGE IN FLOW. PLC READS AND RESETS DAILY FLOW TOTAL, READS LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE FROM FLOWMETER. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

2. ANY FLOW METER IN A VAULT SHALL BE SUPPLIED WITH A SUBMERGENCE KIT FOR FLOOD DAMAGE MITIGATION

APPVL	REV	DATE	BY	REVISION

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Bellevue, Washington 98005
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www.sbinc.com service@sbinc.com

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Current Value	9999.99	GPM
High High Alarm	+9999.99	GPM
High Alarm	+9999.99	GPM
Low Alarm	+9999.99	GPM
Low Low Alarm	+9999.99	GPM

DETAILS Show All

Broken Transmitter

Min EU	+9999.99	GPM
Max EU	+999999.99	GPM
Smoothing	9.99	
Deadband	99.999	

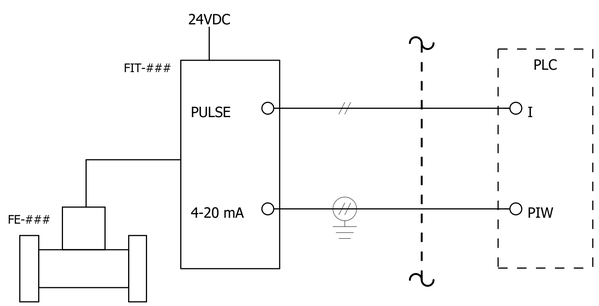
SCADA EXTENSION

Today:	99999.9	kG
Yesterday:	99999.9	kG
Current Hour:	99999.9	kG
Last Hour:	99999.9	kG
Lifetime:	99999.9	MG

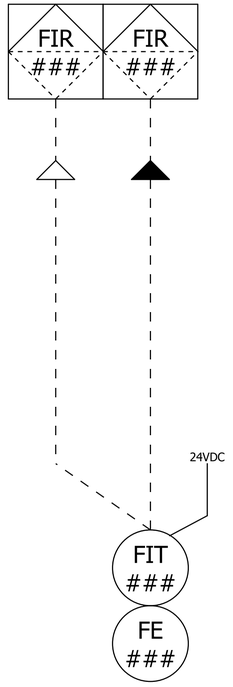
Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life

BLOCK DIAGRAM REPRESENTATION

DISCRETE WIRED FLOW METER



P&ID REPRESENTATION



TITLE: MAG Flowmeter (Discrete) Detail

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5000

BY : JES
DATE : 1/16/2026
SCALE : NTS
SHEET I9 OF 24 SHEETS

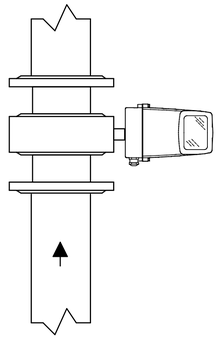
File Name: 23830-208__Well_5

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

File Name: 23830-208_Well_5

MAG METER VERTICAL PIPE INSTALLATION

Installation in vertical pipes
Recommended flow direction: upwards. This minimizes the effect on the measurement of any gas/air bubbles in the liquid.

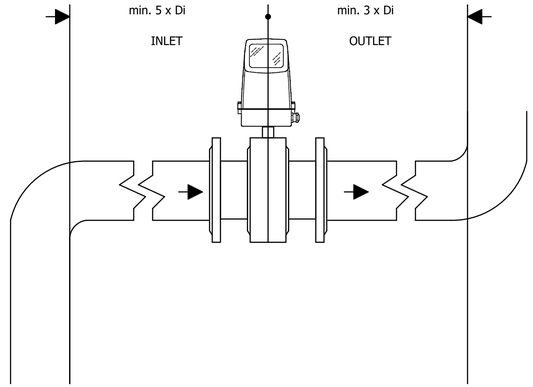


NOTES:

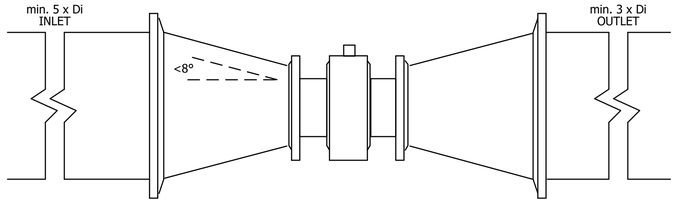
THIS IS PREFERRED MOUNTING FOR FLOWMETER DIAMETERS 1" AND LESS. HIGHLY RECOMMENDED FOR CHEMICAL FLOW MEASUREMENT AND SIMILAR APPLICATIONS WITH PULSATING FLOWS.

TYPICAL MAG METER INSTALLATION REQUIREMENTS

Inlet and outlet conditions
To achieve accurate flow measurement it is essential to have straight lengths of inlet and outlet pipes and a certain distance between pumps and valves. It is also important to centre the flowmeter in relation to pipe flanges and gaskets.



SPECIAL CONDITIONS



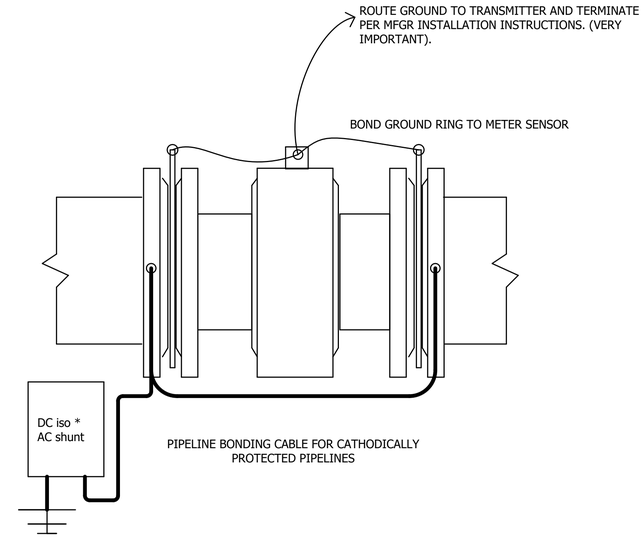
NOTES:

FLOWMETER MUST HAVE FULL PIPE CONDITIONS FOR MEASUREMENT AND BE MOUNTED WITH ELEVATION INCREASING OR FLAT IN DIRECTION OF FLOW.

INLET AND EXIT FLOW CONDITIONS MAY VARY BY MANUFACTURER, CONFIRM ACCURACY OF PROPOSED EQUIPMENT WITH APPLICATION CONDITIONS DEFINED IN MECHANICAL DRAWINGS.

SPECIAL CONDITIONS: CONCENTRIC REDUCERS MAY BE APPLIED DIRECTLY TO FLOWMETER, HOWEVER DIAMETERS ARE CALCULATED AT LARGEST DIAMETER. (I.E. 16"X12" REDUCER WILL REQUIRE 80" INLET AND 48" OUTLET).

GROUNDING AND CATHODIC PROTECTION METHODS



*DAIRYLAND MODEL PCR DECOUPLER RECOMMENDED TO MITIGATE INDUCED AC WHILE MAINTAINING DC ISOLATION. FIELD VERIFY PRESENCE OF AC VOLTAGE ON PIPELINE AND APPLY IF LEVELS EXCEED 1 VAC.

NOTES:

Magmeter technology requires a stable ground potential reference. Special attention must be given to systems with cathodic currents passing through the pipeline in which the meter sensor is mounted. Provide DC isolation, AC shunt to mitigate external induced AC voltage.

Grounding rings supplied with flowmeters must be connected to the meter transmitter as specifically diagrammed by the meter manufacturer. Confirm that gaskets do not extend within 1/8" of the inner ring of the grounding ring. Conductor size shall be no less than 10ga. For meter sensors supplied with integral grounding electrodes, ground rings are not required.

Pipelines with cathodic protection require the meter sensor to be electrically isolated from the pipeline. Provide isolation bushings for each flange bolt and gaskets between all flanges. Provide #4cu AWG conductor bridging the segmented pipeline at 3 and 9 o'clock positions along the pipeline.

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE: MAG Meter Installation

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5090

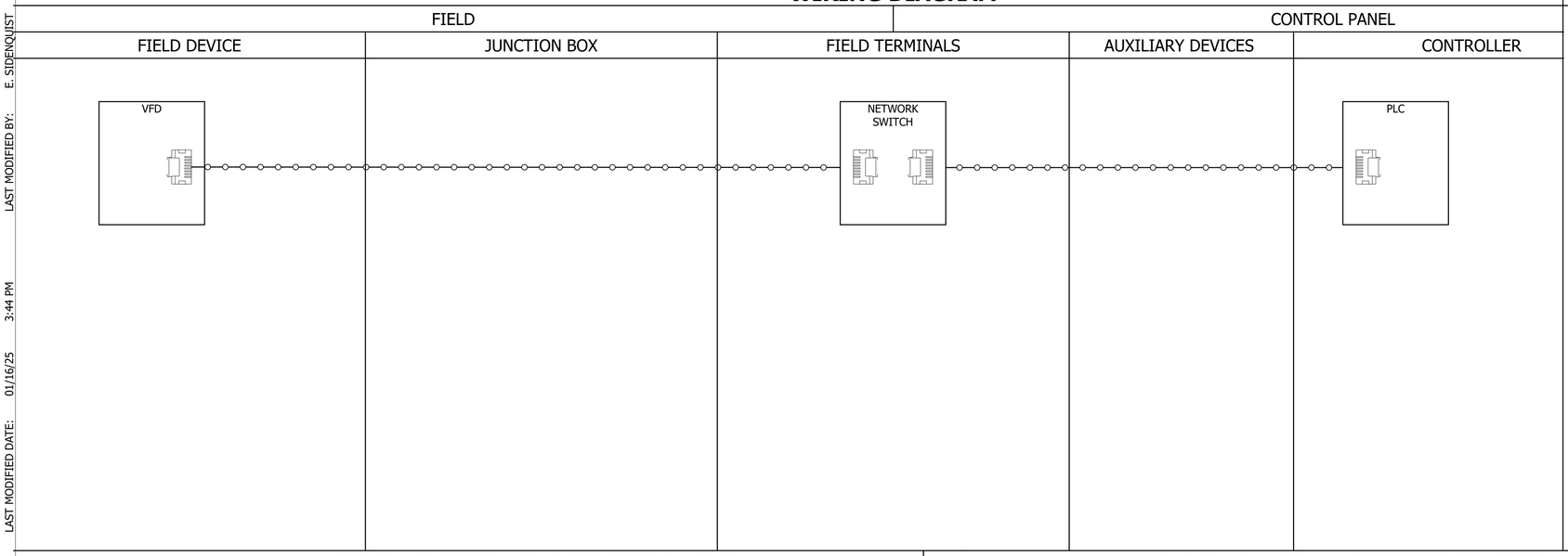
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 10 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

File Name: 23830-208_Well_5

WIRING DIAGRAM



GENERAL SHEET NOTES:

APPLICATION:
VARIABLE FREQUENCY DRIVE MOTOR STARTERS PLC SYSTEM MONITORS MOTOR CONTROLLER VIA PROFINET NETWORK. VFD CONTOLLER PROVIDES ON BOARD LOGIC FOR LOCAL (HAND) AND REMOTE AUTO CONTROL, PROVIDES CONTROL (AS DEFINED BY P&ID), PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, FOR A PROCESS LOGIC VIOLATION AND ALL ALARM CONDITIONS GENERATED BY THE VFD CONTROL UNIT. POWER INFORMATION IS MONITORED FOR OVER AND UNDER LOAD CONDITIONS AS EARLY WARNING INDICATION OF PROCESS ABNORMALITIES. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTING, AND SUPERVISORY CONTROL OVERRIDES (HAND/OFF/AUTO). SCADA PROVIDES INDICATION OF ALL NETWORK DERIVED INFORMATION, ARCHIVES RUNTIME, SPEED, kW LOAD AND ALARM CONDITION.

VIRTUAL I/O

IN AUTO / IN HAND	SPEED FEEDBACK
CALL	SPEED COMMAND
RUNNING	DC LINK VOLTAGE
READY	MOTOR HP
AT SPEED	MOTOR VOLTS
FAULT-VFD FAULT ALARM	MOTOR AMPS
ALARM-VFD WARNING	MOTOR TORQUE
OVERLOAD-MOTOR OVERLOAD	LAST FAULT CODE
TEMPERATURE-VFD/MOTOR OVERTEMP	LAST ALARM CODE

REVISION	BY	DATE	REV	APPRVL

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SCADA INTERFACE REPRESENTATION

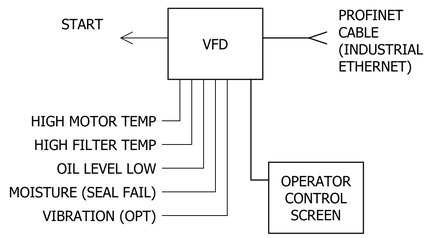
SCADA FACEPLATE

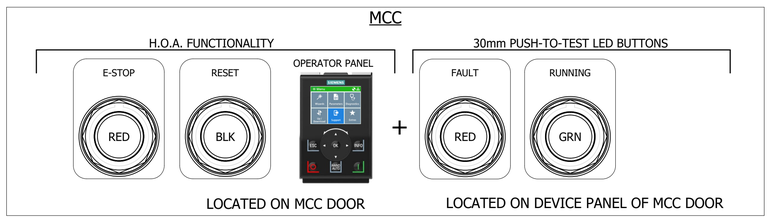
SCADA EXTENSION

Call	Alarms	Rated_HP
StopLoop	Start Fail	PID_Gain
InAuto	Stop Fail	PID_TI
IntegralOff	Start Limit	PID_error
StartFail_SP	Warning	Date_Start
StopFail_SP	Fault	Date_Auto
Starts_SP	Lockout	Date_Called
ProcessVar	Overtemp	Date_Stopped
Speed SP	Overload	Test Mode
PZD_Status	Restart Delay	
PZD_Speed	Low Torque	
PZD_Command	High Disch. PSI	
PZD_Setpoint	Low Suct. PSI	
HOA_Switch	VFD_Setpoint	
Status	VFD_Speed	
Required	VFD_Starts	
Running	VFD_StartsFail	
Called	VFD_StopFail	
Ramping	VFD_MinSpeed	
Ready	VFD_StartSpeed	
Auto	Motor_RPM	
	Motor_Freq	
	Motor_Volts	
	Motor_Amps	
	Motor_Torque	
	Motor_HP	
	Motor_DClink	

BLOCK DIAGRAM REPRESENTATION

NETWORKED VFD, NON-SUBMERSIBLE MOTOR





P&ID REPRESENTATION

TITLE: VFD (Networked) Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I11 OF 24 SHEETS

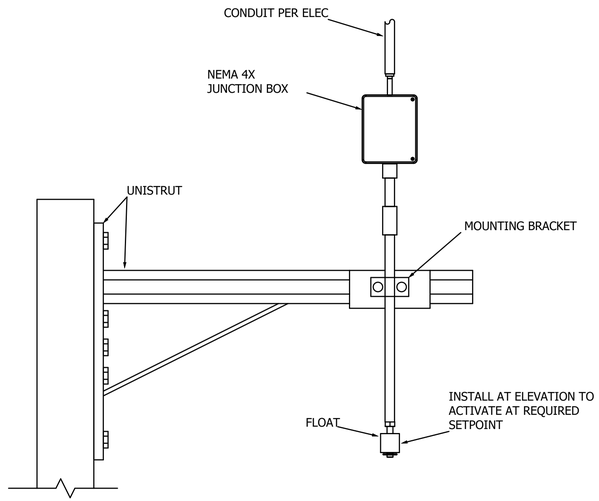
LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 12:38 PM

File Name: 23830-208__Well_5

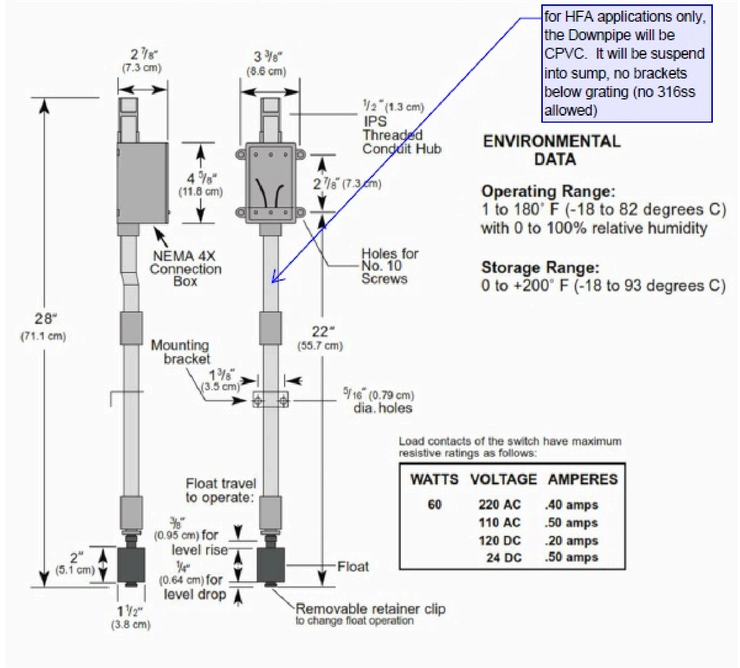
VERTICAL TOP MOUNT LIQUID LEVEL SWTICH

(OPEN VESSEL MOUNT APPLICATION)



VERTICAL TOP MOUNT LIQUID LEVEL SWITCH

(WALL MOUNT APPLICATION)



NOTES:

NOTES:

NOTES:

REVISION	BY	DATE	REV	APPVL

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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE

FLOOD SWITCH DETAIL

PROJECT

NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6999

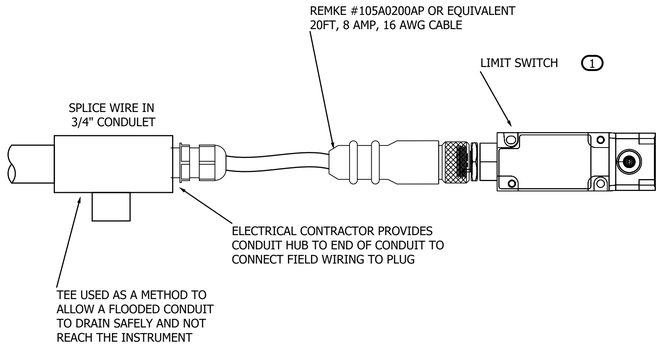
BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 12 OF 24 SHEETS

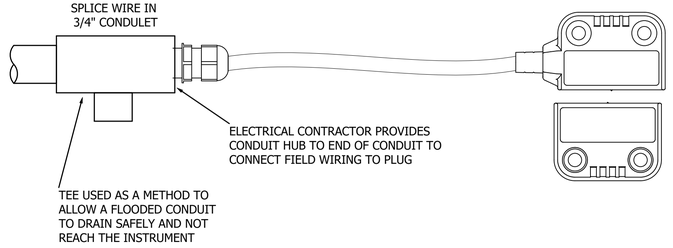
LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

File Name: 23830-208_Well_5

LIMIT SWITCH DEVICES



MAGNETIC LIMIT SWITCH



NOTES:

1 FOR STATION DOOR AJAR, USE SIEMENS 3SE03-AR1 LIMIT SWITCH
FOR VAULT / HATCH AJAR, USE SIEMENS 3SE03-AR16P LIMIT SWITCH

NOTES:

NOTES:

APPRVL	REV	DATE	BY	REVISION

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www.sbinc.com service@sbinc.com

TITLE: Intrusion Limit Switch Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

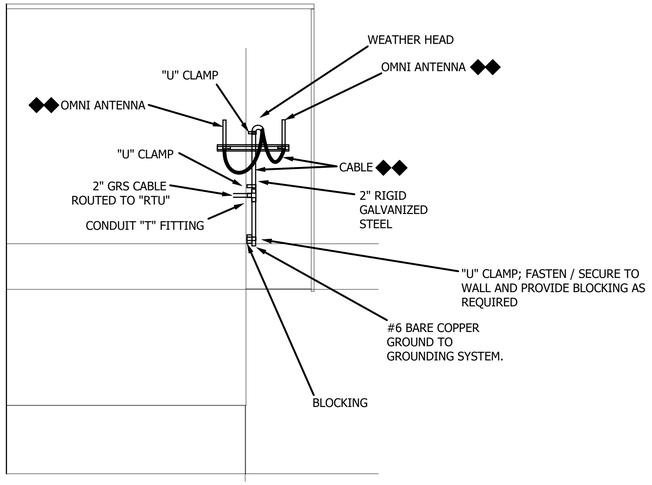
BY : JES
DATE : 1/16/2026
SCALE : NTS

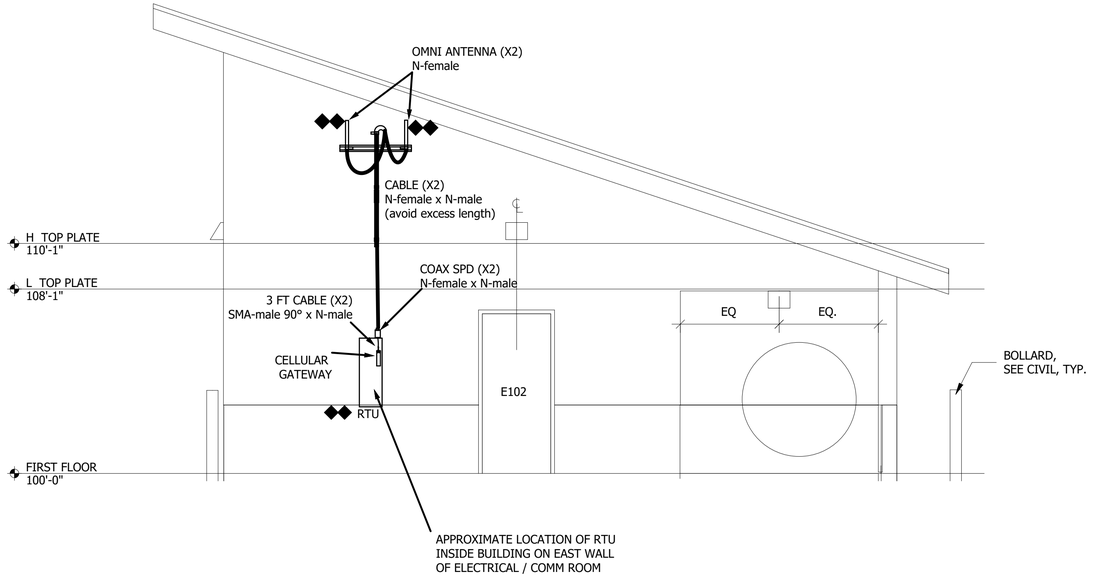
SHEET I13 OF 24 SHEETS

LAST MODIFIED DATE: 01/17/25 5:36 PM LAST MODIFIED BY:

NOTES:

1. EXAMPLE OF BUILDING WITH EXTERIOR MAST FOR CELLULAR ANTENNA. BUILDING IS GENERIC IN NATURE AND INTENDED ONLY TO REPRESENT RECOMMENDED CLEARANCE AND SPACING FOR ANTENNA SYSTEM, AND NOT TO REPRESENT ACTUAL BUILDING DESIGN.
2. MAST AND ANTENNA LOCATION DETERMINED BY CELLULAR NETWORK SIGNAL ANALYSIS
3. MAST IS RECOMMENDED TO AVOID ROOF PENETRATIONS ON RETROFIT APPLICATIONS, ANY ROOF PENETRATION REQUIRES WEATHERTIGHT PROTECTION FOR THE STRUCTURE. RECOMMEND SIDE WALL MOUNTED MAST AND EXTENDING MAST VERTICAL TO CLEARANCES SHOWN ABOVE ROOFLINE.
4. SURGE PROTECTION FOR THE ANTENNA SYSTEM SHALL BE SUPPLIED FOR ALL SYSTEMS WITH OUTDOOR MOUNTED ANTENNA. SURGE UNIT IS LOCATED ON OR ADJACENT TO THE RTU, IN CLOSE PROXIMITY TO THE CELLULAR MODEM.





◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 40 61 00.

APPRVL	REV	DATE	BY	REVISION

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www.sb-inc.com service@sb-inc.com

TITLE: Station Antenna Installation Detail

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9990

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET I14 OF 24 SHEETS

File Name: 23830-208_Well_5

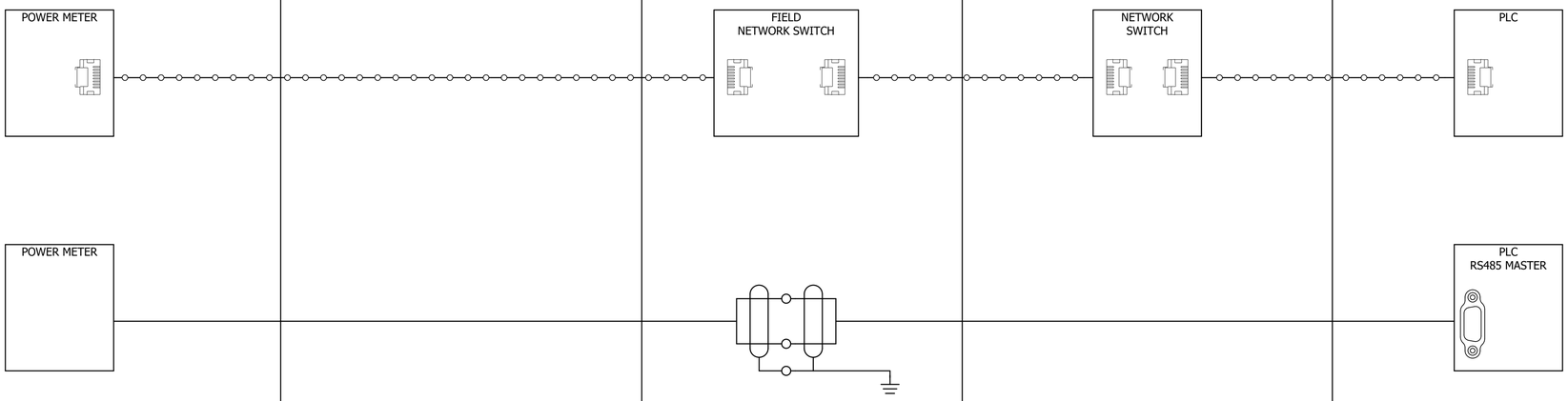
LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

File Name: 23830-208__Well_5

WIRING DIAGRAM

FIELD | CONTROL PANEL

FIELD DEVICE | JUNCTION BOX | FIELD TERMINALS | AUXILIARY DEVICES | CONTROLLER



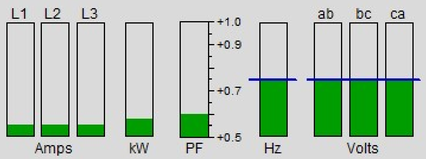
GENERAL SHEET NOTES:

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

{Power Meter in MCC-11}

	Ave.	L1	L2	L3	
Voltage L-L:	45656	45656	45656	45656	V
Voltage L-N:	45	45	45	45	V
Current:	45	45	45	45	A
Harmonic Distortion L-L:		45.23	45.23	45.23	%
Total Watts:	45.230	KW			
Total VARS:	+45.230	KVARS			
Total Volt Amps:	45.230	kVA			
Volts Unbalanced:	45.23	%			
Amps Unbalanced:	45.23	%			
Power Factor:	+45.23				
Frequency:	45.23	Hz			



SCADA EXTENSION

V_In1
V_In2
V_In3
V_InAvg
V_L12
V_L23
V_L31
V_LLavg
I_1
I_2
I_3
I_avg
kW
Vars_Total
VA_Total
V_unbal
I_unbal
PF
Freq
THD_L12
THD_L23
THD_L31

BLOCK DIAGRAM REPRESENTATION

P&ID REPRESENTATION

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Bellevue, Washington 98005
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www.sbinc.com service@sbinc.com

TITLE: Power Meter (Networked)

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

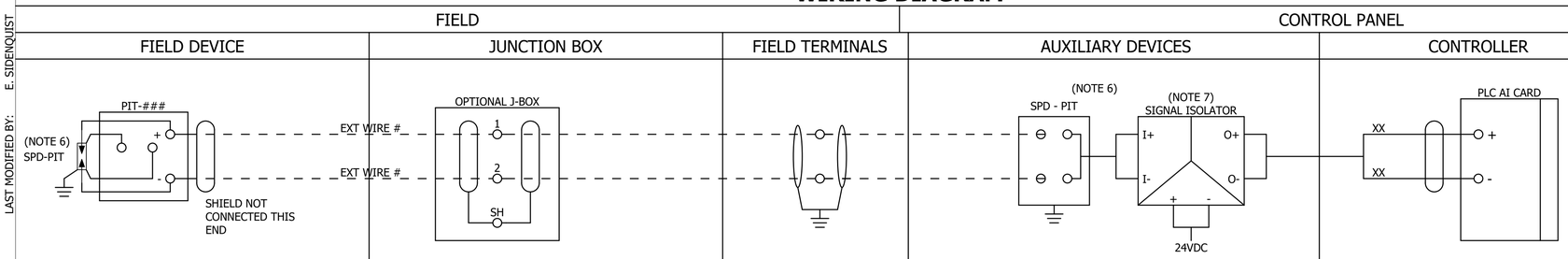
ENGINEERING
5 EAST MAIN STREET FALLON, NEVADA 89406 (775) 423-5999

BY: JES
DATE: 1/16/2026
SCALE: NTS

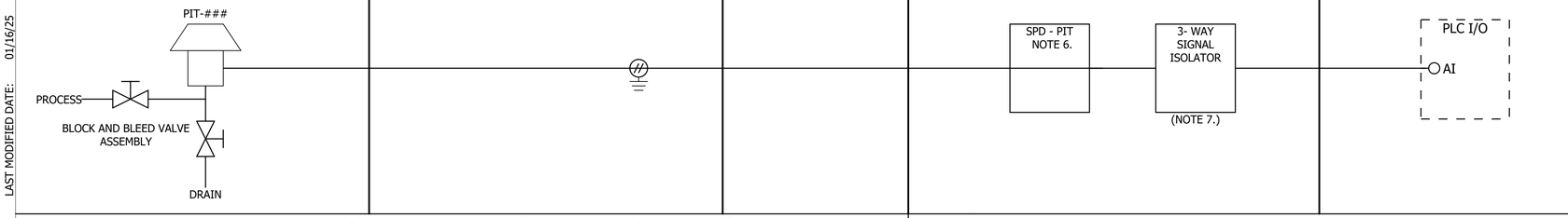
SHEET 15 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208_Well_5

WIRING DIAGRAM



BLOCK DIAGRAM



SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

SCADA EXTENSION

RAWVALUE
MINEU
MAXEU
HH_SP
HI_SP
LO_SP
LL_SP
ALARMS
- HIGH-HIGH ALARM
- HIGH ALARM
- LOW ALARM
- LOW-LOW ALARM
- BROKEN TRANSMITTER
- SIGNAL LOSS
- SIGNAL HELD WHILE IN ERROR
- RATE OF CHANGE

DBAND
SMOOTHING
RATE OF CHANGE EU/SAMPLE
RATE OF CHANGE NUMBER OF SAMPLES
PV_REAL

DETAIL

ANALOG DEVICE TYPICAL FIELD WIRE

GENERAL SHEET NOTES:

1) PRESSURE OR LEVEL CONTINUOUS MEASUREMENT. INSTRUMENT RANGE SELECTED TO SPAN ZERO TO MAXIMUM PRESSURE IN NORMAL OPERATION. INSTRUMENT PRESSURE LIMIT SHALL BE GREATER THAN MAXIMUM POSSIBLE IN THE PROCESS. BLOCK AND BLEED VALVE SUITABLE FOR PROCESS FLUID. MAY BE CONFIGURED FOR HART DATA IN ADDITION TO 4-20MA ANALOG SIGNAL WHEN TEMPERATURE OR REMOTE CALIBRATION IS SPECIFIED.
2) SUPPLY FUSE CURRENT LIMITING FOR EACH ANALOG UNLESS ANALOG INPUT CARD PROVIDES 2-WIRE PROTECTION.
3) PROCESS CONNECTIONS ROUTED TO PREVENT ENTRAINED AIR AND TO SELF-PURGE WHERE POSSIBLE.
4) WHERE HART PROTOCOL SHOWN, ANALOG INPUT SHALL BE HART COMPATIBLE. NO SIGNAL ISOLATOR SHALL BE REQUIRED. REPEATED ANALOG SIGNALS SHALL BE FROM PLC ANALOG OUTPUT.
5) TRANSMITTERS MOUNTED REMOTELY FROM THE MAIN PROCESS PIPE OR VESSEL SHALL BE SECURED WITH A PIPE OR WALL MOUNT BRACKET. USE NON-METALLIC FLEXIBLE TUBING BETWEEN THE PROCESS AND THE INSTRUMENT.
6) PROVIDE SURGE PROTECTION DEVICE (SPD) AT INSTRUMENT AND CONTROL PANEL TERMINAL BLOCK WHERE INSTRUMENT IS LOCATED IN SEPARATE BUILDING, VAULT OR GROUND PLANE FROM CONTROL PANEL.
7) PROVIDE SIGNAL ISOLATOR WHEN 4-20mA SIGNAL IS ROUTED TO MORE THAN ONE CONTROL PANEL. TWO-WIRE TRANSMITTER IS POWERED BY CONTROL PANEL WITH LONGEST DURATION 24V UPS.

P&ID REPRESENTATION

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www.sbinc.com service@sbinc.com

TITLE: Gauge Pressure Transmitter

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

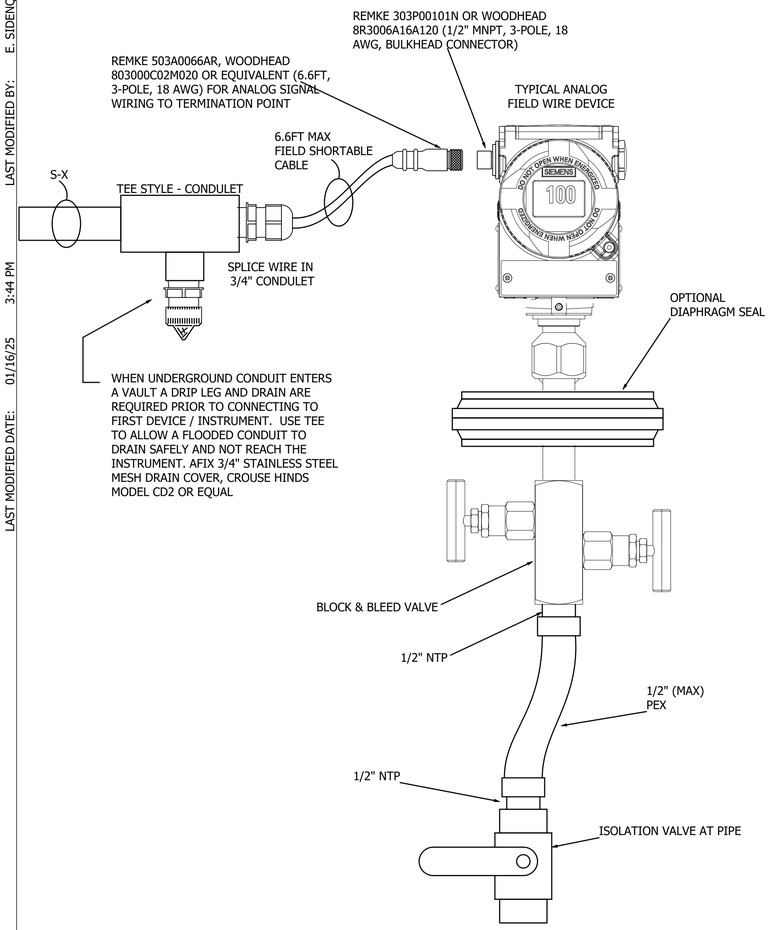
ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5090

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 16 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208__Well_5

PRESSURE TRANSMITTER



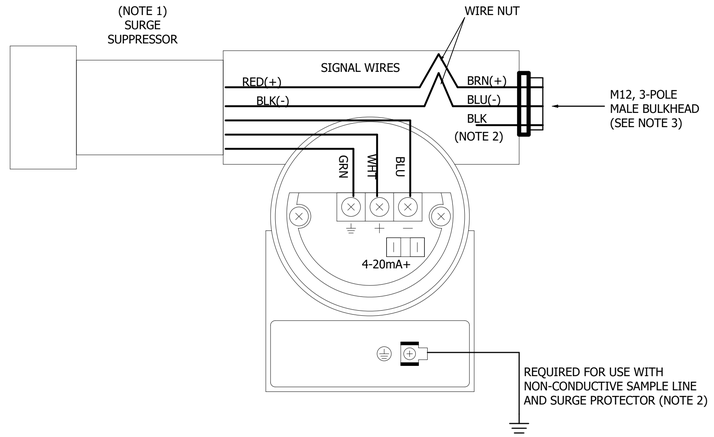
NOTES:

1. FOR AREA SUBJECT TO LIGHTNING, NON-CONDUCTIVE SAMPLE LINE IS RECOMMENDED TO MINIMIZE RISK OF DAMAGE.
2. SUPPLY DRIP LEG IN CONDUIT TO PREVENT WATER BUILDUP. USE CONDULET FOR WIRE TRANSITION FROM TWISTED SHIELDED PAIR TO M12 FEMALE CORD.
3. SIEMENS P320 PRESSURE TRANSMITTER WITH INTEGRAL LCD DISPLAY. 7MF90114FA BLOCK AND BLEED VALVE RECOMMENDED TO PROVIDE ISOLATION FROM PROCESS PRESSURE FOR CALIBRATION AND AIR PURGING.

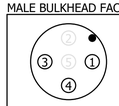
   FOR PROCESS FLUIDS WITH SUSPENDED SOLIDS, UTILIZE DIAPHRAGM SEAL AND OMIT BLOCK AND BLEED VALVE.
4.

PRESSURE TRANSMITTER DETAIL (CONTINUED)

SURGE PROTECTOR WIRING.
FOR: CITEL TSP15M-P-24D3 SURGE DEVICE



MALE BULKHEAD FACE VIEW

PINS			
3-POLE		1 - BROWN 2 - NOT USED 3 - BLUE 4 - BLACK 5 - NOT USED	ANALOG + ANALOG - NOT USED

NOTES:

1. SURGE PROTECTION OPERATES IN SERIES WITH SIGNAL CONDUCTORS. RECOMMENDED FOR INSTALLATIONS WHERE CONDUCTORS EXTEND TO VAULT OR ADJACENT BUILDING STRUCTURE.
2. BLACK CONDUCTOR IS NOT CONNECTED. WHEN USING OPTIONAL SURGE PROTECTION, INSTALLATION REQUIRES SEPARATE GROUND CONDUCTOR, CONNECTED TO EXTERNAL PORTION OF PRESSURE TRANSMITTER AND BONDED TO ELECTRICAL SYSTEM GROUND
3. M12, 3-POLE MALE BULKHEAD CONNECTOR TYPE 6P / IP67 BRAD WOODHEAD 105000A01F120, REMKE 303P0010N OR EQUAL.

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13200 S.E. 30th St.
Bellevue, Washington 98005
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www.sbinc.com service@sbinc.com

TITLE: Pressure Transmitter Details

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9999

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I17 OF 24 SHEETS

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:52 PM

File Name: 23830-208_Well_5

RTU-801 MAIN CONTROL PANEL

HMI-801
MTP1200
12" OPERATOR INTERFACE
PN

CPU
S7-1512SP-1 PN
PN

PN

CRTR-801
CELLULAR GATEWAY
B
ETH
ETH
1

PRIVATE APN

ES-801
16-PORT + 4 SFP
NETWORK SWITCH
PN
PN

ELECTRICAL ROOM

MODBUS TCP
PN

MCC-801

POWER
METER
PAC4200
PN
2
PN

CP 1542SP-1
ETH

Q POWER RESET
RO
24VDC

AUTOMATIC
TRANSFER SWITCH
ATS-801
YS-801E

PLC
I/O

YA-801A ON GENERATOR I
YA-801B ON UTILITY I
YA-801C UTILITY AVAILABLE I

GENERATOR
CONTROL PANEL
LCP-821
Eth

YL-821 GENERATOR RUN I
YA-821A GENERATOR FAIL I
YA-821B GENERATOR LOW FUEL I
YA-821C GENERATOR IN AUTO I

GEN
___ KW

24VDC
RO
SD POWER RESET Q

USH-801
ELECTRICAL ROOM
SMOKE DETECTOR I

HORN
START WARNING Q

TEMPERATURE SENSOR
0-140°F IW

OIT-801
SHUTDOWN I

Q SEL RESET
I SEL MANCHESTER CODE
Q SEL RESET
I SEL MANCHESTER CODE

UPS ALARMS I (2)

3A
3A
5A
15A

PANEL ___
CKT-__, 120Vac

24VDC 10A
POWER
SUPPLY

24V UPS
PN

BATTERY
BATTERY

24V DIST
CLASS 2
24V DIST
CLASS 2

SURGE
PROTECTOR

GFCI
OUTLET

◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 40 61 00.

NOTES:

1. CELLULAR GATEWAY PROVIDED BY CITY TO S&B FOR INSTALLATION INTO RTU AT S&B FACILITY
2. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE POWERMETER COMMUNICATION INTERFACE

REVISION	BY	DATE	REV	APPRVL

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

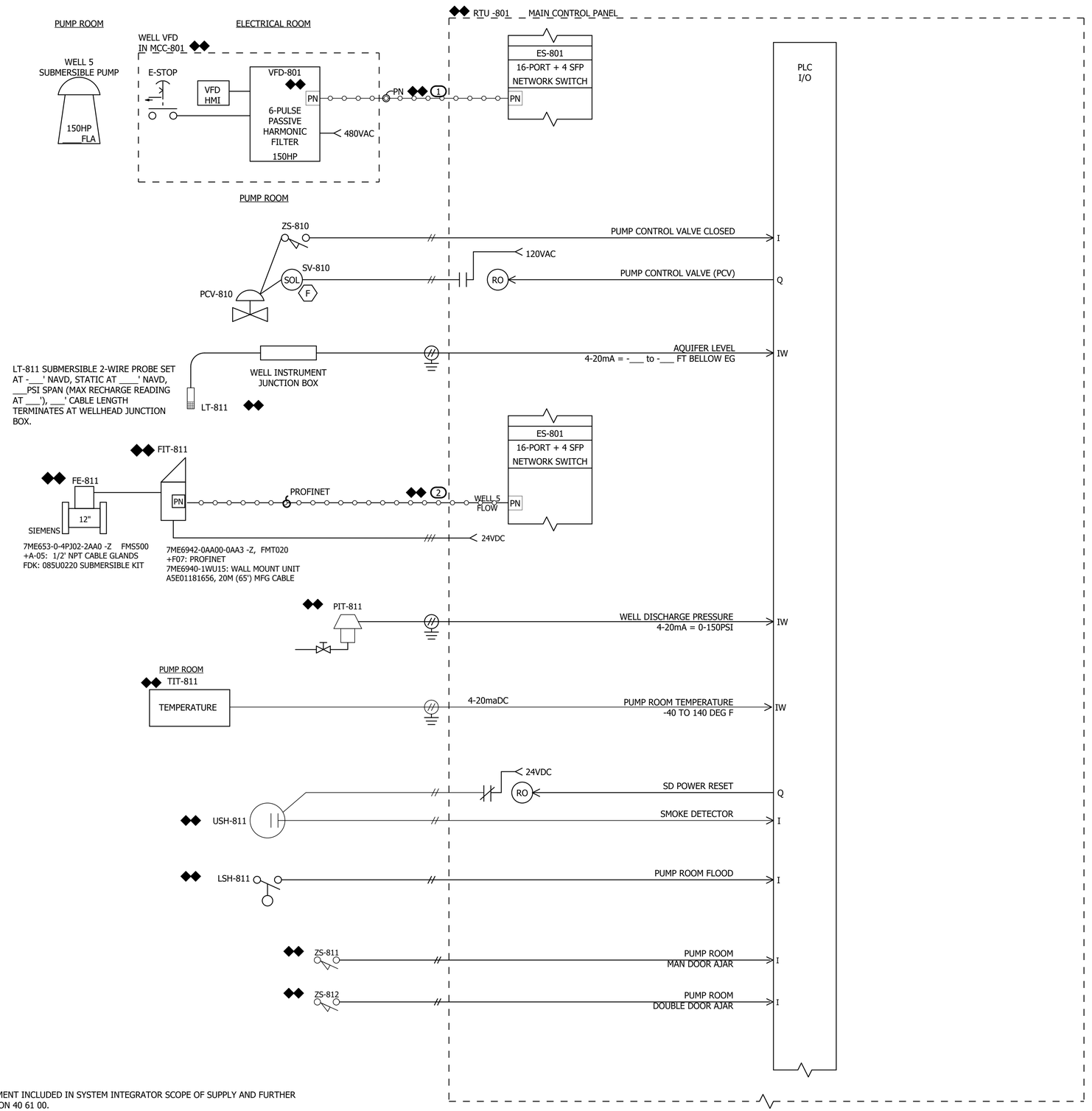
TITLE
BLOCK DIAGRAM
AUTOMATION POWER & ANCILLARY SYSTEMS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5090

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 18 OF 24 SHEETS



NOTES:

1. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE VFD COMMUNICATION INTERFACE
2. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE FLOWMETER COMMUNICATION INTERFACE

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:53 PM

File Name: 23830-208__Well_5

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www.sbinc.com service@sbinc.com

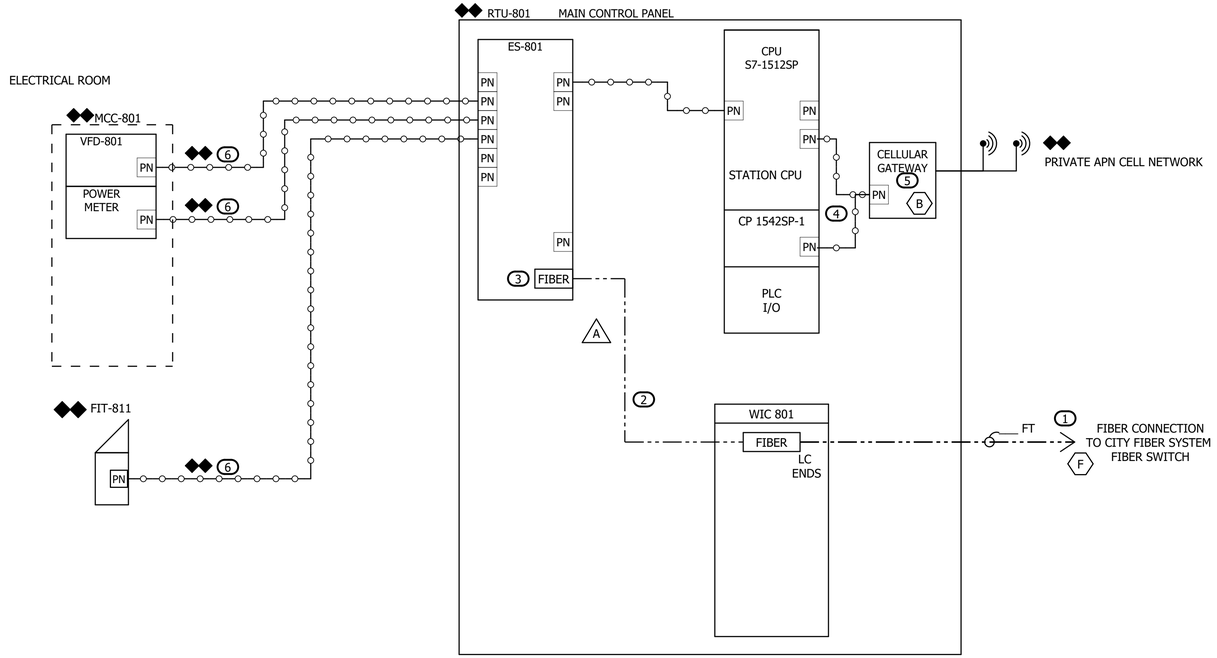
TITLE: RTU BLOCK DIAGRAM
PUMP ROOM
WELL OPERATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

TRUE ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-0590

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 19 OF 24 SHEETS



◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 409100.

NOTES:

1. FUTURE PROVISION FOR CITY TO PROVIDE SINGLE MODE FIBER TO NEW WELL 5 BUILDING. FIBER CABLE SHALL BE SUPPLIED BY CITY WITH LC ENDS ON AT LEAST ONE END, USED FOR THE CONNECTION AT THE WELL 5 STATION RTU.
2. FUTURE PROVISION FOR FIBER WIC WITH LC CONNECTIONS AND FIBER PATCH CABLE, 2M, SM, LC TO LC.
3. FUTURE PROVISION LC SFP MODULE SUPPLIED WITH SWITCH IN RTU
4. FUTURE FIBER IS INSTALLED, DISCONNECT CELLULAR FROM PLC AND CONNECT CELLULAR TO CP1542SP-1 CARD
5. CITY PROVIDES S&B CRADLEPOINT CELLULAR GATEWAY FOR INSTALLATION INTO THE RTU AT S&B'S FACILITY IN BELLEVUE WA.
6. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE COMMUNICATION INTERFACE

LAST MODIFIED DATE: 01/16/26 3:54 PM LAST MODIFIED BY:

File Name: 23830-208_Well_5

REVISION	BY	DATE	REV	APPRVL

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(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE
BLOCK DIAGRAM
CONTROL SYSTEM NETWORK DIAGRAM

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I20 OF 24 SHEETS

LAST MODIFIED DATE: 01/17/25 3:02 PM LAST MODIFIED BY: E. SIDENQUIST

SAGINAW SCE-36EL3012LPPL ENCLOSURE
PAINTED RAL5015 BLUE
FRONT VIEW

SAGINAW SCE-36EL3012LPPL ENCLOSURE
PAINTED RAL5015 BLUE
LEFT SIDE VIEW

APPRVL	REV	DATE	BY	REVISION

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Stead & Associates
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Bellevue, Washington 98005
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www.sbinc.com service@sbinc.com

TITLE **WELL 5 BACK PANEL PRESENTATION**

PROJECT **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 21 OF 24 SHEETS

File Name: 23830-208_Well_5

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:55 PM

File Name: 23830-208__Well_5

1 RESERVOIR 2 RIO __ {RIO-702}

RIO
IM155-6PN

PN

REMOTE
I/O

ES-702

ETH

FIBER

ETH

WIC-702

FIBER

FT

FIBER CONNECTION
TO WELL 4 RTU

N

LSH-702

RESERVOIR 2

OVERFLOW = 49FT

TANK OVERFLOW

I

VAULT (MANHOLE)

N

LIT-702

BASE EL. = ___._F

4-20mA =0 - 50FT

TANK LEVEL

IW

SIEMENS
7MF0300-1QE01

LSH-702

VAULT FLOOD

I

EUH-703

VAULT
HEATER

120VAC

MIN 50W

MANHOLE

RUN 120VAC POWER FOR EXISTING HEAT LAMP TO RIO PANEL

REPLACE EXISTING TRANSMITTER WITH NEW ONE

RESERVOIR 2

LOCATION OF EXISTING MANHOLE

TEMPERATURE SENSOR
4-20mA = 0-140°F

IW

EUH-702

50W

RO

HEATER CALL

Q

Q

I

PANEL ___
CKT-__, 120Vac
POWER CONNECTION
TO WELL 4

5A

3A

24VDC
POWER
SUPPLY

PN

24V UPS

24V DIST
CLASS 2

BATTERY

BATTERY

SURGE
PROTECTOR

15A

GFCI
OUTLET

NOTES:

1. CONTRACTOR TO WORK WITH CITY PERSONNEL ON INSTALLATION LOCATION OF NEW RIO PANEL NEAR EXISTING MANHOLE

APPRVL	REV	DATE	BY	REVISION

S & B inc.
Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE
WELL 4 / RESERVOIR 2 BLOCK DIAGRAM
RIO PANEL

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

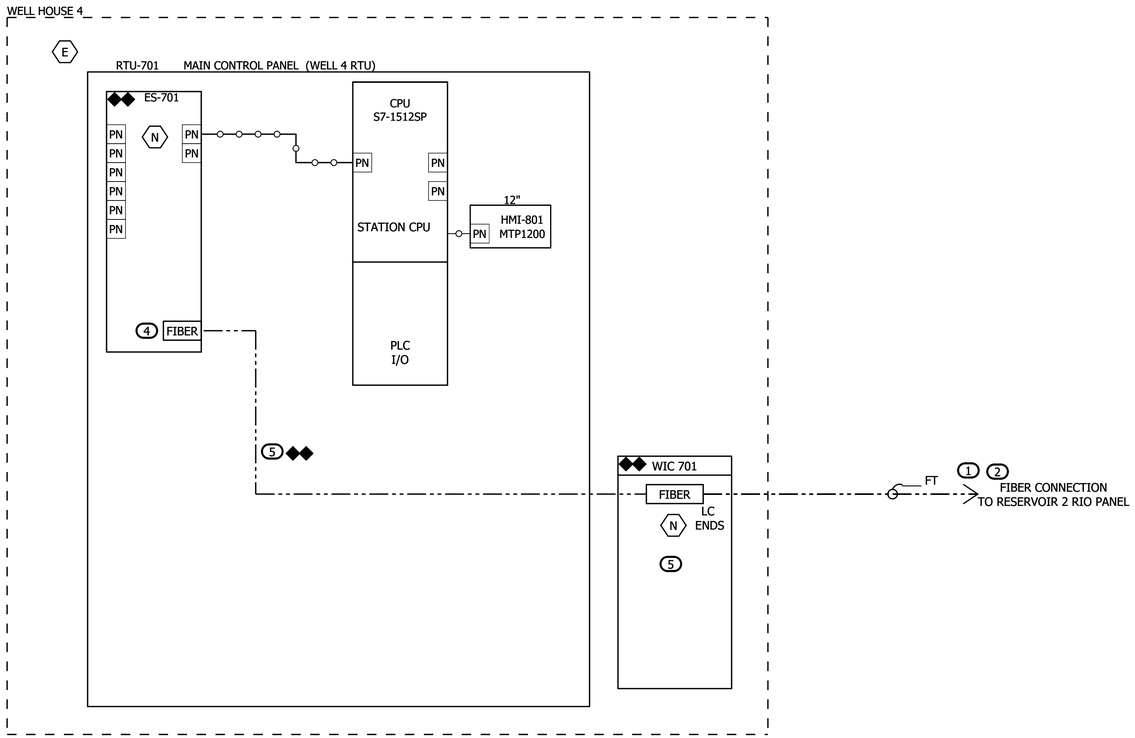
ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5090

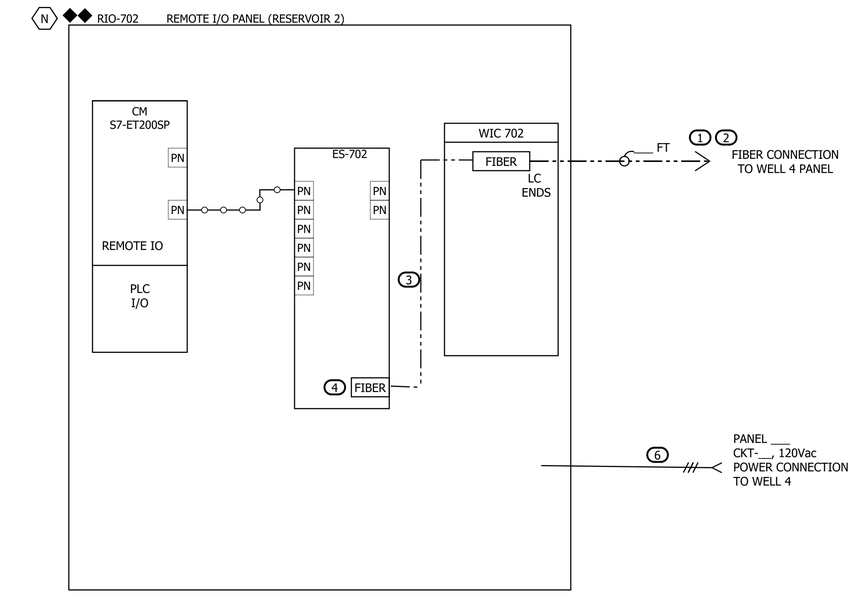
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 22 OF 24 SHEETS

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:43 PM





◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 409100.

FIBER / CABLE SPEC

Micro Armor Fiber™

Micro Armor Fiber™ The Original Stainless Steel Armor

Indoor/Outdoor Plenum Armored Fiber Optic Cable
OM1, OM3, OM4 & Singlemode (2-144 Fiber)

Example of Jacket Construction
Note: Fiber Count will match choice made

General Specifications

Application	Indoor/Outdoor Premise, Duct, Conduits and Patch
Fiber Category	Multimode (OM1, OM3, and OM4) & Singlemode
Fiber Make	YOFC OM1, Corning ClearCurve OM3, OM4 , SM G.652D
Storage	-40 °C to 80 °C (-40 °F to 176 °F)
Installation	-30 °C to 80 °C (-22 °F to 176 °F)
Operation	-40 °C to 80 °C (-40 °F to 176 °F)
Max. Dynamic Tensile Strength	2F-200 N, 6-144F 800N
Max. Static Tensile Strength	2F-100 N, 6-144F 600N
Max. Dynamic Crush Resistance	5000 N
Max. Static Crush Resistance	3000 N
Min. Dynamic Bend Radius	20 x (outside diameter of the cable)
Min. Static Bend Radius	10 x (outside diameter of the cable)
Nominal Outer Diameter	2F-3.0 mm, 4F-4.5mm, 6-24F-6.5m, 48F-10.5mm 72-96F-12mm 144F-13mm
Weight kg/km	2F-13, 4F 30, 6F 55, 12F-45, 24F -55, 48F-150, 72F-150, 96-180, 144-200
Wavelengths/Max. Attenuation	OM1- 850 nm/<3.0dB/km, 1300 nm/<1.0dB/km
	OM3 - 850 nm/<3.0dB/km, 1300 nm/<1.0dB/km
	OM4 -1300 | ≤ 1.0dB/km 850 | ≤ 3.0dB/km
	SM- 1310 | ≤ 0.35dB/kmG1550 | ≤ 0.25dB/km
Maximum Data Rate	OM1-10GB, OM3-4 100GB, SM - 100GB
Fiber core	OM1 62.5/125 um, OM3/4 50/125um, SM 9/125um

NOTES:

1. CONDUIT UG/COM, CONTRACTOR TO PROVIDE 6 STRAND SM FIBER WITH MICROARMOR AND LC ENDS. FIBER SHALL BE LANSHACK PART NUMBER: QT-MA-IO-S-LCU-LCU-20-{ENTER DESIRED CABLE LENGTH IN FEET.}, OR EQUIVALENT. SEE FIBER SPEC PROVIDED ON THIS SHEET
2. NEW FIBER INSTALLED AS PART OF THIS CONTRACT BETWEEN WELL 4 RTU AND RESERVOIR 2 RIO. FIBER CABLE SHALL BE SUPPLIED WITH LC ENDS
3. FIBER WIC WITH LC CONNECTIONS AND FIBER PATCH CABLE, 2M, SM, LC TO LC.
4. LC SFP MODULE SUPPLIED WITH SWITCH IN RTU
5. FIBER WIC WITH LC CONNECTIONS INSTALLED INSIDE WELL HOUSE 4 ON THE WALL NEAR EXISTING RTU BY CONTRACTOR. SM FIBER PATCH CABLE WITH LC TO LC CONNECTIONS 10 METER LONG IS PROVIDED BY SYSTEM INTEGRATOR FOR INSTALLATION BY CONTRACTOR.
6. CONDUIT UG/E, CONTRACTOR TO PROVIDE 120VAC POWER RUN FROM WELL HOUSE 4 TO NEW RIO PANEL

REVISION	BY	DATE	REV	APPRVL

S & B inc.
Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE: WELL 4 / RESERVOIR 2 BLOCK DIAGRAM
CONTROL SYSTEM NETWORK DIAGRAM

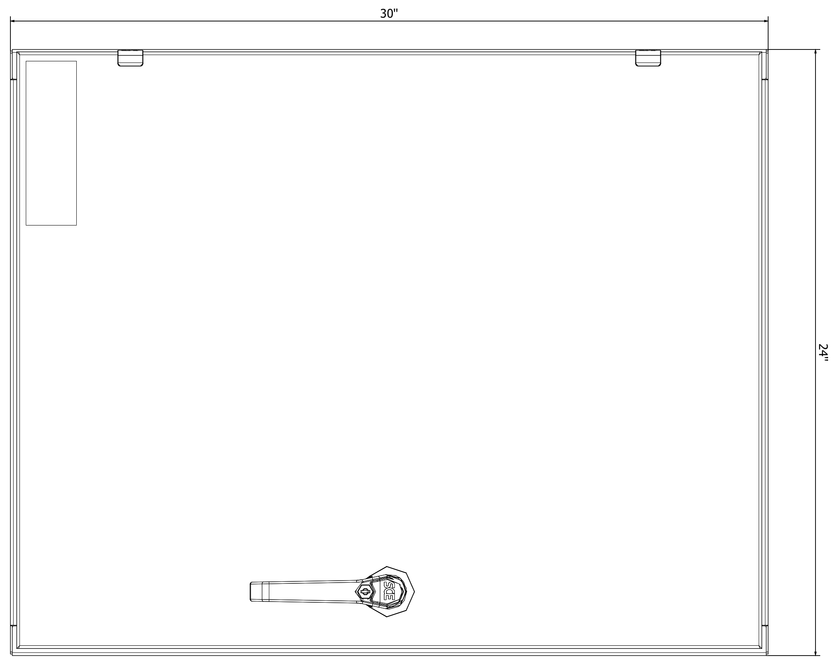
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6999

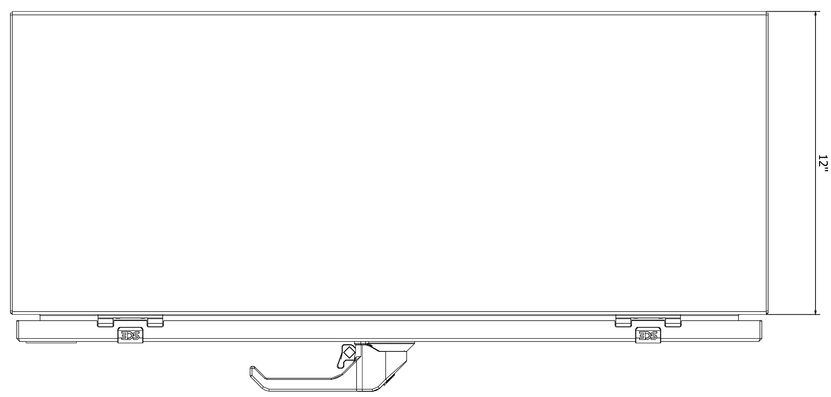
BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 123 OF 24 SHEETS

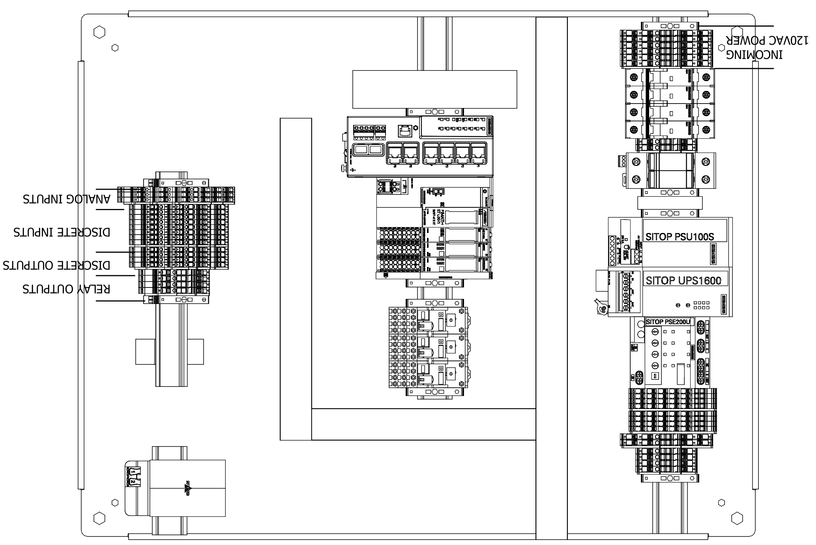
File Name: 23830-208__Well_5



SAGINAW SCE-30EL2412LPPL ENCLOSURE
PAINTED RAL5015 BLUE
FRONT VIEW



SAGINAW SCE-30EL2412LPPL ENCLOSURE
PAINTED RAL5015 BLUE
LEFT SIDE VIEW



Y ENGINEERING	TITLE: WELL 4 / RESERVOIR 2 I/O BACK PANEL PRESENTATION	Stead & Associates, 13200 S.E. 30th St., Bellevue, Washington 98005, (425) 644-1700 Fax: (425) 746-9312, www.sb-inc.com service@sb-inc.com	
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 422-9090	PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA		
SHEET 24 OF 24 SHEETS	BY : JES		
	DATE : 1/16/2026		
	SCALE : NTS		

JES	A	09/26/24		UPDATED ENCLOSURE SIZE
APPRVL	REV	DATE	BY	REVISION

VALDEZ NEW WELL 5 PUMPING STATION

SUPPLEMENTAL TECHNICAL SPECIFICATIONS

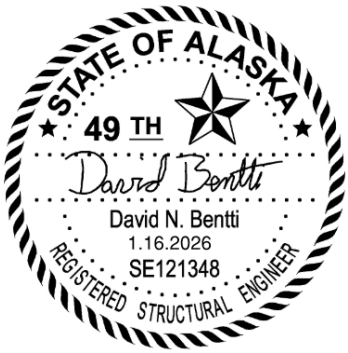
JANUARY 16, 2026

ARCHITECTURAL

CIVIL

ELECTRICAL

MECHANICAL



STRUCTURAL

DAY ENGINEERING

PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-5395
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX (CONT'D)

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX (CONT'D)

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. All the construction required to install new groundwater pumping station and transmission main tie-in including all ancillary equipment and infrastructure for a complete replacement project in Valdez, Alaska.

B. Furnish tools, equipment, materials, supplies, and manufactured articles; furnish transportation and services including fuel, power, water, and essential communications; and perform labor, work, or other operations required in accordance with the Construction Documents.

C. The Work shall be complete, and all work, materials, and services not expressly shown or called for in the Construction Documents which may be necessary for the complete and proper construction of the Work in good faith shall be performed, furnished, and installed by Contractor as though originally so specified or shown, at no increase in cost to Owner.

1.02 STREAMLINED SPECIFICATIONS

A. These specifications are written in the streamlined or declarative style utilizing incomplete sentences.

B. Omissions of such words and phrases as "The Contractor shall" "in conformity therewith," "shall be," "as shown on the Drawings," “a”, "an," "the," and "all" are intentional in streamlined sections.

1. Omitted words shall be supplied by inference in the same manner as when a note appears on the drawings.

2. The omission of such words shall not relieve the Contractor from providing all items and work described herein or indicated on the drawings.

1.03 CONTRACT METHOD

A. The work hereunder will be constructed under a single Lump Sum Contract.

1.04 WORK BY OTHERS

A. Work may be conducted at or near the site by other contractors during the performance of the Work under this Contract.

B. Conduct operations to cause a minimum of interference with work of other contractors and cooperate fully with other contractors.

C. Interference with Work on Utilities:

1. Cooperate fully with utility forces of Owner or forces of public or private agencies engaged in relocating, altering, or otherwise rearranging of facilities which interfere with the progress of the Work.

2. Schedule the Work to minimize interference with relocating, altering, or other rearranging of facilities.

1.05 CONTRACTOR'S USE OF PROJECT SITE

A. Contractor's use of project site shall be limited to construction operations, including onsite storage of materials, onsite fabrication facilities, and field offices.

B. Limit use of site to areas defined by Owner and/or construction limits.

1. Limit use of premises for work and storage to allow for work of other contractors and subcontractors. Materials and equipment storage at the sites will be designated by the Owner.

2. Notify Owner if any work necessary to complete the Work is outside the construction limits shown.

C. Owner will have complete control over the use of the site by Contractor. Discuss intended use of site with Owner before starting work.

D. Assume full responsibility for the protection and safe keeping of products stored on the site.

E. Move stored products as directed by the Engineer which interfere with operations of Owner or separate contractors.

F. Obtain and pay for the use of additional storage and work areas needed for operations.

G. Contractor shall maintain reasonable access to private and public driveways and street traffic during construction operations. Use of detours and signage including flag persons may be required.

1.06 PERMITS

A. Obtain all permits required for construction, not already obtained by the Owner.

B. Pay the required fees and acquire all permits required for the construction of the project.

1.07 WORK SEQUENCE

A. Schedule activities to accommodate the overall construction schedule of Owner and coordinate the detailed schedule with Owner.

B. Perform work in an expeditious manner to ensure completion at the earliest possible date, but in no case later than the completion dates to be made available to Contractor by Owner.

C. A construction schedule will be developed by the contractor and will be submitted for review to the owner.

1.08 OWNER AUTHORIZED OVERTIME

A. In the event that Owner orders Work to be done during overtime hours which are not caused by the fault of Contractor, daily time sheets will be required to substantiate Contractor's charges for premium pay.

1.09 COMPLETION OF THE WORK

A. The completion date is the date of the final completion of the project. It is anticipated that the Contract will require approximately 2 years for substantial completion.

B. For Contract purposes, the completion date of the Contract will be deemed to be the date of final completion of the project, including specially scheduled items.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lump sum and unit price base bid description for Contract.

B. Measurement criteria applicable to the price schedule.

C. Defect assessment and non-payment for rejected work

1.02 AUTHORITY

A. Take all measurements and compute quantities. Owner's Representative will verify measurement and quantities.

B. Assist by providing necessary equipment, workers, and survey personnel as required.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities indicated on the Plans are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Owner's Representative determine basis for estimated monthly pay requests only and are not the basis for changes to the total lump sum price.

B. If the actual Work requires more or fewer quantities than those quantities indicated on the Plans, provide the required quantities based on the unit price indicated in the bid. For lump quantities covered under lump sum bid items, quantities shall be covered by the base bid unless those quantities change as a result of a change in the scope of work after award of the Contract.

C. If the actual Lump Sum Work requires a 25 percent or greater change in quantity less than or more than any quantity indicated, Owner or Contractor may claim for a Contract Price adjustment.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement Devices:

1. Weight Scales: Inspected, tested, and certified by the applicable agency Weights and Measures department within the past year.

2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.

3. Metering Devices: Inspected tested and certified by the applicable agency department within the past year.

B. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.

C. Measurement by Area: Measured by square dimension using mean length and width or radius.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

E. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.05 PROGRESS PAYMENTS

A. Payments for materials, machinery or equipment not incorporated into the Work, but delivered and suitably stored at the site, shall only be made where permitted by, and in accordance with, the terms and conditions of the Contract Documents.

1. Title to materials, machinery, and equipment delivered and suitably stored at the site shall immediately vest in and become the sole property of the Owner upon delivery to the site.

2. Notwithstanding such transfer of title, the Contractor shall have the full continuing responsibility to install, protect, and maintain the products in proper condition and promptly repair, replace and make good any damage thereto without cost to the Owner until the Work is fully accepted by the Owner.

3. Transfer of title shall in no way affect Contractor's obligations under the Contract.

B. Where the Contract Documents permit payment for materials stored off the jobsite. Owner shall have discretion either to approve or disapprove payments for such materials, and Contractor shall, in addition to the other requisites of the Contract Documents, make any provisions necessary, including insurance covering loss or damage to the material, to insure and protect Owner's title and right of possession and access to any such materials for which payment is approved by Owner.

C. Payments otherwise due, may be withheld by Owner because of defective work not remedied, claims filed, reasonable evidence indicating probability of filing of claims, failure of Contractor to make payments properly to its subcontractors or for materials, machinery, fuel or labor, or applicable taxes, fees and fringe benefits or reasonable doubt that the Contract can be completed for the balance then unpaid, or for any other breach of this Contract or for any other causes specified in the Contract Documents.

1. If the causes are not removed, on written notice, Owner may rectify the same at Contractor's expense.

2. Owner may offset against any sums due Contractor, the amount of any liquidated or unliquidated obligations of Contractor to Owner, whether or not arising out of this Contract.

D. No payment to Contractor shall operate as an approval of Contractor’s work or material, or any part thereof, or to release Contractor from obligations under this Contract.

E. Format of Payment Applications:

1. Contractor's electronic media driven form including continuation sheets when required.

2. For each item, provide a column for listing each of the following:

a. Item Number.
b. Description of Work
c. Scheduled Values.
d. Previous Applications.
e. Work in Place and Stored Materials under this Application.
f. Authorized Change Orders.
g. Total Completed and Stored to Date of Application.
h. Percentage of Completion.
i. Balance to Finish.
j. Retainage (10%).

F. Preparation of Applications:

1. Present required information on electronic media printout.

2. Execute certification by signature of authorized officer.

3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

4. List each authorized Change Order, including number and dollar amount as for an original item of work.

5. Prepare Application for Final Payment.

G. Submittal Procedures:

1. Submit one digital copy of each Application for Payment.

2. Submit an updated Construction schedule with each Application for Payment if it has been affected by the progress of the current work completed to date.

3. Payment Period: Submit at intervals stipulated in the Agreement, typically every thirty days.

4. Submit with transmittal letter as specified for Submittals in Section 01300.

5. Submit Owner required waivers.

H. Substantiating Data:

1. When Engineer requires substantiating information, submit data justifying dollar amounts in question.

2. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.06 PAYMENT

A. Payment includes: Full compensation for all required labor, materials, tools, equipment, plant, transportation, services, and incidentals; excavation, removal, erection, application, or installation of an item of Work; overhead and profits less retention in the amount of 10 percent and any previous payments.

B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Owner's Representative multiplied by the unit price for Work which is incorporated in or made necessary by the Work.

1.07 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Owner's Representative, it is not practical to remove and replace the Work, Owner will direct one of the following remedies:

1. The defective Work may remain, but the unit price will be adjusted to a new price at the discretion of the Owner.

2. The defective Work will be partially repaired to the instructions of the Owner's Representative and Owner, and the unit price will be adjusted to a new price at the discretion of the Owner.

C. The authority of Owner to assess the defect and identify payment adjustment is final.

1.08 LUMP SUM BASE BID

A. The Lump Sum and Unit Price Base Bid is the total cost for the base bid items, including all labor, materials, and equipment for the scope of work described in Section 01010, Summary of Work.

B. Lump sum and unit price also includes all bonds, insurance, and surety.

C. Contractor agrees to meet all schedules set forth for this project.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01035

MODIFICATIONS PROCEDURE

PART 1 GENERAL

1.01 SUMMARY

A. The Work to be performed may be modified by changes required by Owner and the Contract Amount and/or the Contract Time set forth in the Agreement will be adjusted by written Change Order in accordance with this section.

B. No alterations, increases or decreases shall be made in the Work as shown and specified except on the written order of Owner, and when so made, the value of the Work or materials added or omitted shall be computed and determined by Contractor, subject to the written approval and acceptance by Owner, and the Amount so determined shall be added to or deducted from the Contract Amount.

1. Contractor shall have no claim for additional Work or changed work unless such Work has been done in pursuance of a written order from Owner.

2. Extra Work performed without written order will be at Contractor's expense.

1.02 FIELD ORDERS

A. Owner and Owner's Representative will have authority to order minor changes in the Work not involving an adjustment in the Contract Amount or Time and not inconsistent with the intent of the Construction Documents.

1. Changes shall be affected by written order and shall be binding on Contractor.

2. Contractor shall carry out written order promptly.

1.03 CHANGE ORDER PROCEDURES

A. If a change in the Work is desired, Owner will notify Contractor and provide a written description, in the form of drawings or otherwise, of the desired change.

B. Contractor shall submit to Owner, a firm proposal for any changes in the Contract Amount and/or Time resulting from the proposed change within five days after receipt of the proposed change and shall submit the actual Change Order Request within ten days.

C. Owner shall have thirty days, or such other time as may be agreed upon, in which to accept or reject Contractor's proposal after its submission, and Contractor shall not modify or withdraw the proposal during this period.

D. The cost or credit to Owner resulting from a change in Contractor's work shall be determined in one of the following ways:

1. By mutually agreed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation in accordance with the Construction Documents

(which may be evidenced by Owner's issuance to Contractor of a Change Order for Contractor's firm proposal as described above);

2. By unit prices stated in the Construction Documents or subsequently agreed upon; or

3. On the basis of reasonable costs and savings of those performing the Work attributable to the change; provided, however, that in no case shall contractor's firm proposal described above nor any other method for determining the amount of the change include any cost for:

   a. Materials, labor, machinery, fuel or other expenses not specifically reimbursable as identified in the article, Cost Limitations, below, or

   b. Allowance for overhead and profit in excess of ten percent.

E. Contractor shall, provided a written order signed by Owner is received, promptly proceed with the Work involved.

F. In the event Owner directs Contractor to perform change in the Work by a written order other than a signed Change Order and without agreeing to the Contractor's firm proposal, then Contractor shall proceed to perform the change and the amount of the change shall be determined either under D,2 above (to the extent unit prices may be applied to the Work involved) or under D,3 above, as Owner may elect in its sole discretion, unless a mutually acceptable lump Sum price is subsequently agreed upon.

   1. To the extent Owner elects D,2, the unit price shall be as described in the Contract Documents.

   2. To the extent that D,1 or D,3 is elected, the cost of the Work and any savings shall be determined in accordance with Cost Limitations article, below.

G. In the event of additional Work ordered by Owner, Contractor shall submit labor and timecard sheets, with description of the Work and materials supplied to the Owner's Representative daily. This document shall govern in determining the workers' time and equipment usage involved in time-and-material-based charges, unless later found to be incorrect.

H. If Owner or Engineers disputes the validity or amount of a Change Order Request submitted by Contractor but Owner nevertheless directs Contractor to proceed, Contractor shall promptly proceed with the Work under the Change Order pending resolution of the dispute and expeditiously complete such work.

I. If Contractor wishes to make any other claim for an increase in the Contract Amount, Contractor shall give Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim, but nothing contained herein shall be deemed to permit Contractor to claim damages on account of delays in Contractor's performance of the Work or interference therewith, it being agreed that Contractor's sole remedy shall be to obtain an extension of time as provided in the Construction Documents.

1.04 COST LIMITATIONS

A. Cost shall be limited to the following:

1. Cost of materials, including sales tax and cost of delivery;

2. Cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom;

3. Workers' compensation insurance;

4. Bond premiums;

5. Rental value of equipment and machinery;

6. Additional costs of supervision and field office personnel directly attributable to the change.

B. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to such change.

1.05 CHANGE ORDER REQUEST

A. Change Order Request shall consist of the detailed cost estimate outlining the changes in the Work and detailed documentation justifying proposed changes in time.

1. Compute estimate in accordance with accepted estimating procedures and in accordance with the terms of the Construction Documents.

a. Costs for labor, machinery, fuel and materials shall be at prevailing rates in the Project area.

2. Unless otherwise provided in the Construction Documents, labor costs shall mean wages paid for labor under prevailing wage rates, or under a salary and wage scale agreed upon by Owner and Contractor, and shall include welfare and other benefits, if any, as may be payable with respect thereto in accordance with any applicable salary and wage scale.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01050

FIELD ENGINEERING

PART 1 GENERAL

1.01 WORK INCLUDED

A. This Section specifies the layout and establishment of field boundaries and grades, lines, and elevations for the Work.

1.02 OWNER FURNISHED STAKES

A. The Contractor will provide construction stakes establishing lines and grades for the Work, as follows:

1. As many permanent benchmarks in the vicinity of the Project sites as deemed necessary.

2. Stakes at 100-foot intervals for piping and at structures; stakes placed along offset lines chosen by Contractor.

3. Two stakes, containing horizontal and vertical control, at each structure location.

4. Finish Floor Elevations as required for structures.

5. Building/slab locations (4 corners will be staked).

6. Stakes not delineated above which Engineer may determine are necessary to complete the Work

B. The above construction stakes shall constitute the field control by and in accordance with which Contractor shall execute the Work.

C. After stakes and marks have been set, it shall be responsibility of Contractor to protect the stakes.

D. Should any of the stakes be disturbed by Contractor's operations, the costs for replacing the stakes and marks shall be paid for by Contractor or will be deducted from amounts to become due Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Engineer of any discrepancies discovered.

END OF SECTION

SECTION 01091

REFERENCE STANDARDS

PART 1 GENERAL

1.01 TITLES OF SECTIONS

A. Captions accompanying specification sections are for convenience or reference only and do not form a part of the Construction Documents.

1.02 APPLICABLE PUBLICATIONS

A. When references are made to published specifications, codes, standards, or other requirements, and no date is specified, only the latest specifications standards, or requirements of the respective issuing agencies, which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that standards or requirements may be in conflict with applicable laws, ordinances, or governing codes.

B. No requirements specified or shown on Drawings shall be waived because of any provision of, or omission from, standards or requirements.

1.03 SPECIALISTS ASSIGNMENTS

A. Specification text may require (or imply) that specific work be assigned to specialists or expert entities who must be engaged to perform that work

B. Such assignments are special requirements over which Contractor has no choice or option.

C. These requirements shall not be interpreted so as to conflict with enforcement of building codes and similar regulations governing the Work or to interfere with local union jurisdiction settlements and similar conventions.

D. Such assignments are intended to establish which party or entity involved in specific unit of work is recognized as "expert" for the indicated construction processes or operations

E. Final responsibility for fulfillment of Contract requirements remains with Contractor.

1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Work specified shall conform to or exceed requirements of applicable codes and applicable requirements of documents listed below to the extent that the provisions of such documents are not in conflict with requirements of these Specifications or applicable codes.

B. "Building Code" or "IBC" shall mean the International Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

C. In case of conflict between codes, reference standards, Drawings and other Construction Documents, the most stringent requirements shall govern.

1. Bring conflicts to the attention of Owner for clarification and directions prior to ordering or providing materials or labor.

2. Bid the most stringent requirements.

D. Applicable Standard Specifications:

1. Construct the Work in accordance with requirements of the Construction Documents and the referenced portions of those referenced codes, standards, and specifications listed.

2. Wherever references to "Standard Specifications" are made, the contractual, measurement, and payment provisions therein shall not apply.

E. "Standard Specifications" shall mean the most recent edition of the “City of Valdez Standard Specifications for Public Works Construction”, including all current supplements, addenda, and revisions thereto.

F. "Standard Drawings" shall mean the most recent edition of the “City of Valdez Standard Details for Public Works Construction, including all current supplements, addenda, and revisions thereto.

G. OHSA Regulations for Construction" shall mean Title 29, Pan 1926, Construction Safety and Health Regulations. Code of Federal Regulations (OSHA), including changes and amendments thereto.

H. "OHSA Standards" shall mean Title 29. Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OHSA), including changes and amendments thereto.

I. “AWWA” shall mean American Water Works Association, latest revisions including changes and amendments thereto.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 PRECONSTRUCTION CONFERENCE

A. Prior to commencement of Work at site, a pre-construction conference will be held at a mutually agreed time and place. The conference shall be attended by:

1. Contractor and its superintendent.
2. Principal subcontractors.
3. Engineer.
4. Representatives of Owner.
5. Governmental representatives as appropriate.
6. Others as requested by Contractor, Owner, or Engineer.

B. Unless previously submitted to Owner, bring to the conference a tentative schedule for each of the following:

1. Progress.
2. Procurement
3. Values for progress payment purposes.
4. Shop Drawings and other submittals.

C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

1. Contractor’s tentative schedules.
2. Transmittal, review and distribution of Contractor's submittals.
3. Processing applications for payment.
4. Maintaining record documents.
5. Critical work sequencing.
6. Field decisions and Change Orders.

7. Use of premises, office and storage areas, security, housekeeping, and Owner's needs.

8. Major equipment deliveries and priorities.

9. Contractor's assignments for safety and first aid.

10. Notification and Public Awareness.

D. Engineer will preside at the pre-construction conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

1.02 PROGRESS MEETINGS

A. Schedule and administer regular onsite progress meetings at least weekly and at other times as required by Owner or as required by progress of the Work.

B. Make arrangements for meetings and prepare agenda with copies for participants who preside at meetings.

C. Contractor and all subcontractors active on the site shall be represented at each meeting. Contractor may request attendance by representatives of suppliers, manufacturers and other subcontractors as appropriate to agenda topics for each meeting.

D. Owner's Representative will preside at the meetings, record minutes and distribute copies to participants and those affected by decisions made.

E. Agenda

1. Review minutes of previous meetings.

2. Review of Work in progress.

3. Field observations, problems, and decisions.

4. Identification of problems which impede planned progress.

5. Review of submittals schedule and status of submittals.

6. Maintenance of progress schedule.

7. Corrective measures to regain projected schedules.

8. Planned progress during succeeding work period.

9. Coordination of projected progress.

10. Maintenance of quality and work standards.

11. Other business relating to Work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01300

CONTRACTOR SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedule.

C. Schedule of Values.

D. Shop Drawings.

E. Inspection Certificates.

F. Spare Parts.

G. Mix Designs.

H. Omissions or Errors in Submitted Data.

1.02 SUBMITTAL PROCEDURES

A. Accompany submittals by transmittal using format bound with Construction Documents or substitute form approved by Engineer. Submittals not accompanied by a form, or where all applicable items on form are not completed, will be returned for re-submittal.

1. Use separate transmittal form for each specific item or class of material or equipment for which a submittal is required.

2. Transmittal of shop drawings for various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer’s "package" or are so functionally related that expedience indicates review of the group or package as a whole. Contractor is to provide 5 sets of hard-copy submittals or one digital copy to Engineer for review.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic section number, as appropriate.

C. Identify Project, Contractor, subcontractor or supplier, pertinent drawing and detail number, and specification section number, as appropriate.

D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of Construction Documents.

E. Schedule submittals to expedite the Project and deliver to engineer. Coordinate submission of related items.

F. For each submittal for review, allow 3 to 5 days excluding delivery time to and from Contractor.

G. Identify variations from Construction Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Engineer review stamps.

I. Revise and resubmit, identify all changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

K. Submittals not requested will not be recognized or processed unless they are pertinent to the project.

1.03 CONSTRUCTION SCHEDULE

A. Prepare and submit to Owner for approval, a Project Construction Schedule showing proposed sequence to carry out Work within the Contract Time and showing beginning times and completion times for major items of work

B. Project Construction Schedule:

1. In the form of a time-scaled item-numbered network diagram.

2. Supplement diagram by activity listing used in its preparation and outline, in sufficient detail:

a. Proposed operations.

b. Interrelationships of the various operations.

c. Order of performance so that progress of Work can be evaluated accurately at any time during performance of the Contract.

C. Conform Project Construction Schedule to the following requirements:

1. Time of Completion: Adhere to time specified unless an earlier (advanced) time of completion is requested or agreed to by Owner.

2. Construction Schedule Submittal: Within ten working days after receiving notice of award, furnish to Owner a schedule showing general plan for orderly completion of Work, details of planned mobilization of plant and equipment, sequence of early operations and procurement of materials and equipment.

3. Accepted Construction Schedule: Within five working days after receiving notice of acceptance of schedule furnish to Owner one reproducible and three prints of approved schedule.

4. Contractor's Responsibility: Failure of Construction Schedule to include any element of Work, or any inaccuracy in the Construction Schedule will not relieve Contractor from responsibility for accomplishing Work in accordance with the Contract.

5. Float (Slack) Time:

   a. Amount of time between earliest start date and latest start date or between earliest finish date and latest finish date of activities of Construction Schedule.

   b. No time extensions or delay costs will be allowed for delays on paths of activities containing float time, providing such delay does not exceed the float time, per the latest updated version of the accepted Construction Schedule.

D. Format of Construction Schedule:

1. Time-scale arrow diagram of the Critical Path Method (CPM) type, or a time-scale precedence diagram. Include in Schedule of Values, itemized descriptions, quantities, and values of work included in each activity in the Construction Schedule.

2. Construction Schedule shall provide the following:

   a. Time-scaled cost loaded CPM diagram precedence (activity on node) of activities, coordinated with Owner.

   b. Activity Durations:

      1) Total of actual days required to perform that activity including consideration of weather impact on completion of that activity.

      2) No duration longer than 30 days, with exception of procurement activities, unless otherwise acceptable to Owner.

   c. Sufficient detail to show plan for completion of Work for each stage within time specified.

   d. Milestone activities showing point of completion for each stage of Work.

   e. Dependencies (or relationships) and logic between activities.

   f. Information for material or equipment to be provided as follows:

      1) Material or equipment description.

      2) Duration in days required for preparation and review of Submittals.

      3) Duration in days required for fabrication and delivery

4) Restraints (ties) to activities which will be constrained by delivery date of materials or equipment item.

5) Scheduled delivery dates.

g. Total contract value to be earned from performing each activity shall be the total of labor, material and equipment, including overhead and profit. Any material value assigned shall be actual invoice value of material, without markup. Sum of the value of items in Construction Schedule and Schedule of Values shall equal total contract value.

h. Assign a responsibility code/organization code for each activity, as approved by Owner.

i. Assign at least ten days for development of punch list(s), completion of punch list items, and final cleanup.

E. Acceptance of Construction Schedule will not relieve Contractor of responsibility for accomplishing Work in accordance with the Contract

F. Monthly Updates: Submit an up-to-date Status Report each month to include:

1. Estimated physical percentage complete for each activity in progress.

2. Actual start/finish dates for all activities as appropriate.

3. List of materials and/or equipment delivered for which payment is requested and an original paid invoice verifying cost.

4. Identification of processing errors, if any, on previous update report.

5. Identification of activities which are affected by proposed Change Orders issued during the update period (Network Window).

6. Resolution of conflict between actual work progress and schedule logic. If out of sequence activities developed in schedule due to actual construction progress, submit revisions to schedule logic to conform to current job status and direction.

7. Owner's Representative will review updated information and meet with Contractor each month to ascertain status of Work.

8. Progress payments pursuant to the Agreement will be approved only after receipt of timely, accurately updated Schedule and Schedule of Values and will be based on the update of the Schedule of Values. Contractor and Owner's Representative will jointly review progress and agree upon quantity of work completed prior to Contractors submittal of revised Schedule of Values and invoice.

G. Contract Schedule Revisions:

1. If there are significant changes in plan of construction from that shown in accepted Construction Schedule, as determined by Owner, Contractor shall, within ten working days after receiving notice, submit a revised schedule to Owner for approval.

2. Submitting Project Construction Schedule and updates, if applicable, shall be considered as a necessary portion of Work; therefore, partial payments will not be made until requirement for acceptable schedules has been satisfied.

3. Acceptance of any schedule submitted shall not be construed to assign responsibility of performance or contingencies to Owner, or relieve Contractor of responsibility to adjust forces, equipment, and/or work schedule as may be necessary to ensure completion of Work within prescribed Contract Time period.

1.04 SHOP DRAWING SUBMITTALS

A. Furnish to Engineer for review, five (5) hard-copy prints or one digital copy of each shop drawing.

1. The term "shop drawings" shall include detail design calculations, fabrication and installation drawings, lists, graphs, and operating instructions

2. Unless otherwise required, submit shop drawings a time sufficiently early to allow review by Engineer and to accommodate rate of construction progress under the Contract.

B. Within ten calendar days after receipt of prints Engineer will return prints of each drawing to Contractor with comments noted.

1. It is considered reasonable that Contractor shall make a complete and acceptable submittal by the second submission of drawings.

2. Owner reserves the right to withhold monies due Contractor to cover additional costs of Engineer's review beyond second submission.

C. If three prints of drawing are returned to Contractor marked NO EXCEPTIONS TAKEN, a formal revision of drawing will not be required.

D. If three prints of drawing are returned to Contractor marked MAKE CORRECTIONS NOTED, a formal revision of drawing will not be required.

E. If one print of drawing is returned to Contractor marked AMEND-RESUBMIT or REJECTED-RESUBMIT, Contractor shall revise drawing and resubmit five (5) copies of revised drawing to Engineer for review.

F. Fabrication of an item shall not be commenced before Engineer has reviewed pertinent shop drawings and returned copies to Contractor marked NO EXCEPTIONS TAKEN or MAKE CORRECTIONS NOTED.

1. Revisions indicated on shop drawings shall be changes necessary to meet requirements or Drawings and Specifications and shall not be taken as basis of claims for extra work.

2. Contractor shall have no claim for damages or extension of time due to delay resulting from Contractor's having to make required revisions to shop drawings (unless review by Engineer of drawings is delayed beyond a reasonable period of time and unless the Contractor can establish that Engineer's delay in review actually resulted in delay in Contractor's construction schedule).

3. Review of drawings by Engineer will be limited to checking for general agreement with Specifications and Drawings and shall in no way relieve Contractor of responsibility for errors or omissions contained therein, nor shall such review operate to waive or modify any provision contained in Specifications or Drawings.

G. Engineer's review of shop drawing Submittals shall not relieve Contractor of entire responsibility for correctness of details and dimensions.

1. Contractor shall assume all responsibility and risk for misfits due to errors in Contractor submittals.

2. Contractor shall be responsible for:

a. Dimensions and design of adequate connections and details.

b. Fabricating dimensions.

c. Quantities and Class specifications of materials.

d. Applicable code requirements.

e. Other Contract requirements.

H. Engineer shall have authority to reject any product upon completion of review of suppliers' Submittals in regard to proof of acceptability of the product

1.05 CERTIFICATES OF INSPECTION

A. When specified in individual specification sections, submit inspection certification by appropriate entity to Owner in quantity specified.

B. Certificates shall be acceptable to Owner.

C. Indicate Work conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.06 SPARE PARTS LISTS SUBMITTAL

A. Furnish to Owner three identical sets of spare parts information for instrumentation, mechanical, and electrical equipment.

B. Include current list price of each spare part.

C. Limit list to those spare parts which each manufacturer recommends be maintained by Owner in inventory at the site.

D. Each manufacturer or supplier shall indicate name, address, and telephone number of nearest outlet of spare parts to facilitate Owner in ordering.

E. Cross-reference spare parts lists to equipment numbers designated in Construction Documents.

F. Bind spare parts lists in standard size, 3-ring, loose leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

1.07 MIX DESIGN SUBMITTALS

A. Prepare Portland cement concrete and asphalt concrete mix designs.

1. Determine exact proportions of materials to be used for different parts of Work, in conformance with Drawings and Specifications.

2. Submit to Engineer for review prior to use in Work

B. Samples for mix design shall represent existing stockpile.

1. Mix designs "copied" from previous projects will not be accepted unless the existing stockpile aggregate is tested to assure conformity.

2. Any stockpile additive, binder or cement source location and/or type of material change will require a new mix design.

1.08 OMISSIONS OR ERRORS IN SUBMITTED DATA

A. Pay costs involved in correcting omissions or errors in submitted data, including failure to make timely submittal.

B. Pay costs involved in correcting omissions or errors in execution of correctly submitted information.

C. Costs shall include additional compensation due to Owner and Engineer due to additional services necessitated by the change.

1.09 WARRANTIES

A. Provide all material and equipment warranties to Owner as required by the pertinent Technical Specifications.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality assurance - control of installation.

B. Tolerances.

C. Inspecting and testing laboratory services.

D. Manufacturers' field services and reports.

E. Inspection at place of manufacture.

1.02 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturer's instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Construction Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devises designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Construction Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.04 INSPECTING AND TESTING LABORATORY SERVICES

A. Owner will appoint, employ, and pay for specified services of an independent firm to perform inspecting and materials and compaction testing.

B. The independent firm will perform inspections, tests including compaction testing and other services specified in individual specification sections and as required by Engineer and Owner.

C. Inspecting, testing and source quality control may occur on or off the project site. Perform offsite inspecting or testing as required by Engineer or Owner.

D. Reports will be submitted by the independent firm to Engineer, in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with Construction Documents.

E. Cooperate with independent firm; furnish samples of materials, design mix, equipment tools, storage, safe access, and assistance by incidental labor as required.

1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractors use.

F. Testing and inspecting does not relieve Contractor to perform Work to Contract requirements.

G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by Engineer. Payment for retesting will be charged to Contractor by deducting inspecting or testing charges from the Contract Price.

1.05 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions or surfaces and installation, quality of workmanship, start-up of equipment and test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer 30 days in advance of required observations.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers written instructions.

D. Submit report in duplicate within 30 days of observation to Engineer for information.

1.06 INSPECTION AT PLACE OF MANUFACTURE

A. Products, materials, and equipment shall be subject to inspection by Engineer at place of manufacture.

B. Presence of Engineer at place of manufacture shall not relieve Contractor of responsibility for finishing products, materials, and equipment which comply with requirements of the Construction Documents.

C. Compliance is a duty of Contractor that shall not be avoided by any act or omission on the part of Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01505

MOBILIZATION

PART 1 GENERAL

1.01 DESCRIPTION

A. Mobilization shall include obtaining permits, insurance, taxes, overhead and profit, vehicles, equipment, fuel, moving plant and equipment onto site; furnishing and erecting plants, temporary buildings, and other construction facilities, as required for the proper performance and completion of the Work

B. Mobilization shall include the following principal items:

1. Moving onto the site of materials and equipment required for first month operations including field office for Owner.

2. Installing temporary construction power, wiring, and lighting facilities.

3. Establishing fire protection system.

4. Establishing temporary security system at job site to protect against theft and vandalism.

5. Developing construction water supply.

6. Providing onsite communication facilities.

7. Providing onsite sanitary facilities and potable water facilities as specified. Location of portable toilet facilities must be approved by the City of Valdez prior to placement at the job site.

8. Arranging for and erection of work and storage yard.

9. Obtaining required permits. All permits must be on site at all times during construction operations.

10. Posting OSHA required notices and establishment of safety programs.

11. Having the superintendent at the jobsite full time.

12. Submitting Preliminary Construction Schedule.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01530

PROTECTION OF EXISTING FACILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Protect existing utilities and improvements not designated for removal.

B. Restore damaged or temporary relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation.

C. Verify exact locations and depths of utilities shown and make exploratory excavations of utilities that may interfere with Work.

1. Perform exploratory excavations as soon as practicable after award of Contract and in sufficient time in advance of construction to avoid possible delays to Work.

2. When exploratory excavations show utility location as shown to be in error, notify Engineer. Perform additional potholing as required and pursuant with bid item unit prices.

D. The number of exploratory excavations required shall be sufficient to determine alignment and grade of existing utilities.

1.02 RIGHTS-OF-WAY

A. Access to lands or rights-of-way for the Work will be provided by Owner as shown on the Drawings.

1. Nothing contained in the Construction Documents shall be interpreted as giving Contractor exclusive occupancy of the lands or rights-of-way provided.

2. Additional lands or rights-of-way required for construction operations shall be provided by Contractor at his own expense.

B. Do not enter nor occupy with men, equipment, or materials, any lands outside the rights-of-way or easements shown without meeting the following requirements:

1. Furnish to Owner, prior to use of any other public or private properties by Contractor in performance of Work, written authorization by the property owner for use of such property by Contractor.

2. Prior to acceptance of Work by Owner, furnish Owner with written evidence, acceptable to Owner, releasing Contractor from liability to the property owner for the use of such property by Contractor.

3. Take precautions necessary to preserve private and public property in immediate area of work site.

4. Total liability shall be assumed by Contractor for damage to private and/or public property during the prosecution of Work.

5. Upon completion of Work all private and public property shall be, as a minimum, restored to its conditions existing prior to the commencement of work thereon.

1.03 PROTECTION OF STREET OR ROADWAY MARKERS

A. Do not destroy, remove, or otherwise disturb existing survey markers or other existing street or roadway markers without proper authorization.

B. Start no pavement breaking or excavation until survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration.

C. Notify Engineer of the time and location that work will be done, sufficiently in advance of construction to avoid delay due to waiting for survey points to be satisfactorily referenced for restoration.

D. Survey markers or points disturbed by Contractor without proper authorization by Owner, will be restored by Owner at Contractor's expense after Work has been completed.

1.04 GENERAL RESTORATION OF PAVEMENT

A. Replace paved areas, including asphaltic concrete berms cut or damaged during construction with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit.

B. Temporary and permanent pavement shall conform to the requirements of the Owner of the affected pavement.

C. Pavements subject to partial removal shall be neatly saw-cut in straight lines.

1.05 CONSTRUCTION INTERFERENCES

A. Contractor's responsibilities regarding existing utilities and construction interferences shall be in accordance with City of Valdez Standard Specifications for Public Works' Construction and with the following additional provisions.

B. Construction interference includes:

1. Utility or service connections within the limits of excavation or over-excavation required for the Work

2. Utility or service connections located in the space which will be required by the Work.

3. Utility or service connections required to be disturbed or removed to permit construction as specified under the Contract.

C. Disturb or remove connections only with approval of Owner and following notification to owner of interfering utility or service connection.

D. Promptly reconstruct utility or service connections removed or otherwise disturbed in original or other authorized location in a condition at least as good as prior to such removal or disturbance, subject to the inspection of individual utilities' owners.

E. Contractor's responsibility to remove or replace shall apply even in if damage or destruction occurs after backfilling.

F. Immediately notify owner of utility if service connection damage or destruction occurs or is discovered.

G. During the performance of the Work, the owner of any utility affected by the Work shall have the right to enter when necessary upon any portion of the Work for the purpose of maintaining service and of making changes in or repairs to the utility.

H. Contractor shall not be held responsible for failure to complete the Work on time to the extent that such delay was caused by failure of the owner or of the agency having jurisdiction over the utility or service connection to authorize or otherwise provide for its removal, relocation, protection, support, repair, maintenance, or replacement.

I. Exercise extreme care not to damage existing utilities and/or new and existing facilities which do not physically constitute construction interference.

    1. Use equipment of such weights throughout construction operations so that existing buried utilities and/or new and existing facilities are not damaged by excessive loading.

    2. Contractor shall be responsible for costs of repair and/or replacement of new or existing facilities damaged by construction operations, as determined by Owner.

J. Contact "CALL BEFORE YOU DIG" not less than 48 hours prior to starting any excavation. Notify by telephone and comply with all instructions received; the toll free number is 811.

    1. All utility companies may not be members of the USA System and, therefore, not automatically contacted by the above referenced telephone number.

    2. Contractor shall be responsible for making himself aware of utility company facilities not reported by the USA System and shall bear any and all damages stemming from repair or delay costs or any other expenses resulting from the unanticipated discovery of underground utilities.

    3. Notify the pertinent utilities at least two working days in advance of commencement of work at site, to examine the construction site and mark the location of the utilities' respective facilities. Verify that each utility has responsibly responded to the notification.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01560

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Provide and maintain control over environmental conditions at the construction site and related areas under Contractor's control.

B. Remove physical evidence of temporary facilities upon completion of the Work.

C. Section includes:

1. Dust Control.
2. Water Control.
3. Debris Control.
4. Weed Control.
5. Pollution Control.
6. Explosives and Blasting.
7. Barriers.
8. Protection of Installed Work.
9. Security.
10. Chemicals.
11. Hazardous waste handling and disposal is covered under Specifications Sections 013545, 022600 and 028100.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 DUST CONTROL

A. Provide positive methods and application of dust control materials as necessary to minimize dust from construction operations.

B. Provide positive means to prevent airborne dust from disbursing into the atmosphere. See Article 3.05, this section.

3.02 WATER CONTROL

A. Control surface or groundwater and prevent damage to the Project, the site, and adjoining properties.

B. Furnish, place, and maintain supports and shoring required for the sides of the excavations.

C. Properly dispose of onsite storm drainage water or groundwater and divert offsite drainage to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

D. Contractor shall obtain and keep on site, all permitting required for stormwater pollution prevention or discharging of groundwater during dewatering/construction operations.

3.03 DEBRIS CONTROL

A. Keep all areas under Contractor's control free from extraneous debris; at all times keep work area in a neat, clean, and safe condition.

B. Initiate and maintain a specific program to prevent accumulation of debris at the site, in storage and parking areas, and along access roads and haul routes, as follows:

1. Provide containers for deposit of debris.

2. Prohibit overloading of trucks to prevent spillage on access and haul routes.

3. Perform periodic inspections to enforce these requirements.

C. Schedule periodic collection and disposal of debris and provide additional collection and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

D. If Contractor fails to clean up as provided in Construction Documents, Owner may do so and cost thereof will be charged to Contractor.

3.04 WEED CONTROL

A. Contractor shall ensure vehicles and equipment are clean and free of seeds that could be transported to off-site locations prior to moving equipment or hauling of materials off-site. The Owner's Representative of inspector shall determine if vehicles and equipment are sufficiently clean for transportation.

3.05 POLLUTION CONTROL

A. Prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations, including equipment personnel and emergency measures required to contain any spillage, and to remove contaminated soils or liquids.

1. After obtaining proper approvals, excavate and dispose of contaminated earth offsite, and replace with suitable compacted fill and topsoil. Costs for soils testing shall be borne by the Contractor.

B. Take special precautions to prevent harmful substances from entering public waters.

1. Prevent disposal of wastes, effluents, chemicals or other substances adjacent to washes, or in sanitary or storm sewers.

C. Control atmospheric pollutants to prevent toxic concentrations of chemicals, and to prevent harmful dispersal of pollutants into the atmosphere.

D. This project is located in Valdez, Alaska.

1. Contact the State Health (Air Pollution Control Division) regarding special considerations concerning air quality requirements.

2. Compliance with all rules, regulations, special stipulations and laws pertaining to air quality shall be Contractor's responsibility and the cost thereof for dust control and other air quality control permits shall be considered in the Contract lump sum price.

E. Applications for Operating Permits and for Authority- to- Construct facilities for extracting and processing of onsite materials shall be the Contractor's responsibility.

3.06 EXPLOSIVES AND BLASTING

A. The use of explosives on the Work will not be permitted.

3.07 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide protection for plant life designated to remain. Replace damaged plant life.

C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed Work Control activity in immediate work area to prevent damage.

C. Prohibit traffic from landscaped areas.

3.09 SECURITY

A. Protect work, existing premises, and Owner operations from theft, vandalism, and unauthorized entry.

B. Initiate security program in coordination with Owner's existing security system upon receipt of notice to proceed.

3.10 CHEMICALS

A All chemicals used during project construction or furnished for project operation (i.e., defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification) shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. MSDS Sheets for all chemicals are required to be on site at all times during construction.

1. Use of chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cleaning during progress of the Work and at completion of the Work, as required by conditions of the Contract.

1.02 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws; particularly in regards to hazardous waste materials and proper disposal.

1.03 CLEANING DURING CONSTRUCTION

A. Contractor shall be responsible for Contractor's own waste, debris and cleanup on a regular basis and for maintaining a clean environment

B. After due notice, Owner will clean up areas of Contractor's work not cleaned up and will charge Contractor the cost thereof, which charge will be deducted from payments due or to become due Contractor.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of it at legal disposal areas away from the site.

D. Notwithstanding the conditions stated above, the Contractor shall be solely responsible for the collection and removal of all hazardous material pursuant with the approved Plan and Specifications provided for this project.

E. Contractor shall execute periodic cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and wind-blown debris, resulting from Construction operations under Contractor's control.

F. Should the Work involve flammable or combustible liquids, Contractor shall be responsible for removing and disposing of same from project site.

1.04 FINAL CLEANING

A. Immediately prior to the inspection for substantial completion of the Work, the Contractor shall:

1. Remove Contractor's waste materials and rubbish from the site.

2. Remove all bafflers and other protective devices.

3. Thoroughly clean site to leave it in a rake clean condition, ready for use by Owner.

B. Immediately prior to the final inspection for completion of the project, Contractor shall:

1. Execute final cleaning prior to final inspection.

2. Prior to final completion, conduct an inspection of all work areas to verify that the entire work is clean.

3. Maintain work in a clean condition until the Owner determines the Work and the Project are complete.

4. Promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction.

C. Final acceptance of the Work by Owner will be withheld until Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the Project site.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01730

OPERATING AND MAINTENANCE INFORMATION

PART 1 GENERAL

1.01 DESCRIPTION.

A. Operating and maintenance information shall be provided for all equipment and material and shall consist of the names and addresses of the manufacturer, the nearest representative of the manufacturer, and the nearest supplier of the manufacturer's equipment and parts, as well as the following items of information.

1. Lubrication Information: This shall consist of the manufacturer's recommendations regarding the lubricants to be used and the lubrication schedule to be followed.

2. Control Diagrams: Diagrams shall show internal and connection wiring. All wires shall be marked.

3. Start-Up Procedures: These instructions consist of equipment manufacturer's recommendations for installation, adjustment, calibration and troubleshooting.

4. Operating Procedures: These instructions consist of the equipment manufacturer's recommended step-by-step procedures for starting, operating, and stopping the equipment under specified modes of operation.

5. Preventive Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the equipment.

6. Overhaul Instructions: These instructions consist of the manufacturer's directions for the disassembly, repair and reassembly of the equipment and any safety precautions that must be observed while performing the work.

7. Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Owner and any special storage precautions which may be required.

8. Spare Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Owner and any special storage precautions which may be required

9. Specific Information: When items of information not included in the above list are required, they will be provided as described in the specification for the equipment.

1.02 TRANSMITTAL PROCEDURE

A. Two copies of the specified operating and maintenance information shall be provided. The information shall be organized in the binders in numerical order by the specification number assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information.

B. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

1.03 PAYMENT

A. Monies retained from progress payments made to the Contractor will not be released until acceptable operating and maintenance information is delivered to the Engineer for Owner.

1.04 FIELD CHANGES

A. Following the acceptable installation and operation of an equipment item, the item's instructions and procedures shall be modified and supplemented by the Contractor to reflect any field changes or information requiring field data.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contractor's One Year warranty.

B. Product and Service Warranties.

C. Preparation and submittal.

D. Time and schedule of submittals.

1.02 CONTRACTOR'S ONE YEAR WARRANTY

A. Unless otherwise provided, materials and equipment incorporated into Work shall be new and, where not specified, of the most suitable grade of the respective kinds, for the intended use, and workmanship shall be in accordance with construction practices acceptable to Owner.

B. Unless otherwise provided, warrant equipment, materials, and labor furnished or performed under this Contract against defects in design, materials and workmanship (unless furnished by Owner), for a period of twelve months (unless longer guarantees or warranties are provided for elsewhere in Construction Documents in which case the longer guarantees or warranties shall prevail) after final acceptance, regardless of whether furnished or performed by Contractor or subcontractors of any tier.

1. Upon receipt of written notice form Owner of any defect in equipment, materials, or labor during the applicable warranty period, due to defective design, materials or workmanship, the affected items or parts thereof shall be redesigned, repaired or replaced by Contractor at a time acceptable to Owner.

C. Perform tests Owner may require to verify that redesign, repairs and replacements comply with requirements of Contract.

1. Costs incidental to such redesign, repair, replacement and testing, including the removal necessary to gain access, shall be borne by Contractor.

D. Warrant redesigned, repaired or replaced work against defective design, materials and workmanship for a period of twelve months from and after date of acceptance thereof.

1. Should Contractor fail to promptly make the necessary redesign, repair, replacement and test, Owner may perform or cause to be performed the same at Contractor's expense.

2. Contractor and its surety or sureties shall be liable for the satisfaction and run performance of the warranties as set forth herein.

1.03 PRODUCT AND SERVICE WARRANTIES

A. Warranty to Owner:

1. That materials and equipment furnished will be of good quality and new unless otherwise required or permitted by Construction Document.

2. That Work will be free from defect not inherent in the quality required or permitted.

3. That Work will conform to requirements of Construction Documents.

B. Work not conforming to requirement, including substitutions not properly approved and authorized, may be considered defective.

C. Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

D. If required by Owner, furnish satisfactory evidence as to the kind and quality of materials and equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FORM OF SUBMITTALS

A. Bind in commercial quality 8-1/2 x 11-inch three D side ring binders with durable plastic covers.

B. Cover: identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

C. Table of Contents: Neatly typed, in sequence of Table of Contents of Project Manual, identifying each item with number and title of specification section in which specified, and name of Product or work item.

D. Separate each warranty of bond with index tab sheets keyed to the Table of Contents listing.

1. Provide full information, using separate typed sheets as necessary.

2. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3.02 PREPARATION OF SUBMITTALS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, manufacturers, and suppliers within 10 days after completion of the applicable item of work.

1. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain run information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

3.03 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

B. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

C. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

3.04 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

SECTION 01800
GEOTECHNICAL DATA

1.0 General

A. The geotechnical report described below was the basis of design for the Project.

B. The report is not part of the Contract Documents and is made available for information only. The use of information contained in the geotechnical report does not relieve the Contractor from complying with the provisions of Article 4.02 of the General Conditions.

C. Neither the City of Valdez nor the Engineer assumes responsibility for conclusions or interpretations made by a Contractor based on the information contained in the geotechnical report.

D. No conclusions or interpretations based on the information contained in the geotechnical report will relieve a Contractor from fulfilling the terms of the Contract.

2.0 Geotechnical Report

A. A geotechnical report was developed by Shannon and Wilson in March 2021. A copy of that report is attached herewith for review. The report includes trenching, shoring, dewatering and includes the new sewer lift station site but should not be considered representative of the entire trenching/excavation work.

3.0 Differing Subsurface Conditions

A. Contractors shall account for potentially differing subsurface conditions based on results from excavations during construction operations.

4.0 Pipe Bedding and Backfill

A. High Ground Water: In areas of construction at or below the groundwater level, complete conformance to the plans and specifications shall be required (Class C required for Bedding).

B. No Ground Water: In areas where no ground water is encountered, processed/screened select native material may be used for pipe embedment/bedding with the following limitations:

1. Excavated native material is screened to ensure 100% of the material passes a ¾" sieve. (material larger than ¾" will be encountered in the native material and will not be acceptable to be used as bedding material unless it is screened).
2. Excavated native material that is not screened may only be utilized as trench backfill material from top of bedding to bottom of pavement section (bottom of Type 2 Aggregate Base).

5.0 Groundwater Conditions

A. Seasonal fluctuation on soil moisture content and groundwater levels should be anticipated depending on precipitation, irrigation, runoff conditions and other factors. Seasonal saturation of near-surface soil should be anticipated.

B. Temporary dewatering measures may be required for all trenching operations and/or building footings.

C. Water encountered in excavations shall be disposed of by the Contractor at Contractor's expense.

D. Contractor shall insure that dewatering operations have the proper BMPs installed prior to starting excavations and do not cause erosion and sediment discharge, damage to adjacent properties, or damage the subgrade soils at the bottom of excavations.

E. Contractor shall comply with all state and federal regulations regarding discharging water pursuant with EPA guidelines.

F. Contractor shall submit a Dewatering Plan to the City and Engineer for approval prior to commencing dewatering operations.

END OF SECTION

GEOTECHNICAL ENGINEERING REPORT

SHANNON AND WILSON
MARCH 2021

SECTION 01870
TRAFFIC MAINTENANCE AND SAFETY

1.0 GENERAL

The Contractor shall conduct the Work in such a manner as will obstruct and inconvenience traffic as little as possible. Existing traveled roads and their adjacent streets within the work area shall be kept open and in a good, dust free and safe condition for traffic at all times. The Contractor shall remove any material or debris on a daily basis resulting from or caused by operations and repair any damage which may result from operations.

The Contractor shall continually provide access to businesses, parking lots, residences, garages and farms. When access must be temporarily denied due to construction operations, such as installation of a buried pipeline directly in front of a driveway, the Contractor shall notify the property owner, or responsible party, of such closure not less than 24 hours in advance of closure. The notification must be in writing with a copy to the Resident Project Representative and include an estimated duration of the closure.

The Contractor shall at all times during the progress of the Work provide, erect and maintain all the necessary barricades, danger signals, temporary striping and signs, provide a sufficient number of flaggers and take all the necessary precautions for the protection of the Work and safety of the public. Illuminate barricades and obstructions at night with reflectorized signs and lights from sunset to sunrise.

The Contractor shall keep all roads open to two way traffic unless otherwise approved by the Engineer. If the roadway is not sufficiently safe to maintain two way traffic, one way traffic will be allowed. The Contractor shall abide by the terms and conditions stipulated in the approved ADOT permits and have a copy of the permit on the premise during construction operations withing ADOT Right-of-Way.

2.0 TRAFFIC CONTROL PLAN

The Contractor will be required to conform with a traffic control plan at all times while working within the public right of way. The traffic control plan shall be in accordance with *Part VI Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations*, latest edition, as prepared by the U.S. Department of Transportation Federal Highway Administration. Traffic control plan shall be American Traffic Safety Services Association (ATSSA) Certified.

The traffic control plan must be submitted to the Engineer and the governmental agency having jurisdiction over the road for approval prior to construction commencing. The Contractor must submit the traffic control plan sufficiently in advance of construction to allow ample time for review and approval

3.0 DETOURS

The Contractor may request detouring thru traffic in those work areas where it is impractical or impossible to safely maintain traffic. Any detour requests must be approved by the Engineer and the governmental agency having jurisdiction over the road to be detoured and the detour route. Any allowed detours will be subject to the following conditions:

1. Maintaining the detour in good condition.
2. Providing and maintaining the detour marking signs.
3. When the detour is no longer necessary, repair the detour route to original or better condition.

4.0 TEMPORARY TRENCH ROAD PATCHES

The Contractor shall replace all removed paving daily with an approved premix (cold patch) or compacted road base if coned off to prevent traffic from accessing work area and `shall place the final trench patch as soon as practical or as directed by the governmental agency having jurisdiction over the road. The Contractor will be responsible for maintaining the temporary patch until such time as the permanent pavement patch is in place. Any settlement or irregularities which develop in the temporary patch shall be corrected immediately.

All perpendicular street crossings shall receive temporary patches.

All other paved areas along the pipeline alignments not mentioned will require temporary patches.

5.0 EMERGENCY AGENCY NOTIFICATION

The Contractor shall notify police, fire and ambulance agencies when traffic patterns are to be altered due to construction operations. Such notifications shall be in writing with a copy to the Engineer and submitted at least 24 hours in advance of construction commencing.

6.0 CLEANUP

During periods when the Contractor is not working and at least daily, lanes open for traffic must be cleared of dirt, debris and all other material. Barricades and flashers shall be placed sufficiently close together so that there is no question about the required routes for traffic.

END OF SECTION

SECTION 072100

BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
- **1.** Extruded Polystyrene perimeter foundation and slab
- **2.** Polyisocyanurate rigid insulation at exterior furred walls
- **3.** Blown in Batt Fiberglass at roof and exterior walls.
- **4.** Spray Applied Urethane foam for sealing window, doors, and rim joists
- **5.** Vapor retarders.

B. Related Sections include the following:
- **1.** Division 6: Section “Rough Carpentry” for Plywood specification
- **2.** Division 7 Section : “Air Barrier”
- **3.** Division 9 Section "Gypsum Board Assemblies" for installation in wall assemblies
- **4.** Division 15 Section "Mechanical Insulation."

C. Minimum Thermal Resistance values of construction assemblies (R value)
- **1.** Provide a minimum of R-21 batt insulation in 6” Exterior Wall Assemblies- fill entire void where shown on Wall Assemblies, Sections and Details.
- **2.** Provide a minimum of R-49 Insulation at all Roof Assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Layout showing orientation of laminated composite polystyrene wall panels to metal stud framing, windows, thicknesses, fastener spacings, and patterns for mechanically fastening panels.
- **1.** Delegated design submittal to include structural calculations for wall panels accounting for wind loading pressure values in structural drawings

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.

B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method

indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface-Burning Characteristics: ASTM E 84.
2. Fire-Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.
4. Cover plastic and foam plastics with non-combustible surface typically.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FOAM-PLASTIC BOARD INSULATION, BELOW GRADE FOUNDATION WALLS, SLABS

A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Available Manufacturers:
1) InsulFoam
2) DiversiFoam Products.
3) Dow Chemical Company.
4) Owens Corning.
5) Pactiv Building Products Division.
2. Type VI, 1.80 lb/cu. ft. (Under Slab, Exterior Foundation walls)

B. Molded-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Available Manufacturers:

a. InsulFoam Products
b. DiversiFoam Products.
c. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.

2. Expanded Polystyrene (EPS)
a. Type II, 1.5 lb/cu. ft. (Insulation at Wall)
b. HD Composite (Insulation at roof)

2.3 POLYISOCYANURATE FOAM-PLASTIC BOARD INSULATION, USE ABOVE GRADE ON PERIMETER CONCRETE WALL

A. Polyisocyanurate Board Insulation, Foil Faced: ASTM C1289, foil faced, Type I, Class 1 or 2.
1. Available Manufacturers:
a. RMax Insuation
b. Johns Manville
c. Carlisle SynTec Systems
d. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.

2.4 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
2. Installation of both roof and wall panels
3. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
a. Plastic Foam Adhesives: 50 g/L.
b. Multipurpose Construction Adhesives: 70 g/L.
c. Fiberglass Adhesives: 80 g/L.

2.5 BLOWN IN GLASS-FIBER INSULATION

A. Basis of Design: Certainteed, Optima

B. Other Acceptable Manufacturers:
1. Knauf
2. Guardian Building Products, Inc.
3. Johns Manville.
4. Owens Corning.

C. Blown in Unfaced, Glass-Fiber Blanket Insulation: ASTM C764,Type I; with maximum flame-spread and smoke-developed indexes not more than 5, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.

2. Recycled Content: Provide thermal insulation with recycled content so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 60 percent.

3. Rapidly Renewable Content: Provide thermal insulation with not less than 4 percent.

4. Provide wall insulation full-thickness of stud cavity unless indicated otherwise.

5. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates. 1. Adhesives shall have a VOC content of [70] g/L or less.

2.6 VAPOR RETARDERS

A. Polyethylene Vapor Retarders:

1. Covered applications at Walls and Roof: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.

2. Exposed applications at walls and soffits: 6 mil, laminated, fire retardant. ASTM E 1745, Class A Flame spread, ASTM E 84, meets or exceeds NFPA 701, White.

3. Underslab and Crawlspace: Laminated, fiber reinforced, ASTM E 1745, 10 mils thick, with maximum permeance rating of 0.03 perm.

a. Basis of Design: Raven Industries, Vaporblock 10

1) Substitutions per 01600

4. Roof Assemblies

a. VapAir Seal 725TR Air/Vapor Barrier - a 40-mil composite consisting of 35-mils of self-adhering rubberized asphalt laminated to a 5-mil woven polypropylene film.

b.

B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

C. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

D. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.

2.7 AUXILIARY INSULATING MATERIALS

A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.

B. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

C. Spray applied urethane insulation for insulating rim joists and sealing around windows, doors, and other openings:

1. Any qualified manufacturer

2. Any qualified installer

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

C. Install laminated wall panels with both urethane adhesive and mechanical fastinsulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

D. Extend insulation in thickness indicated to envelop entire area to be insulated. Blow In Insulation tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

E. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

F. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
1. If not otherwise indicated, extend insulation a minimum of 48 inches (1219.2 mm) below exterior grade line.

B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

C. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.

D. Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.

3.5 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

C. Set vapor-retarder-faced units with vapor retarder to warm side and in locations indicated within construction, unless other directed otherwise.

1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

D. Install blown in batt insulation in cavities formed by framing members according to the following requirements:

1. Completely fill cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.

2. When installing acoustic glass fiber blanket insulation, place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

3. Maintain 3-inch(76-mm) clearance of insulation around recessed lighting fixtures.

4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

5. For metal-framed wall cavities where cavity heights exceed 96 inches(2438 mm), support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.

3.6 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Glass-Fiber Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.

4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:

a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

6. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.

a. Exterior Walls: Set units with facing placed toward interior of construction

b. Interior Walls: Set units with facing placed toward areas of high humidity

C. Loose-Fill Insulation: Apply according to ASTM C 1015 and manufacturer's written instructions. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.

1. For cellulosic-fiber loose-fill insulation, comply with CIMA's Bulletin #2, "Standard Practice for Installing Cellulose Insulation."

D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Loose-Fill Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.

2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.7 INSTALLATION OF VAPOR RETARDERS

A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives, sealants, or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

1. Extend vapor retarder into window, door, vent and any other penetrations in exterior envelope and lap under air infiltration barrier. Seal vapor retarder against framing.

2. Seal Vapor retarder against steel decking. When sealing perpendicular to steel decking fill voids in decking flutes with closed cell spray applied urethane insulation to complete the membrane.

3. Lap vapor retarder a minimum of 6” with continuous sealant at lap joint.

B. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape or sealant according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

C. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder. For penetrations that are concealed, provide manufactured gaskets or fill penetration with approved fire stopping.

E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder. Contractor to call for inspection / review of vapor retarder and insulation a minimum of 24 hours prior to installation of gwb.

3.8 PROTECTION

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210

SECTION 07 25 00

WATER RESISTIVE AIR BARRIER MEMBRANE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Supply labor, materials and equipment for a mechanically attached water-resistive vapor permeable air barrier membrane system, suitable for open joint cladding where designs allow for permanent UV exposure.

B. Product is to be part of tested wall assembly meeting NFPA 285.

C. Complete Work as shown on the Drawings and specified herein to bridge gaps and seal the water-resistive vapor permeable air barrier membrane against air leakage and water intrusion.

1. Rainscreen Wall Assembly meeting requirements of NFPA 285
4. Seismic and expansion joints
5. Openings and penetrations of window and door frames, store front
6. Piping, conduit, duct and similar penetrations
7. Screws, bolts and similar penetrations
8. All other air leakage pathways in the building envelope

C. Install primary water-resistive vapour permeable air barrier, flashings, lap integrated seam tapes, sealants, and all related accessories as required by the manufacturer to achieve a continuous air barrier assembly.

2.1 RELATED SECTIONS

A. Section 07 60 00 Flashing

3.1 REFERENCE STANDARDS

A. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.

B. ASTM International (ASTM):

1. ASTM D 828 - Test Method for Tensile Properties of Thin Plastic Sheeting
2. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials
3. ASTM E 96/E 96M - Test Methods for Water Vapor Transmission of Materials
4. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
5. ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials

C. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

4.1 SUBMITTALS

A. Product Submittal including current product data sheets, details and installation instructions for the mechanically attached water-resistive vapor permeable air barrier membrane components and accessories.

B. Submit samples of the following:

1. Manufacturer's sample warranty

5.1 QUALITY ASSURANCE

A. Single Source: Water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source membrane system to ensure total system compatibility and integrity.

B. Manufacturer Qualifications

1. Manufacturer of specified products listed in this Section to have minimum 8 years of continued experience in the manufacture and supply of highly vapor permeable water resistive air barrier products successfully installed in similar project applications.

2. Manufacturer of specified products listed in this Section to have experienced in-house technical and field observation personal qualified to provide expert technical support.

C. Fire Performance Characteristics: Provide water-resistive, vapor permeable air barrier meeting the following fire-test characteristics.

1. Surface-Burning Characteristics: ASTM E 84

2. Flame spread index: 25 or less

3. Smoke developed index: 450 or less

6.1 DELIVERY, STORAGE AND HANDLING

A. Refer to current Product MSDS and/or Product Data Sheets for proper storage and handling.

B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.

C. Store roll materials flat or on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.

7.1 COORDINATION

A. Deliver materials to the job site in undamaged and original packaging indicating the name of the ensure continuity of the water-resistive vapour permeable air barrier system throughout the scope of this section.

8.1 SUBSTITUTIONS

A. Submit request for alternates in accordance with Section 01 60 00 – Product Requirements.

B. Submission to include:

1. Evidence that alternate materials meet or exceed performance characteristics of specified Product requirements as well as documentation from an approved independent testing laboratory certifying the minimum physical dimensions, tensile strength, fire burning characteristics, vapor permeance and air leakage rates of the water-resistive vapour permeable air barrier membrane.

2. Manufacturer’s complete set of details for water-resistive vapour permeable air barrier membrane system showing a continuous plane of water and air tightness throughout the building enclosure.

3. Manufacturer of alternate materials has experienced in-house technical and field observation personal qualified to provide expert technical support

9.1 WARRANTY

A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fails due to material defects within 20 years of the date of Purchase.

PART 2 - PRODUCTS

1.01 MATERIALS

A. Primary self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source to ensure total system compatibility and integrity.

B. Basis of Design Product Selection:

1. Primary self-adhered air barrier sheet membrane shall be WrapShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet by VaproShield, a zero VOC self-adhered vapor permeable air barrier sheet membrane consisting of multiple layers of UV stabilized spun-bonded polypropylene having the following properties:

a. Color: Orange with allowable UV exposure for 180 days total before being covered by cladding

b. Air Leakage: < 0.01 cfm/sq.ft. when tested in accordance with ASTM E 2178

c. Water Vapor Permeance tested to ASTM E 96 Method B: 50 perms

d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage

e. Tensile Strength tested to ASTM D 828: 44.8 lbf/inch (68 N/mm), machine direction; 25 lbf/inch (37.3 N/mm), cross-machine direction

f. Application Temperature: Ambient temperature must be above 20 degrees F

g. Surface Burning Characteristics tested to ASTM E 84: Class A, Flame-spread index of less than 10, Smoke-development index of less than 15

h. Physical Dimensions: 0.026 inches (0.65 mm) thick and 59 inches (1.5 m) wide and 8.26 oz per sq. yd.

C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE

1. Self-adhered air barrier transition and flashing membrane shall be RevealFlashing SA™ by VaproShield, a zero VOC self-adhered water-resistive vapor permeable membrane having the following properties:

   a. RevealFlashing SA™ Black: 11-3/4 inches or 19 2/3 inches wide x 164 feet long

   b. Air Leakage: < 0.0000263 cfm/sq. ft. @ 75 Pa (0.000134 L/s/m sq @ 75 Pa) when tested in accordance with ASTM E 2178

   c. Water Vapor Permeance tested to ASTM E 96 Method B: 50 perms ($2875 ng/Pa.s.m^2$)

   d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage

F. VAPROLIQUI-FLASH VAPOR PERMEABLE WATER RESISTIVE FLASHING

1. Window/door flashing and other penetrations shall be VaproLiqui-Flash by VaproShield, a liquid-applied vapor permeable air barrier flashing material with

vapor permeance and resistance to air leakage properties compatible with the primary air barrier membrane.

2.02 PENETRATION SEALANT

A. Provide sealant for penetrations as recommended by manufacturer and as specified under Division 07 Section: Sealants. Appropriate sealants shall be Dow 758 or VaproLiqui-Flash.

PART 3 EXECUTION

3.01 GENERAL

A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify architect in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.

B. All surfaces must be sound, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water resistive air barrier flashings. Fill voids, gaps in substrate to provide an even surface. Strike masonry joints full-flush.

C. Minimum application temperature self-adhered membrane flashings to be above 20 degrees F (minus 6.0 degrees C).

D. Ensure all preparatory Work is complete prior to applying primary water-resistive weather barrier membrane.

E. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.

D. Install air barrier in accordance with manufacturers written installation instructions.

3.02 COORDINATION OF SELF-ADHERED VAPOR PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

A. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or substrate.

B. Complete detail Work around corners, wall openings, building transitions and penetrations prior to field applications.

C. Install self-adhered vapor permeable air barrier sheet over the outside face of exterior sheathing board or substrate, measure and pre-cut into manageable sized sheets to suit the application conditions.

D. Install self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential overlapping weatherboard method starting at bottom or base of wall and working up.

E. Stagger all end lap seams.

F. Roll installed membrane with roller to ensure positive contact and adhesion with substrate.

3.03 BUILDING TRANSITION CONDITIONS

A. Tie-in to all adjacent materials, weather barrier sheeting, foundation walls, and at the interface of dissimilar materials with self-adhering air barrier transition and flashing membrane.

B. Align and position self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap on to substrates.

C. Ensure minimum 3 inch overlap at side and end laps of membrane.

D. Roll membrane and lap seams with roller to ensure positive contact and adhesion.

3.04 WINDOW, DOOR AND OTHER WALL OPENINGS

A. To avoid waste, predetermine best method and sequence to the install self-adhered air barrier transition and flashing membrane around window or wall openings subject to the opening size and installation of window, door or louver type.

B. Wrap self-adhered air barrier transition and flashing membrane into wall openings to cover sill, jambs and head. It is not required to install continuous sheets through corners.

C. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll Lap seams to ensure adhesion. Provide lap seams to shed water.

D. Install preformed self-adhered corner flashing membrane into corners over flashing membrane.

E. Subject to window installation requirements, install preformed sill pan system and seal to installed self-adhered air barrier window flashing membrane with sealant.

F. Install windows in accordance with window manufacturer's details and cover nail flange with flashing tape. Install flashing tape along jamb and across head flanges of window and seal to installed self-adhered air barrier transition membrane. Roll tape to ensure positive contact to substrate. Seal exposed leading edge of tape.

G. For windows without nail flange, install specified aluminized tape around perimeter of opening to accommodate placement of backer rod and sealant between window frame and self-adhered vapor permeable air barrier membrane.

3.05 MECHANICAL EQUIPMENT PENETRATIONS

A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of self-adhered vapor permeable air barrier membrane.

B. Electrical services penetrating the wall assembly and self-adhered vapor permeable air barrier membrane must be placed in appropriate conduit and secured solid into position.

C. Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.

D. For straight sided penetrations, cut and fit self-adhered vapor permeable air barrier to accommodate sleeve, install specified single sided flashing tape to seal the air barrier membrane to ductwork or preformed flange sleeve.

E. For pipe penetrations, refer to manufacturer's standard details.

3.06 VERTICAL APPLICATIONS

A. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and miss-alignment of subsequent applications.

B. Measure and pre-cut into manageable sized self-adhered sheets to suit the application conditions.

C. Hang self-adhered sheets over wall and extend down to lowest point of wall. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.

D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.

E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

F. Install subsequent sheets of self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with roller to ensure contact and adhesion.

3.07 HORIZONTAL APPLICATIONS

A. For horizontal applications, align sheets and begin installation of water-resistive weather barrier at bottom or lowest point of wall.

B. To avoid wrinkles and miss-alignment of subsequent applications it is recommended to pre-mark or "Snap" a level line to work from. Measure and pre-cut into manageable sized sheets to suit the application conditions.

C. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.

D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at all side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.

E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

F. Install subsequent sheets of self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with roller to ensure contact and adhesion.

3.08 BATTENS AND VENTILATION STRIPS FOR RAIN SCREEN CLADDING SYSTEMS

A. Provide and install specified battens and ventilation strips under cladding systems.

B. Install horizontal starter strip or vent strip at base of wall, vertical battens and top vent strip, secure into solid backing ready for installation of cladding system.

C. Coordinate spacing of battens and vent strips to accommodate cladding system.

3.12 PROTECTION

A. Protect wall areas covered with primary water-resistive vapor permeable air barrier from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.

B. Review condition of water-resistive weather barrier prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.

C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed primary water-resistive weather barrier installations.

D. Remove and replace water-resistive vapor permeable air barrier affected by chemical spills or surfactants.

END OF SECTION 07 25 00

SECTION 07412

STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes standing-seam metal roof panels.

B. Related Sections:

1. Section 07 42 93 “Soffit Panels” for metal panels used in horizontal soffit applications.

2. Section 0720 "Metal Flashing and Trim" for metal panels used for transitions, eave, fascia, and ridge applications.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at the Alaska State Fair Livestock Pavillion

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural modifications at existing upper roof during and after roofing.
6. Review flashings, special details, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for existing and new metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

2. Delegated Design Submittal for calculation of panel clip fastening: Submit calculations of clip fasteners signed by Structural Engineer licensed in the State of Alaska.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches .

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockup of typical roof area include, ridge, rake and eave flashing and accessories; approximately 48 inches x length of panel by full thickness, including attachments**,** structural underlayment, and accessories. Mock-Up can remain in place as part of work once approval has been given by Engineer and Architect.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components for a period of three years from the time of substantial completion of metal panel systems that fail in materials or workmanship.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Twenty years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: For wind loads, no greater than 1/240 of the span.

B. Air Infiltration: Air leakage of not more than when tested according to ASTM E 1680 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: **UL 90**

F. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

1. Fire/Windstorm Classification: Class 1A- 1**05**.

G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 140 deg F

2.2 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Magic Metals, Inc. PROPANEL, 22 GA., 16” wide panel or comparable product by one of the following:

a. Advanced Architectural Products.
b. AEP Span; a BlueScope Steel company.
c. Architectural Building Components.
d. Architectural Metal Systems; a Nucor company.
e. CENTRIA Architectural Systems.
f. Magic Metals, Inc.
g. Metal Sales Manufacturing Corporation.
h. Morin; a Kingspan Group company.
i. Petersen Aluminum Corporation.
j. Ryerson, Inc.
k. Ultra Seam, Inc.
l. Union Corrugating Company.
m. VICWEST.

2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, coating designation, coating designation; structural quality. Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.

a. Nominal Thickness: 0.034 inch (22 Gauge)
b. Exterior Finish: Two-coat fluoropolymer
c. Color: As selected by Architect from manufacturer's full range.

3. Clips: One-piece fixed and Two-piece floating to accommodate thermal movement.

a. Material: 0.064-inch- nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.

4. Panel Coverage: 16 inches
5. Panel Height: 1.5 inches – 2 inches

2.3 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Sub-framing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, coating designation unless otherwise indicated. Provide galvanized steel sections as indicated on structural drawings for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide formed pre-finished flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.4 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.5 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
a. Provide custom paint color for Flashings and trims to match existing
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil .

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install new sub-framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 Structural Drawings, and metal panel manufacturer's written recommendations. (Coordinate any manufacturer recommendations with structural drawings)

3.3 METAL PANEL INSTALLATION

A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at each purlin with fasteners as provided by approved engineered calculations.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.

3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
4. Watertight Installation:

   a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
   b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
   c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

H. Roof Curbs: Install flashing around bases where they meet metal roof panels.

I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.5 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07412

SECTION 07 42 13

FORMED METAL PANEL SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concealed-fastener, lap-seam metal wall panels. (Exterior application – Exterior wall panels)

1.2 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

1. Exposed-fastener, metal wall panels.

2. Concealed fastener, metal soffit panels.

3. Manufacturers original printed color sample

B. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below:

1. Metal Panels—each type: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For [exposed-fastener, lap-seam metal wall panels] [concealed-fastener, lap-seam metal wall panels] [metal liner panels], for tests performed by a qualified testing agency.

C. Sample Warranties: For special warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to be included in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by the manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.7 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.8 COORDINATION

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
    a. Structural failures including rupturing, cracking, or puncturing.
    b. Deterioration of metals and other materials beyond normal weathering.

2. Installation warranty Period: Two years from date of Substantial Completion.

B. Manufacturer’s Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Products:

1. Basis of Design Products:
   a. Vertical Metal Siding: AEP Span Box Rib (1-1/2" profile depth); 22 gauge
      1) Widths: 36" coverage—vertical orientation, exposed fastener
      2) Patterning and extent described on Exterior Elevations
      3) Color: Regal Blue or Architect approved eq.
   b. Metal Soffit Panels: AEP Span Flush Panel Metal Siding; (1" profile depth); 22 gauge
      1) Widths: 12" coverage—exposed fastener
      2) Reference Reflected Ceiling Plan for type and orientation
      3) Color: Old Town Grey

B. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: As indicated on Drawings.

2. Deflection Limits: For wind loads, no greater than 1/240 of the span.

C. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E283 at the following test-pressure difference:

1. Test-Pressure Difference: 1.57 lbf/sq. ft.

D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:

1. Test-Pressure Difference: 2.86 lbf/sq. ft.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces

F. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
   a. Nominal Thickness: 0.028 inch
   b. Exterior Finish: Three-coat fluoropolymer

2.2 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645, cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.

2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or pre-molded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, end walls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.

3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.3 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
   a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.4 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.

2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
   a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF METAL PANELS

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.

2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.

3. Install screw fasteners in predrilled holes.

4. Locate and space fastenings in uniform vertical and horizontal alignment.

5. Install flashing and trim as metal panel work proceeds.

6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.

8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.

1. Lap ribbed or fluted sheets one full rib. Apply panels and associated items true to line for neat and weathertight enclosure.

2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.

3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.

4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.

5. Flash and seal panels with weather closures at perimeter of all openings.

E. Watertight Installation:

1. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels; and elsewhere as needed to make panels watertight.

2. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

3. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

07 42 13

SECTION 07 60 00

METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:
1. Exposed trim.
2. Edge flashing.
3. Window/door flashing.
4. Misc. Flashing
5. Exterior Louvers

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.4 SUBMITTALS

A. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

B. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

A. Galvanized Steel Sheet at cavity wall: ASTM A 526/A 526M, G 90, commercial steel, or ASTM A 527/A 527M, G 90, lock-forming quality, hot-dip galvanized steel sheet(24 GA.)

B. Coil-Coated Galvanized Steel Sheet: Zinc-coated, commercial-quality steel sheet complying with ASTM A 755/A 755M, G 90 coating designation, coil coated with high-performance fluoropolymer coating; not less than 0.0336 inch thick.

1. High-Performance Organic Coating: Fluoropolymer two-coat system with fluoropolymer coat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

2. Color and Gloss: As selected from full range of manufacturer's standard colors.

a. Sheet metal is to match color of surrounding material.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

B. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."

C. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

2.3 FABRICATION, GENERAL

A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

E. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Exposed Trim (including flashing and trim around louvers and escutcheons) – Match color of surrounding metal surfaces. If surrounding surfaces are not comprised of painted metal surfaces verify color with Architect: Fabricate from the following material:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.

C. Fascia, Window trims, soffit trims, misc. flashings: Shop-fabricated, prefinished metal coping system:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.
2. Finish: Two Coat Fluoropolymer coating.
3. Color: Match color of surrounding metal surfaces
4. Accessories: Provide minimum 3” cleats at 24” o.c.

D. Counter Flashing: Fabricate from the following material:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.
2. Finish: Two coat Fluoropolymer coating.
3. Color: Match color of surrounding metal surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's

"Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Color: Sheet Metal flashing is to match surrounding wall surface. Architect to approve sheet metal colors and locations for each color utilized.

C. Install exposed sheet metal Work that is without oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

D. Windows: Provide wind cleats as required to secure flashing. Minimum 32” o.c. unless engineering calculation is provided increasing width between wind cleats

E. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints.

G. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Bed flanges of Work in a thick coat of roofing cement where required for waterproof performance.

3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

C.

END OF SECTION 07 60 00

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the following applications:

1. Exterior joints in the following vertical surfaces and horizontal non-traffic surfaces:
a. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
b. Joints at siding materials as indicated
c. Other joints as indicated

B. Related Sections include the following:
1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Single-Component Non sag Polysulfide Sealant :

1. Products:
   a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
   b. Polymeric Systems Inc.; PSI-7000.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
   a. Use O Joint Substrates: galvanized steel, wood.

C. Multicomponent Nonsag Neutral-Curing Silicone Sealant:

1. Products:
   a. Dow Corning Corporation; 756 H.P.
2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
   a. Use O Joint Substrates: galvanized steel.

D. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:

1. Products:

a. Pecora Corporation; 898.
b. Tremco; Tremsil 600 White.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
a. Use O Joint Substrates: galvanized steel.

E. Multi-component Non sag Urethane Sealant:

1. Products:
a. Sika Corporation, Inc.; Sikaflex - 2c NS TG.
b. Sonneborn, Division of ChemRex Inc.; NP 2.
c. Tremco; Vulkem 227.
d. Tremco; Vulkem 322 DS.
2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G**,** A, and, as applicable to joint substrates indicated, O Joint Substrates: (galvanized steel, wood).

2.4 LATEX JOINT SEALANTS

A. Latex : Comply with ASTM C 834, Type P, Grade NF.

B. Products:

1. Pecora Corporation; AC-20+.
2. Sonneborn, Division of ChemRex Inc.; Sonolac.
3. Tremco; Tremflex 834.

2.5 PREFORMED TAPE SEALANTS

A. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Tape Sealant: Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 1, for applications in which tape acts as the primary sealant.
2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

2.6 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.

b. Masonry.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.

b. Glass.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

D. Tooling of Non sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

E. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated

joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

SECTION 08 11 03

STANDARD STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
- **1.** Standard hollow-metal steel doors.
- **2.** Standard hollow-metal steel frames.

B. Related Sections include the following:
- **1.** Division 7 Section “Insulation” for urethane insulation at exterior hollow metal units.
- **2.** Division 7 Section “Sealants” for continuous sealant around door frames.
- **3.** Division 8 Section "Glazing" for glazed lites in standard steel doors and frames.
- **4.** Division 8 Sections for door hardware for standard steel doors.
- **5.** Division 9 painting Sections for field painting standard steel doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, core descriptions, label compliance and finishes for each type of steel door and frame specified.

B. Shop Drawings: In addition to requirements below, provide a schedule of standard steel doors and frames using same reference numbers for details and openings as those on Drawings:
- **1.** Elevations of each door design.
- **2.** Details of doors, including vertical and horizontal edge details.
- **3.** Frame details for each frame type, including dimensioned profiles.
- **4.** Details and locations of reinforcement and preparations for hardware.
- **5.** Details of each different wall opening condition.
- **6.** Details of anchorages, accessories, joints, and connections.
- **7.** Details of glazing frames and stops showing glazing.
- **8.** Details of conduit and preparations for electrified door hardware and controls.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

B. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

C. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Amweld Building Products, LLC.
2. Benchmark Doors; a division of General Products Co., Inc.
3. Ceco Door Products; an ASSA ABLOY Group Company.
4. CURRIES Company; an ASSA ABLOY Group Company.
5. Deansteel Manufacturing, Inc.
6. Fleming Door Products Ltd.; an ASSA ABLOY Group Company.
7. Kewanee Corporation (The).
8. Mesker Door Inc.
9. Pioneer Industries, Inc.
10. Republic Builders Products Company.
11. Steelcraft; an Ingersoll-Rand Company.
12. Timely Frames

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A60 (ZF120) zinc-iron-alloy (galvannealed) coating designation.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class A coating; mill phosphatized.

E. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

F. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.

H. Glazing: Comply with requirements in Division 8 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD STEEL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.

1. Design: Flush panel and Flush panel w/ Relites

2. Core Construction

a. (Interior Doors): Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core that produces doors complying with ANSI A250.8.

b. (Exterior Doors) Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than R-11.

1) Locations: Exterior doors and interior doors where indicated.

2) Standard Vertical Steel-Stiffener Core: Minimum 22 gage steel-stiffeners at 6 inches on-center construction attached by spot welds spaced not more than 5" on centers. Spaces between stiffeners filled with fiberglass insulation (minimum density 0.8#/cubic ft.).

3) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch) thick steel, Model 2 (Fully welded, seamless face and edges). (SDI-100)

4) Polyurethene core.

3. Vertical Edges for Single-Acting Doors: Beveled edge.

a. Beveled Edge: 1/8 inch in 2 inches.

4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.
5. Top and Bottom Edges: Closed with flush or inverted 0.0747-inch thick end closures or channels of same material as face sheets.
6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum
2) 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2 (Fully welded, seamless face and edges).

1. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with ANSI/SDI A250.6 and the following minimum sizes:
2. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
4. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0. 1046 inch thick.
5. All Other Surface-Mounted Hardware: Minimum 0.1046 inch thick.

C. Exterior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty),
2) 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2 (Fully welded, seamless face and edges) minimum. SDI A60
3) Thermal Performance test: SKI 113

2. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with ANSI/SDI A250.6 and the following minimum sizes:
3. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
4. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
5. Lock Face, Closers, and Concealed Holders: Minimum 0. 1046 inch thick.
6. All Other Surface-Mounted Hardware: Minimum 0.1046 inch thick.
7. Polyurethene foam core

D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD STEEL FRAMES

A. General: Comply with ANSI A250.6 and with details indicated for type and profile.

B. Interior Frames: Fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.

1. Fabricate frames with mitered or coped and welded face corners and seamless face joints , unless otherwise indicated.

2. Frames for Level 2 Steel Doors: 18 gauge, 0.0478-inch thick steel sheet, unless otherwise indicated.
3. Frames for Borrowed Lights: 0.042-inch thick steel sheet, unless otherwise indicated.
4. Basis of Design: Timely Knock-down frames
   a. Casing: TA-8 Steel Casing,
   b. Color: Charcoal (CC401)

C. Exterior Frames: Thermally Broken frames fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.
1. Provide exterior door frames with thermal performance in accordance with ASTM C1363 and tested for resistance to air infiltration in accordance with ASTM E283
2. Fabricate frames with mitered or coped and welded face corners and seamless face joints , unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 16 guage, 0.0598-inch thick steel sheet, unless otherwise indicated.
4. Frames for Borrowed Lights: 0.042-inch thick steel sheet, unless otherwise indicated.
5. Fill void in frames with low expansion foam – coordinate with electronic door hardware.

D. Hardware Reinforcement: Fabricate reinforcement plates from same material as frames to comply with the following minimum sizes:
1. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch thick.

E. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.

F. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

G. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

H. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.5 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed. Moldings shall be flush with door surface.

B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch high, unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.

2.6 FABRICATION

A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Standard Steel Doors:.
- **1.** Glazed Lites: Factory cut openings in doors.

C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
- **1.** Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
- **2.** Sidelight Frames: Provide closed tubular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
- **3.** Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
- **4.** Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
- **5.** Jamb Anchors: Provide number and spacing of anchors as follows:
  - **a.** Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - **1)** Three anchors per jamb up to 60 inches in height.
    - **2)** Four anchors per jamb from 60 to 90 inches in height.
    - **3)** Five anchors per jamb from 90 to 96 inches in height.
    - **4)** Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.
    - **5)** Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
- **6.** Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
  - **a.** Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - **b.** Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."
- **1.** Reinforce doors and frames to receive non-templated mortised and surface-mounted door hardware.
- **2.** Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of doors and frames.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.7 STEEL FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
1. Finish standard steel door and frames after assembly.

B. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

D. Shop applied Paint Finish per Specification Section 09900 Interior Painting:
1. Colors: As selected from Manufacturers Full Color range
2. Note separate colors for exterior doors and frames.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory.

B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Standard Steel Frames: Install standard steel frames for doors, sidelights, borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

b. Install frames with removable glazing stops located on secure side of opening.

c. Install door silencers in frames before grouting.

d. Remove temporary braces necessary for installation only after frames have been properly set and secured.

e. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

f. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.

4. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

e. Frame doors with 1 18 ga. king stud and 1 18 ga. trimmer minimum at each jamb door. Weld studs at door jambs together. Refer to drawings for additional detailing information.

C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.

b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.

c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.

d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

2. Smoke-Control Doors: Install doors according to NFPA 105.

D. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

E. Perimeter Insulation and sealing: Comply with installation requirements in Division 7 Section "Insulation" and with standard steel door and frame manufacturer's written instructions.

1. Install spray applied urethane within internal cavity of thermally broken frames prior to installation. Protect exposed face of frames from exposure to and contact with urethane insulation. Trim excess from frame prior to installation.

2. After frame is installed and anchored with face mounted, dimpled anchors, fill remaining void around frame with spray applied urethane, protecting exposed face of frame.

3. Seal around frame with continuous sealant on both sides of frame in accordance with Specification section 8 “Sealants”.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.

C. Finish-Coat Touchup: Carefully install door and relite frames to avoid damage to the frames. Touch up any damaged frames with Manufacturer provided paint matching Factory Installed powder coat finish.

D. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 08 11 03

SECTION 08 53 13

VINYL WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes vinyl-framed windows.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for vinyl windows.

B. Shop Drawings: For vinyl windows.

1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Product Schedule: For vinyl windows. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and Installer.

B. Product Test Reports: For each type of vinyl window, for tests performed by a qualified testing agency.

C. Sample Warranties: For manufacturer's warranties.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating vinyl windows that meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace vinyl windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet performance requirements.
b. Structural failures including excessive deflection, water leakage, and air infiltration.
c. Faulty operation of movable sash and hardware.
d. Deterioration of materials and finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Glazing Units: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain vinyl windows from single source from single manufacturer.

B. Basis of Design Product: Jeldwen Premium
1. Glazing: Low E, 366, Argon
2. U Value: .027 or lower
3. SHGC: 0.24 or lower
4. VT: 0.55 or higher
5. Finish: Dark Bronze Exterior, White or Grey interior

2.2 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: **CW**
2. Minimum Performance Grade: **50**

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor as indicated on Drawings

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC as indicated on Drawings

E. Sound Transmission Class (STC): Rated for not less than 30 STC when tested for laboratory sound transmission loss according to ASTM E90 and determined by ASTM E413.

F. Windborne-Debris-Impact Resistance: Capable of resisting impact from windborne debris based on testing glazed windows identical to those specified, according to ASTM E1886 and testing information in ASTM E1996 and requirements of authorities having jurisdiction.

2.3 VINYL WINDOWS

A. Operating Types: Provide the following operating types in locations indicated on Drawings:
   1. Fixed.

B. Frames and Sashes: Impact-resistant, UV-stabilized PVC complying with AAMA/WDMA/CSA 101/I.S.2/A440.

   1. Finish: Integral color**,** as indicated on Drawings
      a. Interior Color: White
      b. Exterior Color: Dark Bronze
   2. Gypsum Board Returns: Provide at interior face of frame.

C. Glass: Clear annealed glass, ASTM C1036, Type 1, Class 1, q3.

   1. Kind: Fully tempered where indicated on Drawings

D. Insulating-Glass Units: ASTM E2190.

   1. Glass: ASTM C1036, Type 1, Class 1, q3.

      a. Tint: Clear
      b. Kind: Fully tempered where indicated on Drawings

   2. Lites: Two
   3. Filling: Fill space between glass lites with argon.
   4. Low-E Coating: Pyrolytic on second surface or Sputtered on second surface

E. Windborne-Debris-Impact-Resistant Insulating-Glass Units: ASTM E2190 with two lites and complying with impact-resistance requirements in "Window Performance Requirements" Article.

   1. Exterior Lite: ASTM C1036, Type 1, Class 1, q3.

      a. Tint: Clear
      b. Kind: Fully tempered.

   2. Interior Lite: ASTM C1172 clear laminated glass with two plies of float glass.

      a. Float Glass: As required by performance requirements indicated.
      b. Interlayer Thickness: 0.090 inch or as required by performance requirements indicated

   3. Filling: Fill space between glass lites with argon.
   4. Low-E Coating: Pyrolytic on second surface or Sputtered on second surface

F. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal

   1. Dual Glazing System:

a. Interior Lite: Glass
b. Exterior Lite: Insulating-glass unit

G. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range

H. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.4 ACCESSORIES

2.5 FABRICATION

A. Fabricate vinyl windows in sizes indicated. Include a complete system for installing and anchoring windows.

B. Glaze vinyl windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Mullions: Provide mullions and cover plates, compatible with window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units. Provide manufacturer's standard finish to match window units.

E. Hardware: Mount hardware through double walls of vinyl extrusions or provide corrosion-resistant reinforcement.

F. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.

C. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION
08 53 13

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Work under this section includes the complete door hardware requirements for the project. Quantities listed are for the Contractor's convenience only and are not guaranteed. Items not specifically mentioned, but necessary to complete the work shall be furnished, matching the items specified in quality and finish.

B. Related Sections:
1. Division 8 Section “Standard Steel Doors and Frames”

1.2 REFERENCES

A. Standards: Current edition at date of bid.
1. ADAAG - Americans with Disabilities Act, “Accessibility Guidelines for Buildings and Facilities”
2. ANSI/BHMA A156.18 - Materials and Finishes
3. Underwriters Laboratories - Building Materials Directory
4. UL 10C - Underwriters Laboratories, “Positive Pressure Fire Tests of Door Assemblies”.
5. ICC/ANSI A117.1 - “Accessible and Usable Building and Facilities”

B. Codes:
1. International Building Code

1.3 SUBMITTALS

A. General Requirements: Submittals shall be in accordance with Division 1 “Submittal Procedures”.

B. Product Data: Submit manufacturer's data for each item of finish hardware.

C. Hardware Schedule: Submit a detailed Door Hardware Schedule.
1. The submitted Door Hardware Schedule shall indicate the complete designation of every item required for each door or opening.
2. Furnish cover sheet listing title of project as shown on the Contract Documents, name, address, phone and fax numbers of Owner, Architect, Contractor, and Supplier, name of Certified Hardware Consultant, and date of submittal.
3. List each opening individually under separate headings in the same order as the door schedule. Do not group like or similar doors under a single heading. Do not continue headings on separate pages.
4. Each heading shall indicate opening location, handing, degree of opening, door size, type, fire rating, and Door and Frame material.
5. Indicate product Manufacturer and incorporate cross-reference to symbols used in Article 2.11 Hardware Groups.

6. Include an index indicating door, heading, and page numbers and locking function for each opening.
7. Locations shall be included and miscellaneous hardware items.
8. A cross reference for abbreviations or symbols used shall be included.
9. Schedules in coded or horizontal format are unacceptable.
10. Submittals not conforming to these requirements will be returned without review, for re-submittal. Following is an example of the required format:

1 Sgl. Door #104 - Reception 100 to Office 104 LH 90º
HW-2 3-0 x 7-0 x 1-3/4" x 20 Minute x Type C SC WD x HMF
3 Each Butts MC TA2714 US26D (652) 4.5 x 4.5 x 1/2MS
1 Lockset SC L9070R 06L 630 LH
1 Door Closer LCN 4041 Alum./689 x Hinge Face Mtg. x STB
1 Kick Plate TI B4EKP - 10 x 34.5 - US32D x B4E x CTSK
1 Wall Stop TR 1270CX-SV US26D (626)
1 Set Gasket PE S88D - 17' per Set

11.
12. Processing: Hardware schedules will not be reviewed by the Architect until they have been reviewed and approved by Contractor.
13. Revisions: The Door Hardware Submittal shall be kept current throughout the project duration. Revisions incorporated shall be submitted in accordance with the above requirements. Submit only cover sheet and revised pages. Clearly identify changes from previous submittal content.

D. Samples: If requested by the Architect, submit one (1) sample of each exposed hardware category, finished as required, and tagged with full description for coordination with the hardware schedule. Samples will be reviewed, by the Architect, for design and finish only, compliance with other requirements is the responsibility of the Contractor. Units which are acceptable and remain undamaged through submittal procedures may be used on the project.

E. Color Samples: Submit set of color charts and physical samples of each product requiring color selection.

F. Key Schedule: Upon completion of the Key meeting specified under Paragraph 2.13 C., submit Two (2) copies of a key schedule indicating the complete project key system for approval. Obtain approval prior to proceeding with lock portion of the project.

G. Operations and Maintenance Data.
1. Submit Maintenance and Operations Manuals under the provisions of Division 1 "Submittal Procedures".
2. Manuals shall contain final copy of the Finish Hardware Submittal, Product Data, Parts Lists and Diagrams, Key Schedule, Installation Instructions, and Warrantees.

1.4 QUALITY ASSURANCE

A. Supplier:
1. Finish hardware shall be supplied by a recognized Door Hardware supplier who has been furnishing hardware in the same area as the project for a period of not less than five (5) years.
2. Factory direct, authorized, and stocking distributor of the Exit Devices, Locksets and Door Closers.
3. Employ an Architectural Hardware Consultant, certified by the Door and Hardware Institute.

B. Source: Obtain each kind of Hardware (Butts, Locksets, Exit Devices, Door Closers, etc.) from only one manufacturer.

C. Installer: Finish hardware shall be installed only by experienced tradesmen in compliance with trade union jurisdictions, either at the door and frame fabrication plant or at the project site.

D. Templates: Furnish hardware templates for each fabricator of doors, frames and other work to be factory prepared for the installation of hardware. Upon request, check the shop drawings of such other work to confirm that provisions will be made for the proper installation of hardware.

E. Regulatory Requirements:

1. Comply with applicable local and state current building codes.

2. Hardware for fire-rated openings shall also be in compliance with fire building codes applicable to the district in which the building is located. Provide only hardware which has been tested and listed by "UL" for the types and sizes of doors required, and which complies with the requirements of the door and door frame labels. Provide Door Closers, Automatic self latching bolts, coordinators, gasketing, and astragals if required to conform to label requirements.

3. Comply with the requirements of ICC/ANSI A117.1, Accessible and Usable Building and Facilities.

1.5 PRODUCT HANDLING AND STORAGE

A. Packaging: Each item or package is to be separately tagged with identification related to the final hardware schedule. Complete installation instructions shall be included in the packages.

B. Storage: Provide a dry locked room at the jobsite for the storage of the hardware.

1.6 WARRANTY

A. Finish hardware shall be guaranteed against defects in workmanship and operation for a period of one year, backed by a factory guarantee of the hardware manufacturer. The following products shall be guaranteed for periods beyond one year:

1. Locks – Two Years

2. Door Closers – Ten Years

3. Panic Devices – Three Years

1.7 MAINTENANCE

A. Furnish the following extra materials, which shall be delivered directly to the Owner prior to substantial completion.

1. One set of Special Tools required for installation and adjustment.

2. Extra Hardware:

3. Quantity Description Factory Number

4. Six (6) Interchangeable Core Padlocks _____

5. Two (2) Locksets _____

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturers: Products may be furnished by the manufacturers listed under “As Specified” below, or equivalent products of type, grade, design, and function from manufacturers listed under “Acceptable Substitutions”.

Product	As Specified	Acceptable Substitutions
Butt Hinges	McKinney (MC)	Bommer, Hager
Stainless Steel Continuous Hinges	Stanley (ST)	Stanley
Locksets and Latchsets	Best (BE)	None
Cylinders and Keying	Best (BE)	None
Exit Devices	Precision (PR0	None
Door Closers	Stanley (STH)	None
Kick & Mop Plates	Trimco (TR)	Tice, Rockwood
Wall and Floor Stops	Trimco (TR)	Rockwood
Overhead Stop and Holders	ABH Manf. (ABH)	GJ, Rixson
Weatherstrip & Thresholds	Pemko (PE)	National Guard, Reese
Silencers	Trimco (TR)	Rockwood

2.2 FINISH

A. General: Unless specifically indicated otherwise, provide architectural hardware in the following finishes.

1. Finish in general shall be: US15D, Satin Nickel Plated (BHMA 619), unless otherwise approved.

2.3 BUTT AND CONTINUOUS HINGES

A. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1

2. Provide five knuckle, ball bearing hinges

B. Quantity (per Leaf):

1. Door openings up to 60”: 2 each.

2. Door openings 60 to 90”: 3 each.

3. Doors over 90”: Furnish one additional for each 30" increment or fraction thereof.

C. Sizes:

1. 1-3/4" Exterior & Vestibule Doors: 5 x 4-1/2"

2. 1-3/4" Interior Doors up to and including 36": 4-1/2 x 4-1/2"

3. 1-3/4" Interior Doors over 36": 5 x 4-1/2"

D. Width of Hinges shall be as required to clear projecting trim or other conditions to allow maximum degree of opening.

E. Butt Hinges shall have non-removable pins (NRP - Set Screw in Barrel).

F. Hinges shall have Flat Button Tips.

G. For unusual size or weight doors, furnish type, size and quantity recommended by the hinge manufacturer.

2.4 LOCKSETS AND CYLINDERS

A. Lever Design: Furnish all Lever Handle Locksets and Latches in 06L Design. Provide solid cast levers without plastic inserts.

B. Backset: 2-3/4”

C. The Locksets and Latchsets shall be listed with Underwriters Laboratories for A label and lesser class doors.

D. Cylinders:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1.

2. Provide 7 Pin “Full Sized” Key Removable Interchangeable Cores: **COV utilizes the Best 9K 7-pin core system.**

3. Provide appropriate cylinder type, length, collars, and cam type to operate specified Locksets and Exit Devices.

4. Provide Curved Lip Strikes with adequate projection to protect door trim. Provide flat, flush lip strikes for pairs of doors with overlapping Astragals.

5. Provide manufacturers standard wrought or plastic strike boxes.

2.5 DOOR CLOSERS

A. Drop Plates: Furnish drop plates where doors have insufficient height top rails, or where Regular Arm Door Closers are used in conjunction with Concealed Overhead Stops.

B. Provide special closer mounting as required where interference with weatherstrip or sound seals occurs.

C. Furnish cold weather fluid, at exterior & vestibule doors. Furnish non-flammable fluid at fire rated openings in conformance with UL Test Standard 10C.

D. Furnish Spacer Blocks and/or shoe supports where frame stop does not provide for adequate support for the parallel arm soffit shoe.

E. Furnish Fifth Hole Spacers or Shoe Supports where required by Frame configuration.

F. Furnish Door Closers with Metal Covers.MC Option).

2.6 KICK AND MOP PLATES

A. Kick and Armor Plates shall be applied to the Push Side of the Door, Mop Plate applied to the Pull Side.

B. Plates shall be beveled four edges (B4E) and countersunk for screws.

C. Height: Kick Plates: 10”, Mop Plates: 6”, Armor Plates: 34”

D. Plates shall be furnished with width as required to provide 1/4" clearance at sides of doors, stops, sound seal, or weatherstrip.

2.7 STOPS AND HOLDERS

A. Furnish Overhead Stop and Holders sized as recommended by the manufacturer.

B. Furnish Overhead Stop and Holders with special shims, brackets, or special template mounting where required.

2.8 THRESHOLDS

A. Requirements:
1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.

1. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
2. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.9 WEATHERSTRIP AND GASKETING

A. Furnish weatherstrip and gaskets for complete perimeter of opening, including mullions, and astragals.

2.10 KEYING

A. All Keyed products (Locksets, Cylinders, Deadlocks, etc.) specified in this Section shall be keyed to per City of Valdez standards.

B. Provide temporary brass Construction Cores and Keys during the construction period. Plastic Construction Cores are unacceptable.

C. The Finish Hardware Supplier shall meet with the Owner to prepare the permanent keying schedule. Submit Key Schedule for approval in accordance with paragraph 1.3 F.

D. The Permanent Cylinders, Change Keys, and Control Keys, prepared according to the approved keying schedule, shall be transmitted directly from the manufacturer to the Owner, prior to substantial completion. The General Contractor shall remove the construction cylinders and install the permanent cylinders. All Construction Cylinders shall be returned to the Finish Hardware Supplier.

E. All Permanent Cores and Keys shall be sent directly to the Owner via Registered Mail, Return Receipt Requested.

F. Stamp all Keys “Do not Duplicate” and with change designation as directed.

G. Furnish—subject to review and approval by City of Valdez:
1. Six (6) Building Grand Master Keys
2. Six (6) Master Keys per Set
3. Four change keys per Lockset or Cylinder.
4. Six Construction Keys

5. Two Construction Control Keys
6. Two Permanent Control Keys

2.11 HARDWARE GROUPS –

A. Hardware Group No. 01
1. For use on Door #(s):
103 ELECT/COMM
2. Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	CB179 4.5 X 4.5 NRP		626	ST
1	EA	PASSAGE SET	9K3-0N14D S3		619	BE
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		626	TR
1	EA	OH STOP	4423		626	ABH
1	EA	GASKETING	1229A		GREY	TRI

B. Hardware Group No. 02
1. For use on Door #(s):
E102 FUTURE STORAGE
2. Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	CB199 4.5 X 4.5 NRP		626	ST
1	EA	LOCKSET	9K3-7AB14D S3 PATD		619	BE
1	EA	SURFACE CLOSER	QDC115		689	STH
1	EA	OH STOP	1023		626	ABH
1	EA	DOOR SWEEP	200NA			PE
1	EA	SADDLE THRESHOLD	425			PE
1	EA	GASKETING	127N		GREY	PE

C. Hardware Group No. 03
1. For use on Door #(s):
E100 PUMP ROOM
2. Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	CB199 4.5 X 4.5 NRP		626	ST
2	EA	MANUAL FLUSH BOLT	FB458		626	IVE
1	EA	EU MORTISE LOCK	9K3-XXX		619	BE
1	EA	OH STOP	1023		626	ABH
1	EA	RAIN DRIP	142AA		AA	ZER
2	EA	SURFACE CLOSER	QDC115		689	STH
1	EA	ASTRAGAL	383AA		AA	ZER
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	DOOR SWEEP	200NA			PE
1	EA	SADDLE THRESHOLD	425			PE
1	EA	GASKETING	127N		GREY	PE

PART 3 - EXECUTION

3.1 PREPARATION

A. Examination: Examine Doors, Frames, and related items for conditions that would prevent the proper application and operation of the Doors and Finish Hardware. Do not proceed until defects are corrected.

B. Provide solid blocking for wall mounted components.

C. Fasteners: Check conditions and use fastening devices as needed to securely anchor the hardware as per manufacturer's published templates. Self-tapping sheet metal screws are not acceptable.

3.2 INSTALLATION

A. Mounting Heights: Mount units at heights as recommended in "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames (2001)" by Doors and Hardware Institute, except as indicated below. Products not specifically covered shall be installed in accordance with the manufacturer templates and instructions.
Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B.

1. Hinges:
   a. Top Hinge: 7-1/4”, Top of frame rabbet to centerline of hinge.
   b. Bottom Hinge: 12-1/4”, Bottom of Frame to centerline of hinge
   c. Intermediate Hinges: Centered, equal spacing between top and bottom hinges.

2. Mortise Lock Strikes: 40”, bottom of frame to centerline of Strike.

3. Push and Pull Plates: 42”, bottom of frame to centerline of plate.

C. Install each hardware item in compliance with manufacturer's instructions.

1. Cutting and Fitting: Wherever cutting and fitting are required to install hardware surfaces which will be painted or finished at a later time, install each item completely and then remove and store in a secure place. After completion of the finishes, re-install each item.

2. Finishes: Do not install surface-mounted items until finishes have been completed on the substrate.

3. Install Fire Rated Openings to comply with NFPA 80.

4. Door shall swing to the maximum degree that project conditions will allow. The swings indicated on the floor plan are intended to depict direction and do not indicate full degree of opening.

5. Trim Exit Devices to provide 1-1/2” clearance between End Cap and hinge jamb stop face and/or stop applied weatherstrip.

6. Door Closers shall be located to allow maximum degree of opening that project conditions will allow. Door Closers shall not be used to stop the door, except for models equipped with an integral stop-on-the-arm feature.

7. Overhead Stops: Furnish Overhead Stop and Holders with maximum degree of opening that project conditions will allow.

8. Wall Stops: Locate Wall Stops intended for use with Lever Handle Locksets and Exit Devices at the Centerline of the Spindle or Pull.

9. Floor Stops: Locate Floors Stops at maximum degree of opening that project conditions will allow. Do not locate Floor Stops where they create a hazardous condition. Stops should be located no more than 1/3 Door width from the latch edge of the Door.

10. Thresholds: Set Thresholds in a bed of butyl rubber sealant in conformance with Division 7 requirements. Remove excess sealant. Caulk exterior threshold edges and joints to exclude moisture. Do not attach Thresholds that provide transition from concrete to wood floors on wood floor side of opening.

11. Weatherstrip: Mount and adjust Rigid Jamb Weatherstrip prior to mounting Parallel Arm Door Closers. Weatherstrip shall be installed to provide a continuous seal at head and jambs. Do not notch Weatherstrip for Door Closer shoe. Provide Parallel Arm 5th hole spacer of increased thickness to allow for revised location.

12. Mount Astragals on the pull side of active leaf our out-swinging applications, inactive leaf for in-swinging.

13. Smoke Gasket

a. Completely clean frame and apply gasket in accordance with manufacturer's instructions.

b. Apply Gasket to Door rabbet of hinge jamb and to stop face of Strike Jamb and Headers, as described in Pemko's installation instructions for alternative positioning.

D. Adjust and check each operating item of hardware and each door to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly.

3.3 ADJUSTMENT

A. Wherever hardware installation is made more than one (1) month prior to acceptance or occupancy, make a final check and adjustment of hardware during the week prior to acceptance or occupancy. Clean and lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

B. Door Closer Adjustment: After mechanical systems have been balanced, adjust Door Closers to comply with following ICC/ANSI A117.1 requirements, as modified by International Building Code:

1. Closing Speed: Door Closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.

2. Opening Force: The maximum force for pushing or pulling a door open shall be as follows: (these forces do not apply to the force required to retract latch bolts or disengage other devices securing the door.

a. Fire Doors: The minimum opening force allowable by the appropriate administrative authority.

b. Exterior Doors: 10 lbf (44.4 N).

c. Interior Doors: 5.0 lbf (22.2 N).

d. Automatic Doors: Comply with ICC/ANSI A117.1, 404.3.

3. Adjust backcheck to prevent damage to the closer, hardware, door and frame, and wall.

C. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes

END OF SECTION 08 71 00

SECTION 09 29 00

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.
2. Abuse and Water-Resistant gypsum board for walls

B. Related Sections include the following:
1. Division 5 Metal Fabrications
2. Division 6 Sheathing for Air Infiltration Barrier
3. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in assemblies that incorporate gypsum board.
4. Division 7 Section "Joint Sealants" for acoustical sealants installed in assemblies that incorporate gypsum board.
5. Division 9 Section "Fiberglass Reinforced Wall Panels"
6. Division 9 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

1.5 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M,1396/C 1396M, or C1629 as applicable to type of gypsum board indicated and whichever is more stringent.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. American Gypsum Co.
b. BPB America Inc.
c. G-P Gypsum.
d. Lafarge North America Inc.
e. National Gypsum Company.
f. PABCO Gypsum.
g. USG Corporation.
h. Substitutions allowed in accordance with Division 1 product substitution requirements.

B. Type X – Moisture and Impact resistant. Height as indicated on plans and wall assembly descriptions.
1. Basis of Design: Gold Bond eXP Interior Extreme IR Gypsum Panels
2. Thickness: 5/8 inch (15.9 mm).
3. Long Edges: Tapered.
4. Mold Resistance
5. ASTM C 1658
6. ASTM D3273 with a score of 10
7. Glass Mesh Reinforced Gypsum Board

C. Ceiling Type: Manufactured to have more sag resistance than regular-type and Type X gypsum board.

1. Core: 5/8 inch (15.9 mm), Type X.
2. Long Edges: Tapered.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:

a. Metal Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. Expansion (control) joint.
d. Tear-Away L Bead

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Fry Reglet Corp.
b. Gordon, Inc.
c. Pittcon Industries.
d. Substitutions allowed in accordance with Division 1 product substitution requirements.
e. Expansion Joint Trim – Fry Reglet CRM50-50-2-PC

2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221 (ASTM B 221M), Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.

4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Grabber Construction Products; Acoustical Sealant GSC.
b. Pecora Corporation; AC-20 FTR, AIS-919.
c. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
USG Corporation; SHEETROCK Acoustical Sealant. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants." – Seal at top and bottom of all acoustic walls.

D. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

E. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

F. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

G. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants." – Seal at top and bottom of all classroom, toilet room, Practice Rooms, and office walls:

H. Thermal Insulation: As specified in Division 7 Section "Building Insulation."

I. Vapor Retarder: As specified in Division 7 Section "Building Insulation."

2.6 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

B. Unaggregated Finish: Water-based, job-mixed, unaggregated, drying-type texture finish for spray application.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. G-P Gypsum; Georgia-Pacific ToughRock Wall and Ceiling Texture.
b. USG Corporation; SHEETROCK Wall and Ceiling Spray Texture (Unaggregated).
c. Substitutions allowed in accordance with Division 1 product substitution requirements.

2. Texture (areas without FRP only): Very light stiple finish; match texture immediately adjacent to area.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members, or provide control joints to counteract wood shrinkage.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Regular Type: Vertical surfaces, unless otherwise indicated.
2. Type X: As indicated on drawings and where required for fire-resistance-rated assembly.
3. Ceiling Type: Exposed interior horizontal and ceiling surfaces.
4. Impact and Moisture/Mold-Resistant Type: Located at all walls.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels either vertically (parallel to framing) or horizontally (perpendicular to framing), unless specifically indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints [at locations indicated on Drawings according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges, unless otherwise indicated.
3. L-Bead: Use where indicated.
4. U-Bead: Use where indicated.
5. Tear Away L-Bead: Use where indicated – where wall board meets existing adjacent surfaces

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for wall protection or ceiling tiles.
3. Level 4: At panel surfaces that will be exposed to view: Transom zone between low and higher ceiling.

3.6 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

3.7 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 65 13

RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wall base.
2. Molding accessories.

1.3 SUBMITTALS

A. Samples for Initial Selection: For each type of product indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F(10 deg C) or more than 90 deg F(32 deg C).

1.5 PROJECT CONDITIONS

A. Maintain temperatures within range recommended by manufacturer, but not less than [70 deg F(21 deg C)] or more than [95 deg F(35 deg C)] , in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After post installation period, maintain temperatures within range recommended by manufacturer, but not less than [55 deg F(13 deg C)] > or more than [95 deg F(35 deg C)].

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

1. AFCO-USA, American Floor Products Company, Inc
2. Armstrong World Industries, Inc
3. Azrock Commercial Flooring, DOMCO
4. Burke Mercer Flooring Products
5. Endura;
6. Johnsonite
7. Roppe Corporation;

2.2 COLORS AND PATTERNS

A. Colors and Patterns: As selected by Architect from manufacturer's full range - See Sheet A4.1 Room Finish Schedule for color and location

2.3 RESILIENT WALL BASE

A. Wall Base:

1. Style: Cove (with top-set toe).
2. Type :rubber, vulcanized thermoset
3. Group :solid, homogeneous
4. Minimum Thickness: 0.125 inch(3.2 mm)].
5. Height =6 inches(102 mm)
6. Lengths: Coils in manufacturer's standard length
7. Outside Corners: Premolded.
8. Inside Corners: Pre-moulded
9. Surface: Smooth.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturers for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

C. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

1. Do not install resilient products until they are the same temperature as the space where they are to be installed.

D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RESILIENT WALL BASE INSTALLATION

A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

D. Do not stretch wall base during installation.

E. Premolded Corners: Install premolded corners before installing straight pieces.

F. Job-Formed Corners:

1. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.

3. Damp-mop surfaces to remove marks and soil.

a. Do not wash surfaces until after time period recommended by manufacturer.

B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 09 65 13

SECTION 09 72 16

DECORATIVE FIBERGLASS REINFORCED WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Prefinished fiber-reinforced plastic sheets and fiber-reinforced plastic laminate sheets, both adhered to gypsum board wall surfaces. Includes both metal and plastic trim.

B. Products Not Furnished or Installed under This Section:

1. Gypsum [Cementitious] substrate board.
2. Resilient Base.

1.2 RELATED SECTIONS

A. Division 9 – Gypsum [Cementitious] substrate board.

B. Division 9 – Metal Stud Framing

C. Division 9 - Painting & Transparent Finishes.

D. Division 9 - Resilient Base.

1.3 REFERENCES

A. American Society for Testing and Materials: Standard Specifications (ASTM)

1. ASTM D 256 - Izod Impact Strengths (ft #/in)
2. ASTM D 570 - Water Absorption (%)
3. ASTM D 638 - Tensile Strengths (psi) & Tensile Modulus (psi)
4. ASTM D 790 - Flexural Strengths (psi) & Flexural Modulus (psi)
5. ASTM D 2583- Barcol Hardness
6. ASTM D 5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
7. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Selection Samples: Submit manufacturer’s standard color pattern selection samples representing manufacturer's full range of available colors and patterns.

C. Samples for Verification: Submit appropriate section of panel for each finish selected indicating the color, texture, and pattern required.

1. Submit complete with specified applied finish.
2. For selected patterns show complete pattern repeat.
3. Exposed Molding and Trim: Provide samples of each type, finish, and color.

D. Manufacturers Material Safety Data Sheets (MSDS) for adhesives and sealants prior to their delivery to the site.

1.5 QUALITY ASSURANCE

A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:

1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)

   a. Wall Required Rating – Class C.

B. Sanitary Standards: System components and finishes to comply with:

1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.
2. Food and Drug Administration (FDA) 1999 Food Code 6-101.11.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials factory packaged on strong pallets.

B. Store panels and trim lying flat, under cover and protected from the elements. Allow panels to acclimate to room temperature (70°) for 48 hours prior to installation.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Building are to be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.

1. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

1.8 WARRANTY

A. Furnish one year guarantee against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis of Design: Marlite Standard FRP

B. Substitutions allowed under Section 01600.

2.2 FIBER REINFORCED PLASTIC (FRP) PANELS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.

1. Coating: Multi-layer print, primer and finish coats or applied over-layer.
2. Dimensions:

    a. Thickness – 0.090 inch (2.29mm) nominal
    b. Width - 4'-0" (1.22m) nominal
    c. Length – 10'-0" or as indicated on the drawings

3. Tolerance:

    a. Length and Width: +/-1/8 inch (3.175mm)
    b. Square - Not to exceed 1/8 inch for 8 foot (2.4m) panels or 5/32 inch (3.96mm) for 10 foot (2.4m) panels

B. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.

1. Flexural Strength - 1.0 x 10^4 psi per ASTM D 790. (7.0 kilogram-force/square millimeter)
2. Flexural Modulus - 3.1 x 10^5 psi per ASTM D 790. (217.9 kilogram-force/square millimeter)
3. Tensile Strength - 7.0 x 10^3 psi per ASTM D 638. (4.9 kilogram-force/square millimeter)
4. Tensile Modulus - 1.6 x 10^5 psi per ASTM D 638. (112.5 kilogram-force/square millimeter)
5. Water Absorption - 0.72% per ASTM D 570.
6. Barcol Hardness (scratch resistance) of 35 55 as per ASTM D 2583.
7. Izod Impact Strength of 72 ft. lbs./in ASTM D 256

C. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.

D. Front Finish: Pebbled.

1. Color: As indicated on the Drawings. As selected by Owner/Architect from the manufacturer's full product range.
2. Surface Pebbled surface texture.
3. Fire Rating : Class C
4. Size/Layout: As indicated on drawings or if not indicated on drawings balance panels on wall with equal panels on each side of wall. Panels to run full height of wall without a horizontal seam unless indicated on the drawing

2.3 MOLDINGS

A. PVC Trims for FRP panels:

    a. Provide at all panel edges.
    b. Color to match panel color.

2.4 ACCESSORIES

A. Color matched joint caulking: Color Sil by Color Rite ((405) 354-3645).

1. 100% silicon based colored caulking.
2. Match panel color (see reference guide from ColorSIL.)

B. Adhesive: Either of the following construction adhesives complying with ASTM C 557.

.
1. For FRP panels, per manufacturer's approved list.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.

1. Verify that stud spacing does not exceed 24 inch (61cm) on-center.

B. Repair defects prior to installation.

1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

3.2 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Cut sheets to meet supports allowing 1/8" inch (3 mm) clearance for every 8 foot (2.43m) of panel.

1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.

C. For FRP panels, apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.

1. Install panels with manufacturer's recommended gap for panel field and corner joints.

a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.

D. For FRP panels, apply panel moldings to all panel edges using silicone sealant providing for required clearances.

1. All moldings must provide for a minimum 1/8 inch (3.18mm) of panel expansion at joints and edges, to insure proper installation.
2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

E. Replace installations out of plumb and not aligned with adjacent panels and construction.

3.3 CLEANING

A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.

B. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

END OF SECTION 09 72 16

SECTION 09 90 12

INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Steel (Structural Steel, Misc. exposed steel sections, Handrails, Exposed roof decking, and bollards.)
2. Galvanized metal (Hollow Metal Doors and Frames)
3. Gypsum board.

B. Related Sections include the following:

1. Division 6 Sections for shop priming carpentry with primers specified in this Section.

1.3 SUBMITTALS

A. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches(200 mm) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.
5. Paint samples to be applied to surface similar to surface to be painted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F(7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F(10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F(3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Benjamin Moore & Co.
2. Bennette Paint Mfg. Co., Inc.
3. Color Wheel Paints & Coatings.
4. Columbia Paint & Coatings.
5. Davis Paint Company.
6. Diamond Vogel Paints.
7. General Paint.
8. ICI Paints.
9. Kelly-Moore Paints.
10. Rodda Paint Co.
11. Sherwin-Williams Company (The).
12. Spectra-Tone.
13. Safe-Coat
14. 3M

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

4. Restricted Components: Paints and coatings shall not contain any of the following:

a. Acrolein.
b. Acrylonitrile.
c. Antimony.
d. Benzene.
e. Butyl benzyl phthalate.
f. Cadmium.
g. Di (2-ethylhexyl) phthalate.
h. Di-n-butyl phthalate.
i. Di-n-octyl phthalate.
j. 1,2-dichlorobenzene.
k. Diethyl phthalate.
l. Dimethyl phthalate.
m. Ethylbenzene.
n. Formaldehyde.
o. Hexavalent chromium.
p. Isophorone.
q. Lead.
r. Mercury.
s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

C. Colors: As selected by Architect from manufacturer's full range.

2.3 INTERIOR PAINT SCHEDULE

A. See Interior Finish Key on Room Finish Schedule Sheet for interior finishes and colors

B. Systems and glass levels are found in the MPI, APSM. All work is Premium Grade.

C. Concrete Floor: Int. 3.2C, Water Based Sealer. Typical UNO. (Where indicated on exposed concrete floors including recesses of Refrigerator and Freezer units.)

D. Hollow metal (Doors & Frames) and Structural Steel: Institutional Low Odor/VOC, Gloss Level 5.

E. All exposed GWB: Epoxy Finish: Water Base Epoxy. Gloss Level 5.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Gypsum Board: 12 percent.

C. Clean surfaces of grease, dirt, or other debris.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates (Doors and Frames): Remove loose paint, rust or other imperfections. Clean using methods recommended in writing by paint manufacturer.

F. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat. Notify Owners Representative between each coat of paint, prior to application of successive coat of paint.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:

1. Mechanical Work:

   a. Uninsulated metal piping.
   b. Uninsulated plastic piping.
   c. Pipe hangers and supports.
   d. Tanks that do not have factory-applied final finishes.
   e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
   f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
   g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

2. Electrical Work:

   a. Switchgear.
   b. Panelboards.
   c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 90 12

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Primers.

2. Finish coatings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include preparation requirements and application instructions.

2. Indicate VOC content.

B. Samples: For each type of topcoat product.

C. Samples for Initial Selection: For each type of topcoat product.

D. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.

2. Apply coats on Samples in steps to show each coat required for system.

3. Label each coat of each Sample.

4. Label each Sample for location and application area.

E. Product Schedule: Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint Products: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.

2. Remove rags and waste from storage areas daily.

1.6 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each paint product from single source from single manufacturer.

2.2 PAINT PRODUCTS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range

2.3 PRIMERS

A. Water-Based, Rust-Converting Primer: Corrosion-resistant, water-based-emulsion primer formulated to transform rust into magnetite. Apply per manufacturer's writing application instructions. For use on all exterior ferrous metals.

1. Product: Uniflex Rust Inhibitive Metal Primer, Sherwin Williams.

2.4 FINISH COATINGS

A. High-Build Epoxy Paint, Low Gloss: High-solids, two-component epoxy; formulated for use on exterior concrete, masonry, and primed-metal surfaces.

1. Gloss and Sheen Level: Manufacturer's standard low-gloss finish

2. Basis of Design Product: Pro Industrial Rust Preventative Paint by Sherwin Williams Paints

3. Color: Match adjoining metal panel/flashing color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 INSTALLATION

A. Apply paints in accordance with manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.

4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

5. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting: Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:

a. Equipment, including panelboards and switch gear.
b. Metal conduit.
c. Tanks that do not have factory-applied final finishes.
d. Fuel oil tank piping, supports, etc.
e. Generator and Load Bank fittings, supports, etc.
f. Ventilation hoods and fittings

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.

2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.

2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.

3. Allow empty paint cans to dry before disposal.

4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION
09 91 13

SECTION 25630
SUBMERSIBLE PUMPING UNITS

Part I – GENERAL

1.1 WORK INCLUDED

A. Submersible Well Pumps.

1.2 REFERENCE STANDARDS

The work in this section is subject to the requirements of applicable portions of the following standards:

A. ANSI – American National Standards Institute
B. AISI – American Iron and Steel Institute
C. IEEE - Institute of Electrical and Electronics Engineers
D. NEMA – National Electrical Manufacturers Association
E. AWWA – American Water Well Association
F. ISO – International Standards Organization

Part 2 – PRODUCTS

2.1 SUBMERSIBLE WELL PUMPS

A. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the published operating region. The design operating point shall be 1,500 gpm at 250 feet TDH. Pump setting shall be per the plans.

B. All pump bearings shall be lubricated by the pumped water.

C. Drop pipe shall be 8-inch 304 stainless steel pipe with a check valve installed above the pump.

D. The pump (including cable guard) shall be suitable for use in a 12-inch well-casing.

E. The discharge shall have 6-inch or 8-inch internal pipe thread connections and adapt to a Baker Monitor pitless unit.

F. Pump Construction:
Pump shall have extra long bearing to insure shaft alignment and stabilization. Intermediate bowls shall be ductile iron or stainless steel with glass coating for efficiency and abrasion. Impellers shall be maximum efficiency with no lead material and NSF 61 certified for potable drinking water. Taper lock shall be machined for positive locking of impeller to the pump shaft. Upthrust collar shall protect against upthrust at start up. Ductile iron or stainless steel suction adapter shall align pump and motor with an open area to provide access to pump/motor coupling. Pump to motor coupling shall be stainless steel and shall provide for alignment, balance, and power transmission. Pump shaft shall be stainless steel and shall be ground and polished for a smooth bearing surface. Pumps shall be corrosion resistant, have hermitically sealed 460 volt motor windings, sand resistant construction, and water filled.

G. Pump shall be coupled to motor by same manufacturer.

H. All pump parts must be available for purchase individually or in kits from the manufacturer.

I. Pump shall be a Goulds Model 9THC submersible pump, Grundfos or equal and shall be NSF certified.

J. The pump motor shall be approximately 9-inch diameter. Pump moor shall be 150 HP, 3450 RPM, 60 Hz, 3-Phase, 460 V stainless steel motor with a built-in temperature transmitter; however, temperature monitoring will be provided through the VFD drive unit.

2.3 TESTING

A. The pump shall be tested for performance by the manufacturer as standard prior to shipping.

B. The pump manufacturer shall provide documentation to the Engineer of the following tests prior to shipment:

1. Verified Performance Test
2. Witnessed Verified Performance Test shall include a minimum of two operating points on the pump curve including VFD performance. A written performance report shall be provided by the pump manufacturer.

2.4 WARRANTY

A. The warranty period shall be a non-prorated period of 24 months from date of installation, not to exceed 30 months from date of manufacture as indicated on the nameplate.

Part 3 – EXECUTION

3.1 Installation

A. Prior to setting the pump, Contractor shall install a test pump in the production well capable of discharging 1,500 gpm to waste at the DI on Pioneer Drive for 8 hours or until the discharge water is clear. The Contractor shall install a test pump in the monitor well capable of 100 gpm to waste at the DI on Pioneer Drive for 4 hours or until the discharge water is clear. After completion of the test pumping, Contractor shall remove test pump(s) and chlorinate both wells per AWWA C654 requirements.

B. Pump setting shall be per the plans. A well transducer shall be installed down a sounding tube in the monitoring well. The transducer shall be installed at 80 feet below ground surface.

C. The Contractor will install all pumping equipment, drop pipe, power cable and appurtenances pursuant with manufacturer's recommendations.

D. Contractor shall check rotation prior to initializing a field test of the equipment. In the presence of the Owner, Engineer and Contractor, a field start-up will be required to verify field performance of the newly installed pumping equipment. A representative from Grundfos is required to be present during the start-up test. The Contractor is responsible for coordinating all parties to be present for the start-up.

END OF SECTION

SECTION 26000
PITLESS UNIT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

Complete assembled 12" Pitless Unit System including well cap, lift-out bail, hold down hooks, lift out pipe, discharge body with support ring, spool with check valves and pressure equalizing passages.

1.02 SUBMITTALS

A. Submittals shall include:

1. The Manufacturer and Model of the Pitless Unit to be installed.
2. Detailed Specifications with Drawings of the System furnished by the manufacturer.

PART 2 PRODUCTS

2.01 PITLESS UNIT

The Pitless Unit shall be Baker Monitor Custom 244442, Maas or equal with 304 stainless steel wetted surfaces, 8" 304 stainless steel connection to drop pipe, 12" flanged discharge. The unit must capable of withstanding 300 psi discharge pressure, and have a minimum of 65,000 pound lift out load rating. The unit should be factory assembled, before shipping to the site. The pitless unit must conform to the Recommended Standards for Water Works and be NSF-listed.

2.02 WELL CAP

The Watertight Cap shall be secured to the pitless casing with a compression gasket. The top of the cap can be removed without affecting the sealed conduit or wiring. The heavy duty watertight cap will have a separate protected downward facing stainless steel screened well vent with pipe nipple. Construction of the cap and well vent will be of heavy duty gray cast iron and painted with a green enamel finish.

2.03 UPPER CASING

The Upper Casing is factory assembled to the discharge body, and the lift out and hold down mechanism are factory assembled to the spool. Upper casing thickness must conform to AWWA standards and be coated with a rust protective coating. The upper casing must provide a watertight connection from the discharge body to the well cap. The discharge port center line to be a minimum of 8.5 feet below grade, and the pitless upper casing to extend a minimum of 1.5 feet above grade.

2.04 SPOOL

The spool shall include 2-inch NPT per ANSI B 1.20.1 male drop pipe connection and shall be constructed of lead-free galvanized heavy-duty steel with a lead-free galvanized plating on the wetted surface of over .010 inches thick. The spool will have o-ring grooves machined into the spool retaining the o-rings when setting or pulling the system.

The positive pressure o-ring seals shall be constructed of neoprene or equivalent. Spool shall be designed to accommodate probe tubes or water samplers and NPT ports for discharge pressure taps. O-ring protection should be provided to prevent the seals from dragging on the upper casing when the pump is installed or removed.

2.05 DISCHARGE BODY

The Discharge Body shall be constructed of lead-free galvanized steel. O-ring seat to be designed to prevent crevice and galvanic corrosion. Dissimilar metals should be avoided. Discharge body designed to be strong enough to prevent distortion due to vertical movement of discharge pipe thereby allowing spool to bind in the discharge body. Minimum I.D. of the discharge body to be equal to or greater than I.D. of the well casing for ease in well servicing.

2.06 HOLD-DOWN MECHANISM

The Pitless Unit spool should have a hold down mechanism, factory assembled to spool and capable of preventing rotation of the pitless spool relative to the discharge body, at full rated locked rotor torque of the submersible pump motor. The spool must also have a factory assembled lift out pipe and bail, or spider capable of rated load, to allow lifting a water filled drop pipe and pump out of the well for service. Components to be constructed of steel with a corrosion resistant coating.

PART 3 EXECUTION

3.01 EXCAVATION

The existing well casing shall be exposed adequately for proper installation of the pitless unit. Sanitary seal shall be replaced to ground surface after installation of the pitless unit. An 8' square concrete slab shall be poured around the new pitless.

3.02 INSTALLATION

The new pitless shall be installed per manufacturer's recommendations.

END OF SECTION

SECTION 31100

TRENCH EXCAVATION AND BACKFILL

PART 1 GENERAL

1.01 DESCRIPTION

A. Description of Work

The work covered by this Section includes the furnishing of all plant, labor, tools, equipment and materials and performing all operations in connection with the excavation, trenching, backfilling, moisture conditioning, and surface repair of all pipelines, accessories and lines connected thereto, complete including sheeting and shoring, dewatering, grading and cleanup and traffic control all in accordance with these Specifications and the applicable Drawings.

B. Definitions

1. Trench – An excavation in which the depth is greater than the width of the bottom of the trench.

2. Foundation – Material on which pipe bedding or structure is to be directly placed.

3. Bedding – Granular material that surrounds pipe or structure. Pipe bedding shall extend 12” above the pipe.

4. Maximum Density – The maximum density as determined by ASTM D1557 for the soil or aggregate under consideration.

5. Backfill – Material from top of bedding to finish subgrade or finish grade.

1.02 QUALITY ASSURANCE

A. Provisions of Testing

1. All testing for compaction will be provided by Owner. The Contractor shall be responsible for the cost of any retests required due to failed tests. Test results shall be provided to the approving agency prior to paving.

B. Testing Methods

1. ASTM C94, Standard Specification for Ready-Mixed Concrete

2. ASTM C117, Standard Test Method for Materials Finer than No. 200 Sieve by Washing.

3. ASTM C131, Standard Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

4. ASTM C136, Standard Method for Sieve Analysis of Fine and Coarse Aggregate.

5. ASTM D 1556 Test Method for Density of Soil in Place by the Sand-Cone Method.

6. ASTM D 1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop.

7. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

8. ASTM D3017, Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods.

1.03 FREQUENCY OF TESTING

A. Maximum Dry Density and Optimum Moisture Content, ASTM 1557

1. Request one test for each different class or type of material

2. Request one test when previous test is suspect, due to subtle changes in the material, as determined by the Engineer.

B. Density of Soil In-Place by Sand Cone or Nuclear Methods

1. Request a minimum of one test per lift per 500 linear feet of trench.

2. Owner or the Engineer may request testing more or less frequently as he deems appropriate.

1.04 FREQUENCY OF TESTING

A. Percent Compaction. Not less than as specified on Plans or in these Specifications.

B. Place Moisture Content. As required to achieve minimum compaction requirements.

C. Soft or Yielding Surfaces. Regardless of percent compaction obtained by test, areas that are soft and yield under the load of construction equipment ("pumping") are to be removed and replaced at no additional cost.

1.05 SUBMITTALS

A. Test Results

1. Provide moisture-density corves and gradations for bedding material per ASTM D1557, ASTM C131 and ASTM C136.

PART 2 PRODUCTS

2.01 MATERIALS

A. Unsuitable material not to be incorporated in the work include:

1. Organic matter such as peat, mulch, organic silt or sod

2. Expansive clays

3. Material containing excessive moisture

4. Poorly graded coarse material

5. Rock or particle size in excess of 4 inches

6. Material that will not achieve density and/or bearing requirements

7. Construction debris such as broken concrete or asphalt concrete.

B. Bedding

1. Bedding material shall consist of screened native material meeting Class C requirements conforming to a gradation as specified in Section 200.03.04 and the following table:

Class	Sieve Size	Percent by Weight Passing Sieve
Class C	1 inch	100
	¾ inch	90-100
	3/8 inch	10-55
	No. 4	0-10

C. Backfill

1. Backfill 12 inches above the pipe zone shall consist of screened native material meeting Class E requirements conforming to the gradation specified in Section 200.03.06 and the table below.

2. Gradation

Sieve Size	Percent by Weight Passing Sieve
4 inch	100
¾ inch	70-100
No. 40	10-50
No. 200	0-35

3. Type 2 Class B backfill shall be imported and meet the gradation requirements specified in Section 200.01.03 and the following table:

Sieve Size	Percent by Weight Passing Sieve
1 inch	100
¾ inch	90-100
No. 4	35-65
No. 10	25-53
No. 16	15-40
No. 40	12-28
No. 200	2-10

4. Plastic Limits

Percentage Passing #200 Sieve	Max Plasticity Index	Max Liquid Limit
5 - 10	20	50
11 - 20	15	40
21 -30	10	35

D. Portland Cement Concrete

1. ASTM C94, 3,000 psi yield strength minimum. Concrete used in building materials shall be as specified on the Structural Plans.

E. Foundation

1. The Contractor may use any aggregate material that is free from unsuitable material for pipe foundation provided that a suitable foundation, as determined by the soils engineer, can be constructed with the material provided. Drain rock (3/4-inch) is specified under vaults and concrete structures.

F. Concrete Slurry

1. For backfill of water mains, concrete slurry shall consist of a fluid, workable mixture of aggregate, Portland cement (Type II, low alkali, 2 or 3-sack mix) and water. The aggregate materials selected for concrete slurry shall be Mortar Sand conforming to the requirements of ASTM C144 and Coarse Aggregates for Grout per Section 200.04.03 of the Standard Specifications. The slurry shall also conform to the following grading:

Sieve Size	Percent by Weight Passing Sieve
½- inch	100
3/8- inch	90-100
No. 4	20 - 55
No. 8	5 - 30
No. 16	0 - 10
No. 30	0 - 5

PART 3 EXECUTION

3.01 INSPECTION BY CONTRACTOR

A. Verify all preliminary work including construction staking has been performed in accordance with the Plans and these Specifications. The Contractor shall provide all construction staking.

3.02 EXCAVATION

A. General

1. Perform all excavations of every description and of whatever substances encountered to the depths indicated on the Plans, including excavation ordered by the Owner of compacted fill for the purpose of performing tests. Use open cut excavation methods unless otherwise shown on the Plans or approved by the Engineer. Remove all loose material after excavation and compact to 90% maximum density prior to placing bedding.

B. Trench Widths

1. Excavate trenches for pipe to the dimensions indicated on the Plans.

2. Maintain trench walls as vertical as possible except as required by safety standards and for that required for sheeting and shoring. If the maximum trench width of 24 inches greater than the outside diameter of the pipe is exceeded at the top of the pipe, provide necessary additional load bearing capacity by means approved by the Owner at the Contractor's expense.

C. Trench Alignment

1. The pipeline shall be laid to the alignments and grades shown on the Plans and as directed by the Owner's Field Inspector. The Contractor will provide surveying for the pipeline.

2. Water and sewer separations shall conform to the requirements of the Nevada Division of Environmental Protection (NDEP). Whenever the water main crosses over the sewer or storm drain, a vertical separation of 18 inches must be maintained or special construction methods must be employed to protect the water main pursuant with the NDEP requirements. Minimum horizontal separation must be 10 feet between water and sewer mains.

3.03 OVER-EXCAVATION

A. Unauthorized Over-excavation.

1. Fill and compact unauthorized beyond the specified grade line, at the contractor's expense, with aggregate base or bedding material.

2. Additional trenching and/or shoring required due to pipe depths or proximity to existing utilities as shown on the Plans is the Contractor's responsibility and shall be at the Contractor's expense.

3. Compact to 95 percent of the maximum density.

B. Rock.

1. Over-excavate rock encountered in trench to provide a minimum of six inches of bedding below the pipe and the minimum width at the springline.

C. Unsuitable Material.

1. Over-excavate unsuitable material to the depth required as determined by the Owner to provide required support.

2. Backfill the over-excavation with bedding and compact to at least 95% of the maximum density.

3. Foundation material may be used for stabilization below the bedding zone.

4. All unsuitable and excavated material shall be disposed of off-site at the Contractor's expense.

D. Blasting

1. Blasting will not be permitted on this project.

3.04 GRADING AND STOCKPILING

A. Grading.

1. Grade in the vicinity of the trench to prevent surface water from flowing into the trench.

2. Remove any water accumulated in the trench by pumping or other approved methods. Dewatering is not anticipated for this project; however, it is the responsibility of the Contractor to investigate the subsurface conditions of the site for the extent of the work and familiarize him/herself with the site to prepare an adequate bid for the work intended.

3. Stockpile excavated material in an orderly manner a sufficient distance back from the edges of the trench to avoid overloading and to prevent slides or cave-ins.

B. Topsoil.

1. Excavate topsoil and stockpile separately.

2. Replace topsoil upon completion of backfill to the elevation and grade indicated on the Plans

3.05 SHORING AND SHEETING

A. Shore, sheet and brace excavations as set forth in the rules, orders and regulations of the United States Department of Labor Occupational Health and Safety Administration (OSHA). Provide detailed plans and calculations prepared by a Nevada-registered professional engineer for excavations twenty feet (20') in depth or greater or when shoring, sheeting or bracing deviates from OSHA standards. Place and remove shoring, sheeting and bracing so as no to damage adjacent improvements, utilities or utility being placed. Costs for shoring, sheeting and bracing shall be incidental to the pipe items.

3.06 OPEN TRENCH

A. Maximum Length.

1. Maximum length of open trench shall be 100 feet. Where trenches are adjacent to or cross existing roadways, the trench shall be plated or backfilled at the end of each day. Paved roadway sections shall be temporarily patched with 2-inch minimum cold-mix asphalt until permanent asphalt patch is installed.

2. The trench is open until fill is completed to adjacent finish grade elevation.

B. Temporary Provisions.

1. Furnish and install trench bracing and steel plating required to provide safe and convenient vehicular and pedestrian passage across trenches where required if permitted by the Churchill County Road Department.

2. Maintain access to emergency facilities at all times. Road closures must be authorized by the Churchill County Road Department.

3.07 AGGREGATE BASE

A. Place the aggregate base upon backfill and embankments as indicated on the Plans. Grade the base to provide the depth and dimensions shown on the Plans. Compact the aggregate base to 95% of the maximum value determined by ASTM D1557.

3.08 FOUNDATION, BEDDING, BACKFILLING AND COMPACTION

A. Foundation.

1. Place foundation when soils in the trench bottom are soft or yielding.

2. It is anticipated that foundation could be necessary in areas where groundwater is present or near the trench bottom.

3. Costs associated with dewatering and foundation shall be considered incidental to the pipe item. Dewatering is not anticipated on this project.

B. Fine Grading.

1. Accurately grade the bottom of the trench to provide uniform bearing and support for each section of pipe at every point along its entire length.

3.09 MOISTURE CONDITIONING

A. Moisture condition all bedding and backfill materials by aerating or wetting to achieve the moisture content required to obtain the minimum percent compaction. Mix until the moisture content is uniform throughout the lift. No additional payment will be made for moisture conditioning, import or native materials.

3.10 LIFT THICKNESS

Lift Description	Maximum Loose Lift Thickness, Inches
Bedding	6
Backfill	8
Aggregate Base Surfacing	6

A. Lift thickness may be increased if Contractor can demonstrate through a series of density tests that minimum density is achieved throughout the lift thickness.

3.11 COMPACTION

A. Compaction Methods.

1. Water consolidation, water jetting or rubber-tired tractor wheel rolling will not be allowed.

B. Pipe Haunch.

1. Hand compact initial backfill in pipe haunch with a hand compactor (J-bar) or a mechanical vibratory compactor sized to fit the narrow width between the trench wall and pipe.

2. Give special attention to provide proper compactive effort in the important pipe haunch zone.

C. Compaction Densities.

1. Thoroughly compact trench bedding and backfill to not less than the percent compaction indicated on the Plans.

2. Where not indicated on the Plans, compact bedding to 95% and backfill to 90% per ASTM 1557. In roadway sections, backfill shall be compacted to 95%.

3.12 BACKFILL FOR PIPES, VALVES, MINOR STRUCTURES AND OTHER

A. Backfill appurtenances and structures as shown on the Plans. Where not clearly indicated, the backfill, including bedding, backfill lift, lift thickness, and compaction, shall be identical to the adjacent trench. Backfilling during freezing weather will not be permitted.

3.13 SURFACE RESTORATION

A. Grading.

1. Perform all grading adjacent to backfilled trenches and structures as necessary.

2. Leave the area in a neat and satisfactory condition.

3. Grade area to provide proper drainage and to ensure that the existing drainage has not been changed.

B. Surface Restoration.

1. Resurface as specified or to match all existing surfaces broken or damaged by the installation of the new work.

C. Asphalt Patching

1. Asphalt Pavement Patching (AC) material shall be a mixture of cement grade PG64-22 per Standard Specifications Section 201.02 and Type 2 Aggregate per Standard Specifications Section 202.02. Temporary pavement patch shall be a minimum of 2 inches and placed at the end of each day. Permanent AC patch shall consist of 4 inches (or match existing) of Type 3 AC 20 hot-mix over 8 inches of Type 2 Base material compacted to 95% RC.

D. Concrete Patching

1. All Portland Cement Concrete, unless otherwise specified, shall have a coarse aggregate gradation conforming to Size No. 67 in Subsection 200.05.03 – "Coarse Aggregates" of the Standard Specifications, shall have a 4-inch maximum slump and 6 percent entrained air. The minimum 28-day compressive strength shall be 4,000 psi. Cement shall be Type II. Maximum water/cement ratio shall be 0.45.

E. Repairs Required by Permanent Trench Settlement

1. If at any time during a period of one year dating from the date of final acceptance of the project, there is any settlement of the permanent trenches requiring repairs to be made or should any defect appear in the system due to negligence or carelessness on the part of the Contractor, the Owner may notify the Contractor to immediately make such repairs as may be deemed necessary at the Contractor's expense.

F. Clean up.

1. Remove all excess soil, concrete, etc. from the premises.

2. Leave job site in a neat and clean conditions.

3.14 PROTECTION AND RESTORATION OF EXISTING FACILITIES

A. Protect all structures, signs, vegetation, driveways, curb, gutter, sidewalks, Section corners, property corners and personal property that are not specified or shown on the Plans to be removed for the performance of the Work, from injury or damage resulting from the construction operations.

B. All signs, structures, driveways, curb, gutter, sidewalks, driveways, vegetation, Section or property corners and personal property which are removed, injured or damaged by the

Contractor's operations shall be replaced or restored to their former state, or better, at the Contractor's expense.

C. The Contractor shall replace any damaged, longitudinal and transverse striping prior to opening a roadway to traffic.

END OF SECTION

SECTION 33100

WATER UTILITY DISTRIBUTION PIPING & FITTINGS

PART 1 - GENERAL

1.01 The work to be done under this section consists of furnishing labor, equipment, materials and incidentals and performing all work necessary for furnishing and installing a water pressure pipe as indicated on the Plans. This item covers the work necessary for the installation of the pipe and fittings of the sizes and classes indicated, including but not limited to, furnishing all materials, base preparation, laying and jointing the pipe, blocking, restraining, furnishing materials and equipment necessary for hydrostatic testing of the lines, and incidental work. Trench excavation and backfill shall conform to the requirements as specified in Section 31100, TRENCH EXCAVATION AND BACKFILL.

1.02 Standards shall conform to the Standard Specifications for Public Works Construction, "Orange Book" hereinafter referred to as Standard Specifications, sponsored and distributed by Washoe County, Sparks, Reno, Carson City and Regional Transportation Commission of Washoe County, Latest Edition, AWWA Standards and Churchill County Standard Construction Specifications.

1.03 References include the following:

A. Ductile Iron Pipe

1.	C104-03	Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
2.	C105-05	Polyethylene Encasement for Ductile Iron Pipe Systems
3.	C110-03	Gray Iron and Ductile Iron Fittings, 3 Inch – 48 Inch for Water
4.	C111-07	Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
5.	C115-05	Flanged Ductile Iron Pipe with Ductile Iron or Gray Iron Threaded Flanges
6.	C150-02	Thickness Design of Ductile Iron Pipe
7.	C151-02	Ductile Iron Pipe, Centrifugally Cast for Water or Other Liquids
8.	C153-06	Standard for Ductile Iron Compact Fittings
9.	C600-05	Installation of Ductile Iron Water Mains and Appurtenances

B. Steel Pipe

1.	C200	Steel Water Pipe, 6-Inch and Larger
2.	C205	Cement Mortar Lining and Cement Mortar Coating
3.	C206	Field Welding of Steel Pipe
4.	C207	Flanges for Steel Pipe
5.	C208	Steel Pipe Fittings

C. PVC Pipe

1.	C605-05	Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

2. C900-07 Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inch – 12 Inch for Water Distribution
3. C905-07 Polyvinyl Chloride (PVC) Pressure Pipe, 14 Inch – 24 Inch for Water Distribution
4. ASTM D1785 PVC Water Pressure Pipe and Fittings – Small Diameter (Schedule 40 and Schedule 80)
5. ASTM D3034 PVC Sewer Pipe and Fittings

D. HDPE Pipe

1. C901-02 Polyethylene (PE) Pressure Pipe and Tubing, ½ Inch – 3 Inch

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE

A. Small-diameter, push-on Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50 and rated for 350 psi working pressure. Large diameter push-on Ductile Iron Pipe shall be rated for 150 psi working pressure. The working pressure includes a surge allowance of 100 psi. Cement mortar lining conforming to ANSI/AWWA C104/A21.4. Provide Polyethylene Encasement per AWWA C105. Standard laying length is 18 feet.

B. Flanged Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50 and AWWA C115, rated for 350 psi working pressure. Cement mortar lining conforming to AWWA/ANSI C104/A21.4.

C. Restrained Joint Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50, AWWA/ANSI C151/A 21.51, and AWWA C115, rated for 350 psi working pressure. Cement mortar lining conforming to AWWA/ANSI C104/A21.4.

D. Pipe Joints

1. Flanged Pipe: Ductile Iron, ANSI/AWWA C115/A21.15 flat faced. Pressure rating equivalent to those thickness or pressure classes of the pipe. Bolts per ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch beyond outer face of nut. Nuts per ASTM A307, hexagonal, ANSI B18.2.2, heavy semi-finished pattern. Flanges shall conform to the requirements of AWWA C115 for Class 125 ANSI B16.1 flanges.

2. Restrained joint pipe: Per performance requirements of AWWA C151. Boltless, integral restraining system rated for 150 psi minimum. Restrained gaskets shall be U.S. Pipe Field Lok joint restraint or approved equal. Restrained push-on joints shall be U.S. Pipe TR Flex or approved equal. Large diameter restrained joint ductile iron pipe shall be U.S. Pipe TR Flex or approved equal. Field Lok joint restraint will not be permitted for large-diameter, restrained joint ductile iron pipe.

3. Gaskets: AWWA C111. Natural rubber gaskets will not be accepted. Flange gaskets shall be of the profile type by ACIPCO (Toruseal®) or US Pipe (Flange-Tyte®). Full-face flat gaskets shall not be used for flanged applications.

4. Mechanical joint pipe: In accordance with applicable requirements of AWWA C151. Gaskets, follower glands and bolts per applicable requirements of ANSI/AWWA C111/A21.11.

5. Push-on joint pipe: In accordance with applicable requirements of ANSI/AWWA C111/A21.11.

2.02 DUCTILE IRON PIPE FITTINGS

A. Ductile iron pipe fittings shall conform to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53, cement lined in accordance with ANSI/AWWA C104/A21.4.

B. Flanged joint fittings shall conform to AWWA C110, faced and drilled surface in accordance with ANSI Class 125 B16.1. Minimum pressure class rating of 250 psi. Bolts per ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch beyond outer face of nut. Nuts per ASTM A307, hexagonal, ANSI B18.2.2, heavy, semi-finished pattern. Gaskets per of AWWA C111.

C. Mechanical joint fittings shall conform to ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11. Minimum pressure rating of 250 psi. Glands, bolts, nuts and gaskets per AWWA C110.

D. Mechanical Restraint Adapters shall be EBAA Iron Mega-Lug, Romac Roma-Grip, no substitutes.

E. All direct buried steel pipe shall be coated with Protecto Wrap Co. #1170 Primer and #320 cold applied tape. All valves, fittings, etc. shall receive two coats of Protecto Wrap cold applied mastic #160H.

F. Lubricant, where required, shall be nontoxic, shall not support the growth of bacteria, and shall have not deterioration effects on the gasket material nor shall it impart taste or odor to water in the pipe.

G. Polyethylene Encasement shall comply with ISO 8180, ANSI A21.5, AWWA C105, and ASTM A674. Encasement shall be U.S. Pipe polyethylene encasement for ductile iron pipe or approved equal.

2.03 STEEL PIPE

A. Steel Pipe shall be designed in accordance with AWWA M11 and manufactured in accordance with AWWA C200. Steel Pipe shall be designed for 200 psi maximum working pressure which includes a surge allowance of 100 psi. Pipe shall be designed to the cover conditions as shown on the Plans. The allowable deflection shall be 3% of the pipe inside diameter for pipe with flexible coating and 2% for pipe coated with cement mortar.

2.04 STEEL PIPE COATINGS

A. Cement mortar lining conforming to AWWA C205. Standard laying length is 40 feet. Pipe shall be cement mortar lined in the shop by the centrifugal process in accordance with AWWA C205. Cement mortar lined pipe shall be braced as required to maintain roundness during shipping and handling.

2.05 STEEL PIPE FITTINGS

A. Steel pipe fittings shall conform to the dimensions of AWWA C208 or may be fabricated into standard or special pipe lengths. All tees, laterals and outlets shall be reinforced in accordance with AWWA M11.

B. Gasketed joints shall conform to AWWA C200 Standard. The standard joint for working pressures up to 250 psi shall be rubber gasketed unless otherwise noted on the Plans. The difference in diameter between the inside diameter of the bell and the outside diameter of the spigot shoulder at point of full engagement, with allowable deflection, shall be no more than 0.4 inches as measured circumferentially. Shop applied coating shall be continuous to the end of the pipe on the bell end and shall be held back on the spigot end sufficiently to allow full engagement of the joint.

2.06 PVC PRESSURE PIPE

A. PVC water pipe shall be extruded from Class 12454 B compound per ASTM D1784 providing a hydrostatic design basis (HDB) of 4000 psi. in accordance to AWWA C-900. Pipe shall have cast iron outside diameters. AWWA C-900 PVC water pipe shall be DR 18 pressure class 235 or DR 14 pressure class 305.

B. Schedule 40 and Schedule 80 PVC shall conform to ASTM D1785 and NSF Standard 14 specifications. Schedule 40 and 80 PVC shall have a pressure rating based on size of pipe. The maximum working pressure for 1-inch Schedule 40 PVC is 450 psi and the maximum working pressure for 2-inch Schedule 80 PVC is 370 psi. Maximum working pressure for 3-inch size pipe shall be as specified on the Plans. Threaded PVC pipe requires a 50% reduction in pressure rating stated for plain end pipe at 73 degrees Fahrenheit.

C. Standard pipe laying length shall be 20 feet. PVC pipe dimensions and tolerances of the pipe barrel shall conform to the requirements of AWWA C900 as specified in ASTM D2122 and as specified in ASTM D2672 for Schedule 40 and Schedule 80 PVC.

D. Solvent cement for PVC pipe shall conform to ASTM D2564 and shall be listed by NSF for potable water use. Primer for PVC pipe shall conform to ASTM F656.

2.07 PVC PIPE FITTINGS

A. Fittings for PVC pipe shall be flanged or bolted mechanical joint or push-on joint ductile iron fittings and shall conform to ANSI/AWWA C110/A21.10 or C153/A21.53, and ANSI/AWWA C111/A21.11. All fittings shall be cement mortar lined and coated in accordance with ANSI/AWWA CI04/A21.4. Fittings for small diameter PVC pipe shall include solvent weld (slip) joints or threaded joints for Schedule 80 PVC.

B. Mechanical joint restraining devices shall be utilized for restraining plain end PVC pipe to mechanical joint fittings as manufactured by EBBA Iron, Series 2000PV or equal. Bell restraining harnesses for PVC pipe shall be as manufactured by EBBA Iron, Series 1600 or equal. The restraining harness shall be manufactured of ductile iron conforming to ASTM A536.

C. PVC gaskets and lubricants shall be made from materials that are compatible with the plastic material and with each other when used together. They shall be suitable for use in potable water systems and shall not support the growth of bacteria. All rubber rings shall be furnished by the pipe manufacturer. These rubber rings (elastomeric gaskets) shall be manufactured to conform to the requirements of ASTM F-477. One gasket shall be furnished with each length of elastomeric gasket bell end pipe.

D. Solvent cement for pipe fittings shall conform to ASTM D2564 and shall be listed by NSF for potable water use. Primer for PVC pipe fittings shall conform to ASTM F656.

2.08 PVC GRAVITY SEWER PIPE

A. PVC sewer pipe, fittings, couplings and joints shall comply with the size, dimensions, materials and performance requirements of ASTM D3034, SDR 35 for 4-Inch through 15-Inch. Pipe shall be furnished in 20-foot lengths with rubber-gasketed bell and spigot ends. The spigot ends of all pipe shall include a home mark to indicate proper penetration when the joint is made. Gasketed joints will meet ASTM D3212 requirements.

2.09 POLYETHYLENE PRESSURE PIPE

A. Polyethylene pressure pipe 3 inches and larger shall be PE 3608, Pressure Class 100, DR 17. The pipe shall be manufactured from a PE 3608 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material will meet the specifications of ASTM D 3350 with a minimum cell classification of 345464C. Pipe shall also have a manufacturing standard of ASTM F714. The material shall have a minimum Hydrostatic Design Basis (HDB) of 1,600 psi at 73 degrees Fahrenheit. Pipe O.D. sizes 4-inch through 24-inch diameter shall be available in both steel pipe sizes (IPS) and ductile iron pipe sizes (DIPS).

B. The pipe shall contain no recycles compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All pipes shall be suitable for use as potable, pressure conduits, listed as NSF 61 and per AWWA C906. All pipes shall have a nominal burst value of three and one-half times the working pressure rating of the pipe.

C. Butt Fusion Fittings shall be PE 3608 HDPE, minimum cell classification of 345464C as determined by ASTM D 3350 and approved for AWWA use. Butt fusion fittings shall have a manufacturing standard of ASTM D 3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe. All fittings shall be suited for pressure conduits.

D. Flanged and Mechanical Joint Adapters shall be PE 35608 HDPE, minimum cell classification of 345464C as determined by ASTM D 3350. Butt fusion fittings shall have a manufacturing standard of ASTM D 3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe. All fittings shall be suited for pressure conduits.

PART 3 -EXECUTION

3.01 HANDLING PIPE

A. Avoid damaging the pipe during hauling, unloading and placement. The use of chains or steel cables on pipe without protective covers is prohibited.

3.02 PIPE LAYING

A. Install per Section 307 of the Standard Specifications, manufacturer's recommendations, and these specifications. Proceed with laying pipe in the trench only after the trench has been dewatered (if necessary) and the bedding has been prepared in accordance with these Specifications. Keep mud, silt, gravel and other foreign material out of the pipe and off the jointing surfaces. Maintain alignment and joint closure until sufficient backfill has been completed to adequately hold the pipe in place. Lay pipe to conform to the prescribed line, depth, and grade shown on the Plans. When pipe laying is not in progress the forward end of the pipe shall be kept tightly closed with an approved temporary plug.

3.03 PIPE BEDDING

A. Placed in accordance with manufacturer’s recommendations so that the entire length of the pipe will have full bearing. Do not use blocking of any kind to adjust the pipe to grade. Dig depressions for Bell holes as required to ensure uniform support along the pipe barrel.

3.04 CAPS, PLUGS, AND CONNECTIONS

A. Cap and restrain pipe stub-outs, plugs or open pipe ends. All open pipe ends and fittings shall be sealed closed when work is not in progress.

3.05 PIPE DEFLECTIONS

A. A maximum axial deflection is allowed at each gasketed joint per manufacturer’s recommendations pursuant with the size and type of PVC pipe application. For a 20-foot length of 12-inch diameter, DR 18, C900 PVC pipe, maximum joint deflection is 2 degrees which is equivalent to a 9-inch offset resulting in a minimum deflection radius of 275 feet. This offset and minimum radius also applies to proposed vertical deflection of the pipeline alignment. The allowable deflection in mechanical joint fittings shall be per the manufacturer’s published limits.

3.06 ANCHORAGE

A. Provide thrust and anchor blocks as shown on the Plans for all unrestrained joints for tees, bends and dead ends. Concrete blocking shall extend from the fitting to solid undisturbed earth and not cover the joint or bolts. The dimensions of concrete reaction blocking shall be per Plans and Standard Details.

3.07 FUSION JOINING OF HDPE PIPE

A. Sections of HDPE pipe shall be jointed into continuous lengths on the jobsite above ground and set in place. The joining method shall be by butt fusion method and shall be performed

in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe manufacturer, including but not limited to, temperature requirements of 400-450 degrees Fahrenheit, alignment and an interfacial fusion pressure of 75 psi. The butt fusion joining will produce a joint with weld strength equal to or greater than the tensile strength of the pipe itself.

B. Sidewall fusions for connections to outlets shall be performed in accordance with HDPE pipe and fitting manufacturer's specifications. The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of the heating iron shall be ¼-inch larger than the size of the outlet branch being fused.

C. Mechanical joining will be used where the butt fusion method cannot be used. Mechanical joining will be accomplished by either using an HDPE flange adapter with a ductile iron back-up ring or HDPE mechanical joint adapter with a ductile iron back-up ring.

D. Socket fusion, hot gas fusion, threading, solvents and epoxies will not be used to join HDPE pipe.

E. The minimum radius of the pipe curvature shall be determined by multiplying a bend radius multiplier times the O.D. of the pipe. For DR 17 HDPE, the multiplier is 40. The average O.D. of 3-inch HDPE is 3.088. The wall thickness of DR 17 is 0.206 inches.

END OF SECTION

SECTION 33500

WATER UTILITY APPURTENANCES

PART 1 GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, equipment and services necessary for the completion of the work specified and as shown on the Plans.

1.02 SERVICEABILITY

Appurtenances shall be rated at the maximum working pressure of 150 psi for the project application.

PART 2 PRODUCTS

2.01 FLOW METERS

A. Flow meters shall be installed in accordance with the Plans and as dictated by the Standard Details. Meters shall meet or exceed ANSI/AWWA Standard C701 and C702 Class II and shall be NSF-approved.

B. Small diameter flow meters (2 inches and smaller) shall be rated for 150 psi maximum working pressure. The meter shall be of split case type with bronze lower and upper shell assemblies. They shall include a separate oscillating piston-type measuring chamber which can easily be removed from the case. The register shall be secured to the main case by means of a locking device located inside the meter. The meter shall read in gallons and shall be capable of remote reading. All reduction gearing shall be contained in a permanently hermetically sealed, tamperproof enclosure made of corrosion resistant metal. The meter connections shall include 2-bolt flange. The main case shall be bronze.

C. Large diameter meter assemblies (3 inches and larger) shall be flanged and rated for 150 psi maximum working pressure. Meter flanges shall be rated for 150 psi as well. Flow meters shall be of the electromagnetic type incorporating sensors that convert flow into an electrical voltage proportional to the velocity of the flow. Flow meters shall include a flow sensor and associated compact transmitter for remote reading capabilities. The meter shall be suitable for flooding. The sensor shall have a coned bore and an excitation frequency of 6.25 Hz. The main case shall be carbon steel with an NSF-approved epoxy coating. The measuring chamber shall be removable. Sensor cable connection shall be ½-inch NPT single opening. Power consumption shall be less than 20 VA. Display shall be keypad 3-line, 16-character, back-lit display with ½-inch numerals for flow rate and two lines for engineering units, totalizer, alarm status, velocity and percent of range.

D. Meters shall be accurate to 100 plus or minus 2% of actual flow within the specified normal and intermittent flow ranges per manufacturer listed characteristics.

E. Small diameter meters shall be Sensus SR-type or approved equal. Large diameter flow meters shall be flanged, propeller-type as manufactured by Sensus, Water Specialties or approved equal.

2.02 AIR VALVE ASSEMBLIES

A. Combination air valve assemblies allow air to escape during pipeline filling and allow air to enter into the pipeline during draining or check valve closure to prevent pipeline collapse. Air vacuum valves allow air to enter into the pipeline during draining or when a negative pressure in the pipeline occurs from instantaneous valve closure.

B. The valve shall consist of a body, cover, baffle, float and seat.

1. The baffle will be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve.

2. The seat shall be fastened into the valve cover without distortion and shall be easily removed if necessary.

3. The float shall be stainless steel designed to withstand 300 psi or more.

a. The float shall be center guided for positive seating.

C. The valves shall be coated with 15 mils minimum epoxy for resistance to corrosion.

D. Below-grade air valve assemblies shall include a service saddle and corporation stop on the water main, HDPE pipe to the air valve, Christy N36 valve box and lid, gravel bed, insulation, and above-ground, screened vent pipe. Exposed air valve assemblies shall include a service saddle and corp stop connection to the main pipeline, a gate or ball shutoff valve and drain line to a floor drain.

E. Air valve assemblies shall be as manufactured by APCO, Valmatic, Crispin or approved equal.

2.03 CORPORATION STOPS AND SERVICE SADDLES

A. Corporation Stops shall be brass, ball valve type, conforming to AWWA C800 and ASTM B-62. Corporation stops shall be suitable for working pressures of 150 psi. Inlet ends shall be male iron pipe thread (MIP). Outlet ends shall be suitable for connections to CTS PE plastic pipe. Corporation stops shall be Ford Ballcorp FB1100-x-G style or approved equal.

B. Service saddles shall be full circle type, AWWA approved for PVC or Ductile Iron pipe and of the size specified on the Plans. Service saddles shall be nylon coated with double Stainless Steel straps. Service saddles shall be Romac style 202N or approved equal.

2.04 SAMPLE TAPS

A. Sample taps shall be brass with a male inlet and smooth-nosed outlet without external threads, screen, aerator or filter. Sample taps shall be as manufactured by Arrowhead Brass, or approved equal.

2.05 COUPLINGS, SLEEVES AND PIPE RESTRAINTS

A. Reducing and transition couplings shall be installed where pipe of dissimilar size and/or material are to be joined at the locations shown on the Plans. Couplings shall be rated for 150 psi.

B. Center end rings shall be manufactured of ductile iron conforming to the material properties of ASTM A536, Grade 65-14-12. Gaskets shall be resilient material approved for potable water applications. Followers and middle rings shall be fusion bonded epoxy coated per NSF 61. Bolts shall be high strength steel. Reducing couplings shall be Romac style RC 501, Dresser style 253 or approved equal. Transition couplings shall be Romac style 501, Dresser style 253 or approved equal. Unions shall be Schedule 80 PVC. Small diameter couplings shall be FPT couplings based on iron pipe size.

C. Pipe restraints shall be installed where a restrained connection is required as shown on the Plans. Castings shall be Ductile Iron conforming to ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall conform to ANSI B 18.2.2 and 18.2.2. Restraining rods shall conform to AWWA C111. Pipe restraints at bell and spigot joints shall be Romac 611 Series or approved equal. Small diameter pipe restraints shall include straps at pipe stands.

D. Pipe sleeves shall be used to connect new Ductile Iron or PVC pipe to existing Cast Iron pipe where a restrained coupling is required as shown on the Plans. Pipe sleeves shall be the long style with MJ x MJ ends and retaining glands, conforming to AWWA C153. Restraining sleeves shall be Ebba Iron RS 3800 or approved equal.

E. Pipe hangers shall be designed to carry the weight of the pipe material, associated valves and fittings and the weight of water half the distance between each hanger. The fastening system shall be compatible with the roof structure (i.e metal beam flanges or wood trusses). Pipe clamps shall be Anvil Model 138R split pipe clamp ring or approved equal. Pipe hanger hardware shall be Anvil Model 278 Welded Eye Rod and of adequate length to facilitate the support system. Ceiling plates, flanges or beam clamps shall be used for fastening to the roof system. Adequate roof structure shall be utilized for anchorage locations.

2.06 CONCRETE THRUST BLOCKS

A. Concrete thrust blocks shall be installed at all pipe horizontal deflections greater than 10 degrees. Concrete shall be 6 ½ sack mix and achieve 28-day strength of 3,000 psi. Concrete pads shall be installed under tees, valves and reducers per Standard Details.

2.07 WARNING TAPE, TRACER WIRE AND TEST STATIONS

A. Warning tape shall be 4-mil, detectable, 3-inch wide tape. Warning tape shall be color-coded blue with black letters clearly marked “CAUTION: BURIED WATER LINE BELOW”.

B. Water pipe tracer wire shall be No. 12 stranded copper wire with blue THHN insulation. Tracer wire shall be taped to the top of the pipe a minimum of every pipe joint (each side of the pipe joint). All wire splices shall be made using a split bolt connector wrapped with aqua seal and electric tape. Test stations shall consist of a valve box with cover and 3-pound anode. Tracer test stations may coincide with in-line valves.

2.08 PRESSURE GAUGES

A. Pressure gauges shall be the direct reading type and shall be furnished with a shut-off cock. The gauges shall be calibrated in one (1) pound per square inch in not more than five (5) pound increments and two (2) feet in not more than five (5) foot increments. Unless otherwise specified, the gauge shall range from 0 to 100 psi. The dial shall be 3 inches in diameter with black aluminum, stainless steel, black bronze or heavy black polypropylene case. Gauges shall be glycerin-filled and be furnished with pressure snubbers.

PART 3 EXECUTION

3.01 FLOW METER ASSEMBLIES

A. All flow meter assemblies shall be installed plumb and at the locations indicated on the Plans. Volumetric testing of all meters must be performed and approved prior to shipment. The complete meter head shall be accuracy tested in the same pipe size and type that the meter will be mounted in. The amount of water used to conduct the test shall be left on the totalizer and the meter head shall be tagged showing the totalizer reading after the test.

3.02 AIR VALVE ASSEMBLIES

A. Air valves shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.03 CORPORATION STOPS

A. Corp stops shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.04 SAMPLE TAPS

A. Sample taps shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.05 COUPLINGS, SLEEVES AND PIPE RESTRAINTS

A. Couplings, sleeves and pipe restraints shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.06 THRUST BLOCKS/THRUST RESTRAINT

A. Thrust blocks shall be installed in accordance with the Standard Details. All elbows, tees, valves and reducers shall be provided with thrust restraint.

B. Where restrained pipe joints are indicated on the Plans, joint restraint shall be provided by TR Flex Ductile Iron Pipe and Fittings, manufactured by U.S. Pipe, Field Lok Gaskets for Ductile Iron Pipe, manufactured by U.S. Pipe, retainer glands for Mechanical Joint, Ductile Iron Pipe and Fittings and restraining harnesses for push-on, bell and spigot pipe or pipe restraining systems at couplings.

C. Restrained pipe joints shall be provided on each side of fittings a minimum of two joints or as indicated on the Plans.

3.07 CONNECTION TO EXISTING FACILITIES

A. Connections to existing water mains and customer services are required at all locations shown on the Plans. Hot-Tap connections shall be permitted utilizing Standard Distribution Hot Tap procedures and per Standard Details.

B. The Contractor shall verify all existing pipe locations, depths, and pipe OD dimensions at all connection locations prior to initiating the actual connections. The Contractor shall also coordinate the operation of isolation valves in the existing system intended for existing water main isolation with Owner prior to initiating the work. All coordination of water main shutdowns and customer notifications shall be coordinated through Owner.

C. The Contractor shall limit service downtime to a minimum. Where service outages are necessary, the Contractor shall construct entire assemblies for the connections prior to cutting or tapping into the existing pipeline to reduce disruption of service.

D. The Contractor shall use caution when excavating near the existing water mains to eliminate damage to a live main. The Contractor is responsible for any repairs to existing water mains that are damaged as a result of excavation operations.

3.08 POLYETHYLENE (PE) TUBING AND CONNECTIONS

A. Tubing diameters are finished nominal tubing size with inside clear dimensions of the sizes indicated on Table 7, AWWA C901. Tubing shall be furnished in coil lengths of the size indicated on the drawings. PE pipe may be substituted with the approval of Owner.

B. Connections shall be mechanical fittings providing a pressure seal and resistance to pullout.

C. Joints of tubing end to tubing end shall be by electrofusion or mechanical fittings.

D. Tubing installation shall conform to the standard trench detail and AWWA C901.

3.09 WARNING TAPE AND TRACER WIRE

A. Warning Tape shall be installed 12 inches above buried water pipes and tracer wire shall be taped directly to top of the pipe per Standard Details.

3.10 PRESSURE GAUGES

A. Pressure gauges shall be installed in accordance with manufacturer's recommendations and as shown on the Plans.

3.11 POTHOLING

A. Potholing involves exploratory excavation at connections to existing water facilities, known utility crossings and other areas as required. The Contractor will be required to obtain the following information from these investigations:

1. Verification of pipe size, type, depth and location;

2. Verification of type, size, depth and location of known utility crossings;

3. List of utilities that will require relocation;

4. Information required for surveying and staking of construction of the facilities.

All potholing will be completed prior to the start of construction of the water facilities.

END OF SECTION

SECTION 33600

VALVES

PART 1 GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, equipment and services necessary for the completion of the work specified and as shown on the Plans.

1.02 SERVICEABILITY

A. All valves shall be rated at a minimum of 150 psi maximum working pressure:

PART 2 PRODUCTS

2.01 GATE VALVES

A. Gate valves shall be resilient seat gate valves as manufactured by American Flow Control Series 2500, Mueller A-2360 Series or equal.

B. All ferrous components shall be ductile iron. Valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Ductile Iron
Stem	Bronze (non-rising)
O-Rings	Rubber
Operating Nut	Cast Iron
Valve Disc	Rubber Encapsulated Cast Iron
Stuffing Box	Cast Iron

C. Design

1. Valve shall be non-rising type with a modified wedge disc traveling in a machined surface in the valve body.

2. The valve disc and guide lugs must be fully encapsulated in SBR ASTM D2000 rubber material. The peel strength shall not be less than 75 pounds per inch. Guide caps of an Acetyl bearing material (Celcon) shall be placed over solid guide lugs to prevent abrasion and to reduce the operating torque.

   a. The resilient seat shall be permanently bonded to the wedge as per ASTM D429, creating a sealing surface permitting bubble tight shut off at pressures to 150 psig.

3. Valves shall be provided with O-Ring stem seals above and below the thrust collar which can be changed while the valve is open and under pressure.

4. The valve stem shall be made of bronze per AWWA C515. The stem shall have at least one "anti-friction" thrust washer above and below the stem collar to reduce operating torque.

5. Valves shall have a stuffing box that is 0-ring sealed. The two o-rings shall be placed above and below the thrust collar. The thrust collar shall be factory lubricated.

6. Except as otherwise stated herein, valves shall conform to ANSI/AWWA C509 and/or C515. All ferrous materials shall be ductile iron.

7. Ends shall be designed for direct connection to the type of pipe which the valve is adjoined to, or as shown on the Plans. All mechanical joint gate valves shall include MEGALUG joint restraint. Flanged ends dimension and drilling pattern shall comply with ANSI B16.1, Class 250.

8. The design working pressure for valves 2 inches through 12 inches in diameter shall be as specified in Part 1 of this Specification.

9. Valves shall be designed to have full port opening for unrestricted flow and passage of stones and other foreign material.

10. Underground gate valves shall be equipped with standard 2-inch square operating nuts. Valves shall open when turned counterclockwise. The operating nut shall also have a directional arrow on top of the nut.

11. Gate valves installed above ground (non-buried) or in structures shall be equipped with standard handwheel operators.

D. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550. All buried valves shall be wrapped in polyethylene film and sealed.

2.02 CHECK VALVES

A. Check valves shall be flanged-type, silent, globe-style check valves that open and close in accordance with the direction of flow. Check valves shall conform to AWWA C508 as manufactured by Valmatic, Cla Val, M&H or approved equal.

B. Check valves shall provide full flow through the valve equal to the nominal diameter of the pipe.

C. Poppet shall be spring loaded to allow valve closure before flow reversal occurs for silent, non-slam closure.

D. Check valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Cast Iron
Spring	Stainless Steel
Disc	Bronze
Seat	Bronze

E. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550.

2. Valves shall be hydrostatically tested at 1.5 times their rated working pressure.

2.03 PRESSURE RELIEF VALVES

A. Pressure relief valves shall be drip tight, positive sealing, capable of being serviced without removal, flanged ends, 100% factory tested, hydraulic operated, diaphragm actuated, globe valves. Body and ends shall be ductile iron, valve trim shall be stainless steel, pressure rated to a minimum of 250 psi, fusion bonded epoxy coated, elastomeric shall be Buna-N synthetic rubber. CRD pilot valve, trim, and pilot piping shall all be stainless steel with a spring range of 30 to 300 psi. Pilot mounting shall maximize the space to work on the valves depending on the vault / valve locations. Pilot isolation valves shall be stainless steel ball valves, Valves shall have a valve position indicator with air release. Pressure relief valves as manufactured by Bermad 730 Quick Release or equal.

2.04 BALL VALVES

A. Ball valves shall be lead-free as manufactured by Apollo, Watts, or approved equal.

B. All ferrous components shall be 316 stainless steel. Valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	316 Stainless Steel
Ball	316 Stainless Steel
Stem	316 Stainless Steel

C. Design

1. Valve shall be a 2-piece, full port, lead-free valve with stainless steel ball in the valve body.

2. Valves shall be NSF-61 rated for potable water applications.

3. Ends shall be designed for direct connection to the type of pipe which the valve is adjoined to, or as shown on the Plans. Threaded ends shall be FPT.

4. The design working pressure for valves shall be 150 psi minumum.

5. Valves shall be designed to have full port opening for unrestricted flow and passage of stones and other foreign material.

6. Ball valves installed above ground (non-buried) or in structures shall be equipped with lever operators.

PART 3 EXECUTION

3.01 INSTALLATION

A. Valves shall be installed as shown on the Plans per manufacturer's recommendations.

END OF SECTION

SECTION 33800

WATER MAIN PRESSURE TESTING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all equipment labor and materials required for testing the potable water main pipeline.

1. Water for testing will be provided, in limited quantities, by Owner.

1.02 CONTRACTOR SUBMITTALS

A. Submit proposed testing schedule for review and approval by the Engineer, at least 3 days prior to testing.

B. Proposed plans for water conveyance, control and disposal shall also be submitted in writing.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 GENERAL

A. Water for testing will be potable water furnished in limited quantities by the Owner; however, the Contractor shall make all necessary provisions for conveying the water from the designated source to the points of use.

1. Testing operations shall be performed in the presence of the Engineer in accordance with AWWA C600 and C605 and the Uniform Plumbing Code.

3.02 TESTING

A. The test shall be made by isolating valves when available, or by placing temporary bulkheads in the pipe and filling the lines slowly with water.

1. Care shall be used to see that all air vents are open during filling.

2. After the pipeline, or section thereof, has been completely filled, it shall be allowed to stand under a slight pressure for a sufficient length of time to allow the escape of air from any air pockets, but not less than 24 hours.

3. During this period, bulkheads, valves and connections shall be examined for leaks.

4. If any are found, these shall be stopped or in case of leakage through valves or bulkheads, provision shall be made for measuring such leakage during the test.

5. The test shall consist of holding the test pressure on each section of the pipelines for a period of 2 hours.

6. Pressure at the lowest point in the pipe shall be 2 times the working pressure of the pipeline being tested as shown on the Plans or 150 psi, whichever is greater.

7. The water necessary to maintain the pressures shall be measured through a meter or by other means satisfactory to the Engineer.

8. The leakage shall be considered the amount of water entering the pipe during the test, less the measured leakage through valves and bulkheads.

9. The leakage shall not exceed the following:

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

L = allowable leakage in gallons per hour
S = length of pipeline tested in feet
D = nominal pipe diameter, in inches
P = average test pressure during the leakage test, in pounds per square inch

10. Any noticeable leaks shall be stopped and any defective pipe or equipment shall be replaced with new pipe or equipment until the leakage is reduced to permissible limits.

11. Each pipeline valve shall be tested in the closed position with the test pressure maintained on one side and zero pressure on the other side.

    a. Each valve thus tested shall be drip tight.

END OF SECTION

SECTION 33900

WATER MAIN DISINFECTION

PART 1 GENERAL

1.01 SUMMARY

A. Description of the Work

1. The work to be performed in accordance with this section includes all work associated with installation of the proposed water line including valves, fittings and appurtenances.

2. The work shall include the furnishing of all labor, tools, equipment, materials and performing all operations required to provide a complete item in accordance with the project Plans and these specifications.

a. Related Work Specified Elsewhere

Trench Excavation and Backfill ..... Section 31100
Water Utility Distribution Piping..... Section 33100

B. Quality Assurance

1. Reference Test Standards and Specifications

AWWA C651 Standard for Disinfecting Water Mains (Includes addendum C651)
Uniform Plumbing Code

PART 2 MATERIALS

NOT USED

PART 3 EXECUTION

3.01 CONNECTION TO EXISTING MAINS

A. Expose existing pipe to be connected and verify location, size, and type prior to constructing new mainline.

1. The locations, sizes and depths of existing mains indicated on the Plans are approximate only.

2. Coordinate connection to existing main with Owner at least forty-eight (48) hours in advance.

3. The Owner cannot guarantee a complete shut down on existing valves.

B. When shutdown of an existing water main is necessary in order to connect to the new lines, make application and pay the required charges to the Owner.

1. The Contractor's representative, the project inspector, and Owner shall meet to establish the time and procedures to ensure that the shutdown will be for the shortest possible time.

2. It may be necessary to schedule the shutdown before or after normal working hours in order to minimize the inconvenience to some customers.

3. The water supply to some customers, such as hospitals, cannot be shut off at any time. Provisions to furnish a continuous supply of water to such establishments will be required and must be approved by the Owner prior to implementation. The valve operational sequencing for water main isolation is identified on the Plans and must be coordinated with the Owner prior to implementation.

C. After the procedures and the time for a shutdown are agreed upon, it shall be the Contractor's responsibility to notify all customers that the water will be turned off.

1. When possible, notify customers twenty-four (24) hours in advance and in no case, except in emergency, shall notification be less than thirty (30) minutes.

2. Notification shall be in writing, giving the reason for the shutdown and the time and duration the water service will be shut off.

3. The Contractor shall limit the disruption of water service to six (6) hours or less for each dwelling unit.

4. The Contractor shall provide temporary water service to any customer whose service is to be interrupted for more than six (6) hours.

5. Temporary service and notification is incidental to the laying of the new pipeline. No separate payment shall be made for this item.

3.02 TRANSFER OF SERVICE

A. The Contractor shall coordinate with the Owner the new pipelines' schedule for disinfection, connections to existing mains, and completion of connections to the existing system.

1. The Contractor's schedule of construction activities shall be reviewed by the Engineer and Owner prior to commencement of such activities.

2. No connections for service to the new water line shall be made until the new line has been both pressure tested and tested for bacterial contamination.

3.03 DISINFECTING WATER LINES

A. All water lines shall be disinfected in accordance with AWWA C651 and Uniform Plumbing Code.

1. Pipe Placement.

a. Keep the interior of the pipe and fittings free from dirt, trench water and foreign materials at all times.

b. At the end of each work day, plug or cap open pipe end to prevent entry of dirt or trench water.

c. Clean and swab interior surfaces that become contaminated, with 0.005 to 0.01 percent chlorine solution.

2. Joint Lubricant.

a. Do not use material capable of supporting prolific growth of microorganisms for sealing joints.

b. Lubricant shall be suitable for use with potable water.

c. Handle lubricant in a manner that will avoid contamination.

3. Preliminary Flushing.

a. Flush all mains prior to chlorination and after the pressure test, except when using the tablet method of chlorination.

b. Install service saddle clamps and corp stops at high points and disinfection points.

c. Leave service saddles and corp stops exposed until testing is complete.

d. Leave saddle clamps and corp stops on the main line upon completion.

e. Check operation of all valves after flushing.

f. Replace damaged or defective materials.

B. Methods of Chlorination

AWWA C651. Use any of the following methods:

1. Tablet Method, Continuous Feed Method, or Slug Method.

a. Retention Period.

1.) Retain chlorinated water in the pipe long enough to destroy all non spore-forming bacteria, but not less than twenty-four (24) hours.

2.) Minimum chlorine residual at the extreme end of the line shall be no less than ten (10) ppm at the end of the retention period.

b. Chlorinating Valves and Hydrants.

1.) Operate all valves, hydrants, and appurtenances while chlorinating to ensure complete disinfection.

c. Final Flushing.

1.) Following chlorination, flush chlorinated water from the line at its extremities until the water through its length is comparable in quality to the water served to the public by the existing system.

d. Disposal of Heavily Chlorinated Water.

1.) Inspect the environment to which the chlorinated water is to be discharged.

2.) Apply a reducing agent to chlorinated water if required.

3.) Contact Federal, state and local regulatory agencies to determine special provisions for chlorinated water disposal. Disposal of any spent chlorine solutions must be coordinated with NDEP in accordance with NAC 445A.67085 (3) and .67145 (6) (a).

C. Disinfections Procedures When Cutting into or Repairing Existing Mains – AWWA C651.

1. The following procedures apply to mainline replacements or repairs one hundred (100) feet in length or less. After the appropriate procedures have been completed, the main may be returned to service prior to completion of bacteriological testing in order to minimize the time customers are out of water.

a. Trench Treatment.

1.) When an old main is opened, either by accident or by design, the excavation will likely be wet and may be badly contaminated.

2.) Apply liberal quantities of hypochlorite in granular or liquid form to open trench areas to lessen the danger from such pollution.

b. Swabbing with Hypochlorite Solution.

1.) The interiors of all pipe and fittings (particularly couplings and sleeves) used in making the repair shall be swabbed or sprayed with a 1-percent hypo chlorite solution before they are installed.

c. Flushing.

1.) If valve and hydrant locations permit, flush toward the work location from both directions.

2.) Flushing shall be started as soon as the repairs are completed and shall be continued until discolored water is eliminated.

D. Sampling and Testing

1. Sampling and Bacteriological testing shall be performed in accordance with AWWA C651, which requires two samples, taken twenty-four (24) hours apart, for each 1,200 feet of water main.

2. In addition, more samples must be taken at the ends of line sections and from each distribution branch greater than 20 feet in length.

3. The Contractor shall include all the cost of sampling, shipping, and testing in his Bid and no separate payment will be made for the testing.

END OF SECTION

SECTION 220500

COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.1 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to this work.

2.1 WORK INCLUDED

A. The work to be included in these and all other plumbing subsections shall consist of providing, installing, adjusting and setting into proper operation complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 01 of the specifications is to be specifically included as well as all related drawings.

3.1 RELATED WORK

A. Related Work Specified Elsewhere:

1. Fire Suppression Specifications: Division 21.
2. Heating, Ventilating and Air Conditioning (HVAC) Specifications: Division 23.
3. Electrical Specifications: Division 26.
4. Motors and Connections: Division 26.
5. Starters and Disconnects: Division 26.

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all plumbing equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric switches, electrical components, wiring and any other miscellaneous Division 22 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

4.1 REFERENCED CODES - LATEST ADOPTED EDITION

A. NFPA 70 National Electrical Code (NEC).

B. IMC International Mechanical Code.

C. UPC Uniform Plumbing Code.

D. IFC International Fire Code.

E. IBC International Building Code.

5.1 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 01, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

C. Show the location of all valves and their appropriate tag identification.

D. At completion of project, deliver these drawings to the Owner and obtain a written receipt.

6.1 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be provided in electronic PDF Format. The data in the electronic

file shall be arranged and indexed under basic categories in order of the Specification Sections. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. Only submit on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

E. Submit product data for:

1. Hangers and Supports for Plumbing Piping and Equipment.
2. Vibration and Seismic controls for Plumbing Piping and Equipment.
3. Identification for Plumbing Piping and Equipment.

F. Provide shop drawings with calculations for selection of seismic/wind restraints in accordance with IBC and ASCE 7, certified by a qualified professional engineer, licensed in the State of Alaska. Seismic calculations shall be based upon Seismic Category D. All components shall utilize an IP of 1.0 for seismic calculations.

7.1 OPERATING AND MAINTENANCE MANUALS

A. See General Conditions and the General Requirements in Division 01 regarding Operating and Maintenance Manuals.

B. Submit maintenance manuals to the Engineer covering all equipment, fixtures, devices, etc. installed by the Contractor.

C. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The Operation and maintenance manuals shall be provided in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. The manual shall contain, but not limited to, the following types of information:

1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
2. Catalog cuts of all equipment, fixtures, etc. installed (Marked to identify the specific items used).
3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.
4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. All manufacturers' warranties and guarantees.
6. Contractors Warranty Letter.

8.1 HANDLING

A. See General Conditions and the General Requirements in Division 01 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

9.1 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 01 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 01, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible

with existing equipment. The [Owner]Architect/Engineer shall be the final authority regarding acceptability of substitutes.

10.1 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences, which may be found, shall be submitted to the [Owner]Architect/Engineer for consideration before proceeding with the work.

11.1 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer, unless specifically called out otherwise. Advise the Architect/Engineer of any such conflicts before installation.

12.1 PERMITS, FEES, ETC.

A. The Contractor under each Division of these specifications shall arrange for a permit from the local authority. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these specifications.

13.1 TESTING

A. The Contractor under each section shall perform the various tests as specified and required by the Architect, Engineer and as required by applicable code, the State and local authorities. The Contractor shall furnish all labor, fuel and materials necessary for making tests.

14.1 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" convey a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

15.1 SCHEDULE OF WORK

A. The work under the various sections must be expedited and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting scheduled completion dates, and to avoid delaying any other trade. The Architect will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process work so as to ensure the proper execution of it.

16.1 COOPERATION AND CLEANING UP

A. The Contractor for the work under each section of the specifications shall coordinate the Contractors work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on the work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the Architect, clear any designated areas or area of materials and debris. On completion of any

portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

17.1 WARRANTY

A. Unless a longer warranty is hereinafter called for, all work, materials and equipment items shall be warrantied for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Architect/Engineer, shall be repaired and/or replaced to the complete satisfaction of the Architect/Engineer. Guarantee shall be in accordance with Division 01.

18.1 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 01, Project Closeout; before acceptance and final payment, the Contractor shall furnish:

1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
2. Contractors One Year Warranty.
3. All Manufacturers' Guarantees.
4. Operation and Maintenance Manuals.

PART 2 PRODUCTS

1.1 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.1 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed.

B. No solder or flux containing lead shall be used on this project.

C. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be "lead free" in accordance with the Safe Drinking Water Act, Section 1417. "Lead free" materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61.

D. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

3.1 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

A. Plastic Nameplates: Laminated plastic with engraved letters.

B. Plastic Tags: Laminated plastic with engraved letters, minimum 1-1/2 inches diameter.

C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering.

D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

E. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, for direct burial service.

4.1 PIPE HANGERS AND SUPPORTS

A. Acceptable Manufacturers:
   1. Anvil.
   2. B-Line Systems, Inc.
   3. Erico.
   4. PHD Manufacturing, Inc.
   5. Tolco.

B. Plumbing Piping - Water:
   1. Conform to ANSI/MSS SP58.
   2. Hangers for Pipe Sizes ½ to 1-½ Inch: Malleable iron or carbon steel, adjustable swivel, split ring.
   3. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
   4. Copper Pipe Support: Carbon steel ring, adjustable, copper plated with neoprene isolation pad.
   5. Design hangers to allow installation without disengagement of supported pipe.
   6. Copper Plating: All hanger elements in metal-to-metal contact with copper pipe, except hanger rings with factory-applied 1/16 inch minimum thick plastic or tape cushion strip over all contact surfaces.

C. Shield for Insulated Piping 1-½ Inches and Smaller: 18 gauge galvanized steel shield over insulation in 180º segments, minimum 12 inches long at pipe support.

D. Shields for Vertical Copper Pipe Risers: Galvanized steel pipe.

5.1 HANGER RODS

A. Steel Hanger Rods: Mild steel, threaded both ends, threaded one end, or continuous threaded. Minimum Hanger Rod Sizes:

PIPE AND TUBE SIZE (INCHES)	ROD SIZE (INCHES)
¼-4	3/8
5-8	1/2
10-12	5/8

6.1 ANCHOR BOLTS

A. Anchor (Expansion) Bolts: Shall be carbon steel to ASTM A 307; nut shall conform to ASTM A194; shall be drilled-in type. Design values for shear and tension shall be not more than 80 percent of the allowable load.

7.1 EQUIPMENT CURBS

A. Fabricate curbs of concrete, unless specifically called out otherwise.

8.1 FLASHING

A. Metal Flashing: 26-gauge minimum galvanized steel.

B. Metal Counter Flashing: 22 gauge minimum galvanized steel.

C. Flexible Flashing: 47-mil thick sheet butyl, compatible with roofing.

D. Caps: Steel, 22-gauge minimum; 16 gauge at fire resistant elements.

9.1 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

C. Caulk: Fire stop sealant in compliance with ASTM E814, UL 1479 and Division 07.

10.1 ACCEPTABLE MANUFACTURERS: SEISMIC RESTRAINT

A. Vibration isolators and Seismic Restraint shall be manufactured by:

1. Amber/Booth.
2. Cooper Industries.
3. International Seismic Application Technology.
4. Kinetics Noise Control.
5. Mason Industries.
6. Vibro-Acoustics.
7. Substitutions: Items of same function and performance are acceptable in conformance with Division 01.

11.1 SEISMIC BRACING AND SUPPORT OF SYSTEMS AND COMPONENTS

A. General:

1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.
4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the applicable building code and as summarized in installation requirements.
5. The total height of the structure (h) and the height of the system to be restrained within the structure (z) shall be determined in coordination with architectural plans and the General Contractor.

B. Friction from gravity loads shall not be considered resistance to seismic forces.

12.1 SEISMIC BRACING COMPONENTS

A. Steel strut shall be 1-5/8 inch wide in varying heights and mig-welded combinations as required to meet load capacities and designs indicated. A material heat code, part number, and manufacturer's name shall be stamped on all strut and fittings to maintain traceability to material test reports.

1. Material for epoxy painted strut: ASTM A1011, SS, Grade 33.
2. Material for pre-galvanized strut: ASTM A653, SS, Gr. 33.
3. Material for Hot-Dip Galvanized strut: ASTM A1011, SS, Grade 33 and hot-dip galvanized after fabrication in accordance with ASTM A123.
4. Material for fittings and accessories: ASTM A907 Gr. 33, Structural Quality or ASTM A1011, SS. Gr.33.
5. Fittings and accessories: Products shall be of the same manufacturer as strut and designed for use with that product.

PART 3 EXECUTION

1.1 DRAWINGS

A. The drawings are partly diagrammatic, not necessarily showing all offsets or exact locations of piping and ducts, unless specifically dimensioned. The contractor shall provide all materials and labor necessary for a complete and operable system. Complete details of the building which affect the mechanical installation may not be shown. For additional details, see Architectural, Structural, Civil and Electrical Drawings. Coordinate work under this section with that of all related trades.

2.1 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the IMC, UPC, IBC, NEC, NFPA, IECC, IFGC and IFC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

3.1 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment and fixtures on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, equipment, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with current ADA and ANSI 117.1 standards.

4.1 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Plumbing Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of [eight] [four] hours of onsite instruction to the owner designated personnel.

C. When required by individual specification sections provide additional training on plumbing systems and equipment as indicated in the respective specification section.

D. Provide schedule for training activities for review prior to start of training.

5.1 SYSTEM ADJUSTING

A. Each part of each system shall be adjusted and readjusted as necessary to ensure proper functioning of all plumbing systems. Test all plumbing equipment, fixtures and piping for proper water distribution, drainage, pressure and flow, adjust systems as required to eliminate splashing, noise and vibration.

6.1 CUTTING, FITTING, REPAIRING, PATCHING AND FINISHING

A. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

B. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for piping.

C. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

7.1 PAINTING

A. Perform all of the following painting in accordance with provisions of Division 09 with colors as selected by the Architect. Provide the following items as a part of plumbing work:

1. Factory applied prime and finish coats on plumbing equipment.
2. Factory applied prime coat on access doors.
3. Pipe identification where specified.

B. If factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

8.1 IDENTIFICATION

A. Tag all valves with heat resistant laminated plastic labels or brass tags engraved with readily legible letters. Securely fasten to the valve stem or bonnet with beaded chain. Provide a framed, typewritten directory under glass, and installed where directed. Provide complete record drawings that show all valves with their appropriate label. Seton 250-BL-G, or 2961.20-G, 2" round or equal.

B. Label all equipment with heat resistant laminated plastic labels having engraved lettering ½" high. If items are not specifically listed on the schedules, consult the Engineer concerning designation to use. Seton engraved Seton-Ply nameplates or equal.

C. Identify piping to indicate contents and flow direction of each pipe exposed to view by a labeled sleeve in letters readable from floor at least once in each room and at intervals of not more that 20' apart and on each side of partition penetrations. Coloring scheme in accordance with ANSI A13.1-1981, Seton Opti-Code or equal.

9.1 PIPE HANGERS AND SUPPORTS

A. Support plumbing piping in accordance with the latest adopted edition of the UPC.

B. Support horizontal piping as follows:

MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
PEX	Cold Expansion, Insert and Compression	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion weld (socket, butt, saddle, electrofu-sion), threaded (metal threads only), or me-chanical	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet[7]	Base and each floor; provide mid-story guides[7]

Notes:
[7] See manufacturer installation instructions for additional requirements.

C. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

D. Place a hanger within 12 inches of each horizontal elbow.

E. Use hangers with 1-½ inch minimum vertical adjustment.

F. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

H. Provide transverse seismic support for all piping systems.

10.1 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of where shown on plans and where required by equipment manufacturer installation instructions.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Provide housekeeping pads of concrete, minimum 6 inches thick and extending 6 inches beyond supported equipment anchors.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

E. Anchor (Expansion) Bolts: Install anchor bolts for all plumbing piping and equipment as required. Tightly fit and clamp base-supported equipment anchor bolts at all equipment support points. Provide locknuts where piping and equipment is hung. Install anchor (expansion) bolts in holes drilled in concrete where necessary to hang piping or equipment, or to anchor stationary equipment from existing concrete slabs.

11.1 FLASHING

A. Provide flexible flashing and metal counter-flashing where piping penetrates weather or waterproofed walls, floors, and roofs. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash and seal.

12.1 SLEEVES

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Set sleeves in position in construction. Provide reinforcing around sleeves.

C. Where piping penetrates floor, ceiling, or wall, install sleeve, close off space between pipe and adjacent work with fire stopping insulation and caulk seal.

13.1 SEISMIC RESTRAINT

A. General:

1. All piping and equipment shall be restrained to resist seismic/wind forces per the applicable building code(s) as a minimum. Restraint attachments shall be made by bolts, welds or a positive fastening method. Friction shall not be considered. All attachments shall be proven capable of accepting the required wind load by calculations. Additional requirements specified herein are included specifically for this project.

2. Install seismic and wind restraint devices per the manufacturer's submittals. Any deviation from the manufacturer's instructions shall be reviewed and approved by the manufacturer.

3. Attachment to structure for suspended pipe and equipment: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.

4. Wall penetrations may be used as bracing locations provided the wall can provide adequate resistance without significant damage.

5. Coordinate sizes and locations of cast-in-place inserts for post-tensioned slabs with seismic restraint manufacturer.

6. Provide hanger rod stiffeners where indicated or as required to prevent buckling of rods due to seismic forces.

7. Where rigid restraints are used on equipment or piping, support rods for the equipment or piping at restraint locations must be supported by anchors rated for seismic use. Post-installed concrete anchors must be in accordance with ACI 355.2.

8. Ensure housekeeping pads have adequate space to mount equipment and seismic restraint devices and shall also be large enough to ensure adequate edge distance for restraint anchor bolts to avoid housekeeping pad breakout failure.

B. Concrete Anchor Bolts:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid pre- or post-tensioned tendons, electrical and telecommunications conduit, and gas lines.

2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Mechanical Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.

C. Equipment Restraints:
1. Seismically restrain equipment all equipment. Install fasteners, straps and brackets as required to secure the equipment.
2. Install seismic snubbers on HVAC equipment supported by floor-mounted, non-seismic vibration isolators. Locate snubbers as close as possible to vibration isolators and attach to equipment base and supporting structure as required.
3. Install neoprene grommet washers on equipment anchor bolts where clearance between anchor and equipment support hole exceeds 1/8" (3.2 mm).
4. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

D. Install restraint cables so they do not bend across edges of adjacent equipment or building structure.

E. Install flexible piping connectors where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment.

F. Coordinate seismic restraints with thermal expansion compensators, guides and anchor points. Thermal expansion anchor points shall be designed to accommodate seismic forces.

14.1 INSTALLATION OF EQUIPMENT

A. Unless otherwise indicated, mount all equipment and install in accordance with manufacturer's recommendations and approved submittals.

B. Maintain manufacture recommended minimum clearances for access and maintenance.

C. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

D. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in manufacturer's catalog.

E. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all equipment furnished under this Contract.

F. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, controls, etc.

END OF SECTION

SECTION 220700

PLUMBING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping Insulation.

B. Equipment Insulation.

C. Jackets and Accessories.

1.02 RELATED WORK

A. Division 09 - Painting: Painting Insulation Jacket.

B. Section 22 05 00 - Common Work Results for Plumbing.

C. Section 22 10 00 - Plumbing Piping.

D. Section 22 30 00 - Plumbing Equipment.

1.03 REFERENCES

A. ASTM B209 - Aluminum and Aluminum-alloy Sheet and Plate.

B. ASTM C450 - Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.

C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

D. ANSI/ASTM C533 - Calcium Silicate Block and Pipe Thermal Insulation.

E. ANSI/ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.

F. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation.

G. ANSI/ASTM C552 - Cellular Glass Block and Pipe Thermal Insulation.

H. ANSI/ASTM C553 - Mineral Fiber Blanket Thermal Insulation.

I. ANSI/ASTM C578 – Rigid, Cellular Polystyrene Thermal Insulation.

J. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).

K. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

L. ASTM C1136 - Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

M. ASTM C1427 – Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.

N. ASTM D635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.

O. ASTM E84 – Test Method for Surface Burning Characteristics of Building Materials.

P. ASTM E96 - Test Methods for Water Vapor Transmission of Materials.

Q. UL 723 – Test for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include product description, thermal performance, thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

A. Applicator: Company specializing in piping insulation application with three years minimum experience.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Materials: Flame spread/smoke developed rating of 25/50 in accordance with UL 723, or ASTM E84.

D. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

1.06 DELIVERY STORAGE AND HANDLING

A. Division 01 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Shipment of materials from manufacturer to installation location shall be in weather tight transportation.

D. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

1.08 FIELD MEASURMENTS

A. Verify field measurements prior to fabrication.

1.09 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Johns Manville

B. Owens Corning

C. IMCOA.

D. K-Flex USA.

E. Substitutions: Under provisions of Division 01.

2.02 INSULATION - PIPING

A. Type A: Glass fiber, rigid, molded, non-combustible insulation; ANSI/ASTM C547; 'k' value of 0.23 at 75º F, rated from 0º F to 850º F, vapor retarder jacket of Kraft paper bonded to aluminum foil, self-sealing lap and butt strips; Johns Manville "Micro-Lok" or approved equal.

B. Type B: Expanded polystyrene; ANSI/ASTM C578; rigid closed cell; maximum water vapor transmission rating of 0.1 perms; 'k' value of 0.23 at 75º F.

C. Type C: Flexible unicellular polyolefin; ASTM C1427; 'k' value of 0.25 at 75º F ASTM C518; moisture vapor transmission of zero perm-inch ASTM E96; rated to 210º F; IMCOA “Imcolock” or approved equal.

D. Type D: Elastomeric foam; EPDM-based closed-cell flexible foam, ASTM C534; flexible cellular elastomeric in sheet or pre-formed tube, ’k’ value of 0.26 at 75º F, max. service temp - 300º F, ASTM C534; max. flame spread = 50, max. smoke developed = 50, ASTM E84; UV-resistant coating/jacketing if exposed to sunlight; K-FLEX USA “Insul-Tube”, or approved equal.

2.03 INSULATION - EQUIPMENT

A. Type E: Reusable Valve Wrap Insulation Covers: Removable and reusable wraps packaged with a 1” thick fiberglass blanket insert to completely cover the insulated equipment. The outer cover of the shall be made of DuPont Tychem® QC that is secured with a Velcro closure. Tychem® QC consists of a durable Tyvek® substrate quality coated with polyethylene that is impermeable to water. K= .28 @ 100º F; Temperature Limits 0°F to 450°F; Water Vapor Transmission ASTM E 96 0.01 Perms at 37.8C/100F-RH/100%; Breaking Strength Grab (md/cd) ASTM D5034-90 43/49 lbs; Tearing Strength Trapezoid (md/cd) ASTM D1117-80 7/5 lbs; Weatherable Grade; UV resistant; White/gloss finish; UL25/50 rating and are non-combustible per ASTM E 136. NOSWEAT Reusable Valve Wraps or approved equal.

2.04 FIELD APPLIED JACKET

A. PVC Jackets and solvent welding adhesive: One piece, pre-molded type, Johns Manville “Zeston 2000”, fitting covers and jacketing material. Johns Manville “Perma-Weld” solvent welding adhesive.

2.05 INSULATION ACCESSORIES

A. Adhesives: Waterproof and fire-retardant type.

B. Joint Tape: Glass fiber cloth, open mesh.

C. FSK Joint Tape; ASTM C1136 Foil-Scrim-Kraft (FSK) lamination coated with solvent acrylic pressure sensitive adhesive; capable of adhering to fibrous and sheet metal surfaces; tri-directionally reinforced 2x3 squares per inch fiberglass scrim; 9.5 mils thick, -40 to 240º F service temperatures; Venture Tape “1525CW” or approved equal.

D. Tie Wire: Annealed steel, 16 gauge.

E. Insulated pipe supports: Calcium silicate with galvanized steel jacket (min. 24 gauge); ANSI/ASTM C533; rigid white; 'k' value of 0.37 at 100º F, rated to 1,200º F; Thermal Pipe Shields “T-2000 Calsil” or equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Install materials after piping and equipment has been tested and approved.

B. Clean surfaces for adhesives.

C. Prepare surfaces in accordance with manufacturer's recommendations.

3.02 INSTALLATION - PIPING

A. Install materials in accordance with manufacturer's recommendations, building codes and industry standards.

B. Continue insulation vapor barrier through penetrations except where prohibited by code.

C. Locate insulation and cover seams in least visible locations.

D. Neatly finish insulation at supports, protrusions, and interruptions.

E. Provide insulated cold pipes conveying fluids below ambient temperature with vapor retardant jackets with self-sealing laps. Insulate complete system, including under fitting jackets.

F. For insulated pipes conveying fluids above ambient temperature, secure jackets with self-sealing lap or outward clinched, expanded staples. Bevel and seal ends of insulation at equipment, flanges, and unions. Insulate complete system, including under fitting jackets.

G. Provide insulated piping supports on piping 1-½" inches diameter larger. Insulated piping supports shall not be less than the following lengths:

1-½" to 2-½" pipe size	10" long

H. Fully insulate all piping including all spaces under jacketing.

I. Jackets:

For pipe exposed in mechanical equipment rooms or in finished spaces below 10 feet above finished floor, finish with PVC jacket and fitting covers or metal jacket.

3.03 SCHEDULE – PIPING

PIPING	TYPE	PIPE SIZE INCH	MINIMUM INSULATION THICKNESS INCH
Domestic Cold Water	A,B,C,D	All Sizes	1”
Vent Through Roof	A,B,C,D	All Sizes	1”

3.04 INSTALLATION - EQUIPMENT

A. Install materials in accordance with manufacturer's instructions.

B. Do not insulate factory insulated equipment.

C. Apply insulation as close as possible to equipment by grooving, scoring, and beveling insulation, if necessary. Secure insulation to equipment with studs, pins, clips, adhesive, wires, or bands. Minimum 2" overlap on blanket material.

D. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor barrier cement.

E. Do not insulate over nameplate or ASME stamps. Bevel and seal insulation around such.

F. When equipment with insulation requires periodical opening for maintenance, repair, or cleaning, install insulation in such a manner that it can be easily removed and replaced without damage.

3.05 SCHEDULE - EQUIPMENT

EQUIPMENT	INSULATION TYPE	THICKNESS INCH
Domestic Cold Water Valves	E	1"

END OF SECTION

SECTION 221000
PLUMBING PIPING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Water Piping.

B. Valves.

C. Backflow Preventers.

D. Water Hammer Arrestors.

E. Cleanouts.

F. Electric Trap Primer.

1.02 RELATED WORK

A. Section 220500 - Common Work Results for Plumbing.

B. Section 223000 - Plumbing Equipment.

1.03 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be “lead free” in accordance with the Safe Drinking Water Act, Section 1417. “Lead free” materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include data on pipe materials, pipe fittings, valves and accessories.

1.05 WARRANTY

A. Polypropylene pipe and fittings shall be covered by a factory warranty for 30 years to be free of defects in materials or manufacturing.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Store and protect products under provisions of Division 01.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 PRODUCTS

2.01 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74 service weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets.

B. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies, Husky Series SD 4000 or approved equal.

C. ABS Schedule 40 Cellular Core (Foam Core) Pipe: Pipe and fittings shall be manufactured from ABS compound with a cell class of 42222 for pipe and 32222 for fittings as per ASTM D 3965 and conform with National Sanitation Foundation (NSF) standard 14. ASTM D 2661 Fittings. Joints: ASTM D 2235 solvent welded.

D.

2.02 DOMESTIC WATER PIPING, ABOVE GRADE

A. Polypropylene Pipe:

1. Polypropylene (PP-RCT) piping in SDR 11 accordance ASTM F2389. Pipe shall be shall have NSF 14 and 61 listings for potable water use.
2. Pipe and fittings shall be manufactured from a beta crystalline PP-RCT resin meeting the short-term properties and long-term strength requirements of ASTM F 2389 and CSA B137.11. The piping shall be extruded with a middle layer that has glass fiber content to restrict thermal expansion.
3. Fittings shall be manufactured from a PP-RCT resin meeting the short-term properties and long-term strength requirements of ASTM F 2389. All fittings shall comply with NSF 14, ASTM F 2389 and CSA B137.11. Fittings may be either socket fusion through nominal 5 inch, electrofusion through 8 inch or butt fusion in nominal 2 inch through 24 inch sizes. Electrofusion may also be performed in nominal sizes 10 inch through 24 inch by means of the use of electrofusion couplings as applied on butt fusion fittings and pipe.
4. Acceptable Manufacturers: Aquatherm, Nupi.

2.03 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 2 Inches and Under: 150 psig malleable iron unions..

2.04 ACCEPTABLE MANUFACTURERS - ALL VALVE TYPES

A. Apollo.

B. FNW.

C. Hammond.

D. Milwaukee.

E. NIBCO.

F. Red-White Valve Corp.

G. Substitutions: Under provisions of Division 01.

2.05 BALL VALVES

A. Up to 2 Inches: 600 PSI CWP Lead free bronze two piece body, full port, forged lead free brass ball, Teflon seats and adjustable packing, lever handle, solder, threaded or press-fit ends.

2.06 SWING CHECK VALVES

A. Up to 2 Inches: 200 PSI CWP lead free bronze swing with PTFE disc, solder, screwed or press-fit ends.

2.07 SPRING LOADED CHECK VALVES

A. Up to 2 inches: 250 PSI CWP Lead free bronze spring loaded with PTFE seat, solder, screwed or press fit ends.

2.08 WATER PRESSURE REDUCING VALVES

A. Up to 2 Inches: Lead free cast copper silicon alloy, stainless steel and thermoplastic internal parts, reinforced EPDM diaphragm and valve disk, stainless steel strainer, NPT or solder ends. Watts Regulator LF123LP series or approved equal.

2.09 ACCEPTABLE MANUFACTURERS - BACKFLOW PREVENTERS

A. Watts.

B. Febco.

C. Colt.

D. Substitutions: Under provisions of Division 01.

2.10 BACKFLOW PREVENTERS

A. General: Backflow preventers shall conform to the applicable requirements of AWWA C510. Furnish a certificate of Full Approval or a current Certificate of Approval for each design, size, and make of backflow preventer being provided for the project. The certificate shall be from the

Foundation for Cross- Connection Control and Hydraulic Research, University of Southern California, and shall attest that this design, size, and make of backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. A Certificate of Provisional Approval is not acceptable in lieu of the above. IAPMO (UPC) approved.

B. Reduced Pressure Backflow Preventers: ANSI/ASSE 1013; FDA approved epoxy coated cast iron (4" or larger) or bronze body (3" and smaller) with bronze and stainless steel internal parts and stainless steel springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve which opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks; Watts Regulator Series 909 or approved equal.

2.11 ACCEPTABLE MANUFACTURERS - WATER HAMMER ARRESTORS

A. J.R. Smith.

B. Zurn.

C. Mifab.

D. Substitutions: Under provisions of Division 01.

2.12 WATER HAMMER ARRESTORS

A. ANSI A112.26.1; sized in accordance with PDI WH-201, pre-charged suitable for operation in temperature range -100ºF to 300ºF and maximum 250 psig working pressure; Series 5000 manufactured by J.R. Smith or approved equal.

2.13 DRAIN VALVES

A. Bronze body, chrome plated brass ball, RPTFE seals and stuffing box ring, stainless steel handle with vinyl cover. 3/4” NPT x 3/4” Hose thread, with duct cover and chain, sweat ends. Apollo 78-100 Series or approved equal.

2.14 ACCEPTABLE MANUFACTURERS - CLEANOUTS

A. J.R. Smith.

B. Zurn.

C. Mifab.

D. Substitutions: Under provisions of Division 01.

2.15 CLEANOUTS

A. Exterior Surfaced Areas: Round cast iron access frame and non-skid cover, bronze plug, vandal resistant screws. J.R. Smith Model 4251 or approved equal.

2.16 ACCEPTABLE MANUFACTURERS – TRAP PRIMER VALVES

A. Precision Plumbing Products, Inc.

B. Mifab.

C. Zurn.

D. Substitutions: Under provisions of Division 01.

2.17 ELECTRONIC TRAP PRIMERS

A. Electronic Trap Primer: Trap primer as manufactured by Precision Plumbing Products or equal. Surface mounted in NEMA-1 cabinet with cover plate. UL listed. Provide manifold with number of connections as indicated on the drawings. Precision Plumbing Products, Inc. Model MPB-500 or approved equal.

2.18 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

2.19 INSTALLATION

A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

B. Route piping in orderly manner and maintain gradient.

C. Install piping to conserve building space and not interfere with use of space.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors.

H. Slope water piping and arrange to drain at low points.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

J. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.

K. Install valves with stems upright or horizontal, not inverted.

L. Install water hammer arrestors complete with accessible isolation valve.

M. Support all piping in accordance with Uniform Plumbing Code and Manufacturer installation instructions. Where there is a conflict between requirements of the Uniform Plumbing Code and Manufacturer installation instructions, the more restrictive requirement shall apply.

N. Polypropylene piping shall not be installed in any locations used as a return air plenums. Transition to copper or steel piping prior to routing piping through a return air plenum.

O. Fusion Welding of Joints for Polypropylene Piping:

1. Install fittings and joints using socket-fusion, electro-fusion, or butt-fusion as applicable for the fitting or joint type. All fusion-weld joints shall be made in accordance with the pipe and fitting manufacturer's specifications and product standards.

2. Fusion-weld tooling, welding machines, and electrofusion devices shall be as specified by the pipe and fittings manufacturer.

3. Prior to joining, the pipe and fittings shall be prepared in accordance with ASTM F 2389 and the manufacturer's specifications.

4. Joint preparation, setting and alignment, fusion process, cooling times and working pressure shall be in accordance with the pipe and fitting manufacturer's specifications.

2.20 APPLICATION

A. Install unions downstream of valves and at equipment connections.

B. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install ball valve valves for throttling, bypass, or manual flow control services. (No globe valves permitted.)

2.21 TESTING

A. Test all water piping in accordance with Section 609 of the UPC. Submit a signed statement to the Engineer stating testing dates, procedure and initials of tester. The test pressure for a hydrostatic test shall be 1.5 times the design pressure or 150 psi, whichever is greater, and for an air test shall be 1.1 times the design pressure or 150 psi, whichever is greater.

2.22 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush, clean and disinfect the potable water system in accordance with Section 609 of the UPC. Submit a signed statement to the Engineer stating disinfection dates, procedure and initials of tester.

2.23 SERVICE CONNECTIONS

A. Provide new water service complete with reduced pressure backflow preventor and water meter with by-pass valves. Provide 18 gauge galvanized sheet metal sleeve around service main to 6 inch above floor. Size for minimum of 2 inches of insulation around piping. Provide close fitting galvanized sheet metal escutcheon. Seal water tight.

END OF SECTION

SECTION 224000
PLUMBING FIXTURES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Floor Drains.

B. Catch Basins.

C. Hose Bibbs.

D. Hub Drains.

1.02 RELATED WORK

A. Section 220500 - Common Work Results for Plumbing.

B. Section 220529 - Hangers and Supports for Plumbing Piping and Equipment.

C. Section 220800 - Commissioning of Plumbing.

D. Section 221000 - Plumbing Piping.

E. Section 223000 - Plumbing Equipment.

1.03 REFERENCES

A. ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.

B. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.

C. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.

D. ANSI A112.21.1 - Floor Drains.

1.04 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

B. Trim: By same manufacturer for each product specified throughout.

1.05 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include sizes, rough-in requirements, service sizes, and finishes.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include fixture trim exploded view and replacement parts lists.

C. Provide Manufacturer's parts list and maintenance information on specialties.

1.07 WARRANTY

A. Provide manufacturer's warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 ANGLE STOPS AND SUPPLY RISERS

A. Quarter-turn lead free brass ball valve with convertible loose key handle, chrome plated copper, or braided stainless supply risers and chrome plated brass escutcheons.

2.02 ACCEPTABLE MANUFACTURERS - FLOOR DRAINS, DRAINS, INTERCEPTORS AND ACCESSORIES

A. J.R. Smith.

B. Zurn.

C. Josam.

D. Mifab.

E. Substitutions: Under provisions of Division 01.

2.03 FLOOR DRAINS

A. FD-1: ANSI A112.21.1; lacquered cast-iron two-piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer and trap primer connection as indicated; Model 2005-A manufactured by J.R. Smith.

2.04 ACCEPTABLE MANUFACTURERS - CATCH BASINS

A. J.R. Smith.

B. Zurn.

C. Substitutions: Under provisions of Division 01

2.05 CATCH BASINS

A. FS-1: Polyester resin fiberglass catch basin, Duco coated steel frame with integral installation brackets and secured galvanized steel grate, 8" pipe adaptor; Model 9812-880-CB24 manufactured by J.R. Smith.

2.06 ACCEPTABLE MANUFACTURERS – HUB DRAINS

A. J.R. Smith.

B. Zurn.

C. Substitutions: Under provisions of Division 01

2.07 HUB DRAINS

A. HD-1: 4" outlet (6" dia. top size), Type 304 stainless steel hub drain with schedule 10 buttweld outlet; Model 9654 manufactured by J.R. Smith.

2.08 ACCEPTABLE MANUFACTURERS - HOSE BIBBS

A. Woodford.

B. J.R. Smith.

C. Josam.

D. Mifab.

E. Substitutions: Under provisions of Division 01.

2.09 HOSE BIBBS

A. Exterior Hose Bibb (HB-1): ANSI/ASSE 1019; non-freeze, self-draining type with chrome plated lockable recessed box hose thread spout, removable key, and vacuum breaker in conformance with ANSI/ASSE 1011; Model B65 manufactured by Woodford.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate forming of floor construction to receive drains to required invert elevations.

3.02 INSPECTION

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

B. Verify adjacent construction is ready to receive rough-in work of this Section.

3.03 INSTALLATION

A. Install each fixture with removable p-trap for servicing and cleaning.

B. Provide angle stop and supply risers at each fixture. Provide chrome plated escutcheons for both hot and cold water supplies and waste piping.

C. Install components level and plumb

D. Install and secure fixtures in place with wall or floor carriers, supports as per the manufacturer’s instructions.

E. Solidly attach floor mounted water closets to toilet flange with non-corroding t-bolts, washers and acorn nuts.

F. Seal fixtures to wall and floor surfaces with silicone sealant, color to match fixture.

G. Mount fixtures above finished floor in accordance with Architectural.

H. Install specialties in accordance with manufacturer's instructions to permit intended performance.

3.04 ADJUSTING AND CLEANING

A. Adjust stops, valves or flow control valves for intended water flow rate to fixtures without splashing, noise, or overflow.

B. Remove and clean all aerators and filters from faucets and other plumbing fixtures after the domestic water system has been tested, flushed and disinfected as per Section 221000.

C. At completion remove all visible stickers and tags not intended to be left in place, thoroughly clean all surfaces of plumbing fixtures.

END OF SECTION

SECTION 230500
COMMON WORK RESULTS FOR HVAC

PART 1 GENERAL

1.01 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to this work.

1.02 WORK INCLUDED

A. The work to be included in these and all other mechanical subsections shall consist of providing, installing, adjusting and setting into proper operation complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 01 of the specifications is to be specifically included as well as all related drawings.

1.03 RELATED WORK

A. Related Work Specified Elsewhere:

1. Fire Suppression Specifications: Division 21.
2. Plumbing Specifications: Division 22.
3. Electrical Specifications: Division 26.
4. Motors and Connections: Division 26.
5. Starters and Disconnects: Division 26.

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all mechanical equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric switches, electrical components, wiring and any other miscellaneous Division 23 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

1.04 REFERENCED CODES - LATEST ADOPTED EDITION

A. NFPA 70 National Electrical Code (NEC).

B. IMC International Mechanical Code.

C. UPC Uniform Plumbing Code.

D. IFC International Fire Code.

E. IBC International Building Code.

1.05 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 01, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

C. Show the location of all valves and their appropriate tag identification.

D. At completion of project, deliver these drawings to the Owner and obtain a written receipt.

1.06 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be provided in electronic PDF Format. The data in the electronic

file shall be arranged and indexed under basic categories in order of the Specification Sections. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. Only submit on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

E. Submit product data for:

1. Hangers and Supports for HVAC Piping and Equipment.
2. Vibration and Seismic controls for HVAC Piping, Ductwork and Equipment.
3. Identification for HVAC Piping, Ductwork and Equipment.

F. Provide shop drawings with calculations for selection of seismic/wind restraints in accordance with IBC and ASCE 7, certified by a qualified professional engineer, licensed in the State of Alaska. Seismic calculations shall be based upon Seismic Category D. All components shall utilize an IP of 1.0 for seismic calculations.

1.07 OPERATING AND MAINTENANCE MANUALS

A. See General Conditions and the General Requirements in Division 01 regarding Operating and Maintenance Manuals.

B. Submit maintenance manuals to the Engineer covering all equipment, devices, etc. installed by the Contractor.

C. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The Operation and maintenance manuals shall be provided in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. The manual shall contain, but not limited to, the following types of information:

1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
2. Catalog cuts of all equipment, etc. installed (Marked to identify the specific items used).
3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.
4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. All manufacturers' warranties and guarantees.
6. Contractors Warranty Letter.

1.08 HANDLING

A. See General Conditions and the General Requirements in Division 01 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

1.09 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 01 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 01, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment. The Owner/Engineer shall be the final authority regarding acceptability of substitutes.

1.10 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences, which may be found, shall be submitted to the Owner/Engineer for consideration before proceeding with the work.

1.11 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed, and handled as recommended by the manufacturer, unless specifically called out otherwise. Advise the Owner/Engineer of any such conflicts before installation.

1.12 PERMITS, FEES, ETC.

A. The Contractor under each Division of these specifications shall arrange for a permit from the local authority. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these specifications.

1.13 TESTING

A. The Contractor under each section shall perform the various tests as specified and required by the Architect, Engineer and as required by applicable code, the State and local authorities. The Contractor shall furnish all labor, fuel and materials necessary for making tests.

1.14 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

1.15 SCHEDULE OF WORK

A. The work under the various sections must be expedited and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting scheduled completion dates, and to avoid delaying any other trade. The Architect will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process work so as to ensure the proper execution of it.

1.16 COOPERATION AND CLEANING UP

A. The Contractor for the work under each section of the specifications shall coordinate the Contractors work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on the work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the Architect, clear any designated areas or area of materials and debris. On completion of any portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

1.17 WARRANTY

A. Unless a longer warranty is hereinafter called for, all work, materials and equipment items shall be warrantied for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Owner/Engineer, shall be repaired and/or replaced to the complete satisfaction of the Owner/Engineer. Guarantee shall be in accordance with Division 01.

1.18 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 01, Project Closeout; before acceptance and final payment, the Contractor shall furnish:

1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
2. Contractors One Year Warranty.
3. All Manufacturers' Guarantees.
4. Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.01 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.02 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed.

B. No solder or flux containing lead shall be used on this project.

C. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

2.03 ELECTRICAL MOTORS

A. Motors: Furnish electric motors designed for the specific application and duty applied, and to deliver rated horsepower without exceeding temperature ratings when operated on power systems with a combined variation in voltage and frequency not more than + 10% of rated voltage. Motors for pumps and fans shall be selected to be non-overloading.

B. Verify from the drawings and specifications the available electrical supply characteristics and furnish equipment that will perform satisfactorily under the conditions shown and specified.

C. All motors for use with equipment with variable frequency drives shall be inverter ready motors. Verify compatibility and sizing of motor with variable frequency drive.

D. Size motors for 1.15 service factor and not to exceed 40º C temperature rise above ambient.

E. Fractional horsepower motors to have self-resetting thermal overload switch.

F. Provide Premium Efficiency, motors for all three phase motors one horsepower and larger. Standard efficiency motors will not be acceptable.

2.04 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

A. Plastic Nameplates: Laminated plastic with engraved letters.

B. Plastic Tags: Laminated plastic with engraved letters, minimum 1-1/2 inches diameter.

C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering.

D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

2.05 PIPE HANGERS AND SUPPORTS

A. Acceptable Manufacturers:

1. Anvil.
2. PHD Manufacturing, Inc.
3. Michigan Hanger Company.
4. B-Line Systems, Inc.

B. Design hangers to allow installation without disengagement of supported pipe.

C. Strut Type Pipe Hanging System: Unistrut P-1000 series; framing members shall be No. 12 gage formed steel channels, 1-5/8 inch square, conforming to ASTM A 653 GR33, one side of channel shall have a continuous slot with inturned lips; framing nut with grooves and spring 1/2 inch size, conforming to ASTM 675 GR60; screws conforming to ASTM A 307; fittings conforming to ASTM A 575; all parts enamel painted or electro-galvanized.

2.06 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, or continuous threaded.

2.07 ANCHOR BOLTS

A. Anchor (Expansion) Bolts: Shall be carbon steel to ASTM A 307; nut shall conform to ASTM A194; shall be drilled-in type. Design values for shear and tension shall be not more than 80 percent of the allowable load.

2.08 FLASHING

A. Metal Flashing: 26-gauge minimum galvanized steel.

B. Metal Counter Flashing: 22 gauge minimum galvanized steel.

C. Flexible Flashing: 47-mil thick sheet butyl, compatible with roofing.

D. Caps: Steel, 22-gauge minimum; 16 gauge at fire resistant elements.

2.09 EQUIPMENT CURBS

A. Fabricate curbs of concrete, unless specifically called out otherwise.

2.10 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

C. Caulk: Fire stop sealant in compliance with ASTM E814, UL 1479 and Division 07.

2.11 FORMED STEEL CHANNEL

A. Manufacturers:

1. Allied Tube & Conduit Corp.
2. B-Line Systems.
3. Midland Ross Corporation, Electrical Products Division
4. Unistrut Corp.
5. Subsitutions under provisions of Division 01.

B. Product Description: Galvanized 12 gauge (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

2.12 ACCEPTABLE MANUFACTURERS: SEISMIC RESTRAINT

A. Vibration isolators and Seismic Restraint shall be manufactured by:

1. Amber/Booth.
2. Cooper Industries.
3. International Seismic Application Technology.
4. Kinetics Noise Control.
5. Mason Industries.
6. Vibro-Acoustics
7. Substitutions: Items of same function and performance are acceptable in conformance with Division 01.

2.13 SEISMIC BRACING AND SUPPORT OF SYSTEMS AND COMPONENTS

A. General:

1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.
4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the applicable building code and as summarized in installation requirements.
5. The total height of the structure (h) and the height of the system to be restrained within the structure (z) shall be determined in coordination with architectural plans and the General Contractor.

B. Friction from gravity loads shall not be considered resistance to seismic forces.

2.14 SEISMIC BRACING COMPONENTS

A. Steel strut shall be 1-5/8 wide in varying heights and mig-welded combinations as required to meet load capacities and designs indicated. A material heat code, part number, and manufacturer's name shall be stamped on all strut and fittings to maintain traceability to material test reports.

1. Material for epoxy painted strut: ASTM A1011, SS, Grade 33.
2. Material for pre-galvanized strut: ASTM A653, SS, Gr. 33.
3. Material for Hot-Dip Galvanized strut: ASTM A1011, SS, Grade 33 and hot-dip galvanized after fabrication in accordance with ASTM A123.
4. Material for fittings and accessories: ASTM A907 Gr. 33, Structural Quality or ASTM A1011, SS. Gr.33.
5. Fittings and accessories: Products shall be of the same manufacturer as strut and designed for use with that product.

PART 3 EXECUTION

3.01 DRAWINGS

A. The drawings are partly diagrammatic, not necessarily showing all offsets or exact locations of piping and ducts, unless specifically dimensioned. The contractor shall provide all materials and labor necessary for a complete and operable system. Complete details of the building which affect the mechanical installation may not be shown. For additional details, see Architectural, Structural, Civil and Electrical Drawings. Coordinate work under this section with that of all related trades.

3.02 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the IMC, UPC, IBC, NEC, NFPA, IECC, IFGC and IFC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

D. Install in accordance with manufacturer's instructions.

3.03 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, ducts, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with current ADA and ANSI 117.1 standards.

3.04 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Mechanical Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of two hours of on site instruction to the owner designated personnel.

C. When required by individual specification sections provide additional training on HVAC systems and equipment as indicated in the respective specification section.

D. Provide schedule for training activities for review prior to start of training.

3.05 SYSTEM ADJUSTING

A. Each part of each system shall be adjusted and readjusted as necessary to ensure proper functioning of all controls, proper air distribution, elimination of drafts, noise and vibration.

3.06 CUTTING, FITTING, REPAIRING, PATCHING AND FINISHING

A. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

B. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for ducts and piping.

C. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

3.07 PAINTING

A. Perform all of the following painting in accordance with provisions of Division 09 with colors as selected by the Architect. Provide the following items as a part of mechanical work:

1. Factory applied prime and finish coats on mechanical equipment.
2. Factory applied prime and finish coat on all air registers, grilles and diffusers, unless otherwise specified.
3. Factory applied prime coat on access doors.
4. Pipe identification where specified.

B. If factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

3.08 IDENTIFICATION

A. Tag all valves with heat resistant laminated plastic labels or brass tags engraved with readily legible letters. Securely fasten to the valve stem or bonnet with beaded chain. Seton 250-BL-G, or 2961.20-G, 2” round or equal.

B. Label all equipment with heat resistant laminated plastic labels having engraved lettering ½" high. If items are not specifically listed on the schedules, consult the Engineer concerning designation to use. Seton engraved Seton-Ply nameplates or equal.

C. Identify piping to indicate contents and flow direction of each pipe exposed to view by a labeled sleeve in letters readable from floor at least once in each room and at intervals of not more that 20' apart and on each side of partition penetrations. Coloring scheme in accordance with ANSI A13.1-1981, Seton Opti-Code or equal.

3.09 PIPE HANGERS AND SUPPORTS

A. Support piping as follows:

Pipe Size	Max. Hanger Spacing	Hanger Diameter
½ to 1-¼ inch	6'-0"	3/8"

B. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-½ inch minimum vertical adjustment.

E. Support vertical piping at every floor.

F. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

3.10 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of where shown on plans and where required by equipment manufacturer installation instructions.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Provide housekeeping pads of concrete, minimum 6 inches thick and extending 6 inches beyond supported equipment anchors.

D. Anchor (Expansion) Bolts: Install anchor bolts for all mechanical equipment, piping and ductwork as required. Tightly fit and clamp base-supported equipment anchor bolts at all equipment support points. Provide locknuts where equipment, piping, and ductwork is hung. Install anchor (expansion) bolts in holes drilled in concrete where necessary to hang piping or ductwork, or to anchor stationary equipment from existing concrete slabs.

3.11 FLASHING

A. Provide flexible flashing and metal counter-flashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

3.12 SLEEVES

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Set sleeves in position in construction. Provide reinforcing around sleeves.

C. Where piping penetrates floor, ceiling, or wall, install sleeve, close off space between pipe and adjacent work with fire stopping insulation and caulk seal.

3.13 SEISMIC RESTRAINT

A. General:

1. All equipment, piping and ductwork shall be restrained to resist seismic/wind forces per the applicable building code(s) as a minimum. Restraint attachments shall be made by bolts, welds or a positive fastening method. Friction shall not be considered. All attachments shall be proven capable of accepting the required wind load by calculations. Additional requirements specified herein are included specifically for this project.
2. Install seismic and wind restraint devices per the manufacturer's submittals. Any deviation from the manufacturer's instructions shall be reviewed and approved by the manufacturer.
3. Attachment to structure for suspended equipment, pipe and duct: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
4. Wall penetrations may be used as bracing locations provided the wall can provide adequate resistance without significant damage.
5. Coordinate sizes and locations of cast-in-place inserts for post-tensioned slabs with seismic restraint manufacturer.
6. Provide hanger rod stiffeners where indicated or as required to prevent buckling of rods due to seismic forces.
7. Where rigid restraints are used on equipment, ductwork or piping, support rods for the equipment, ductwork or piping at restraint locations must be supported by anchors rated for seismic use. Post-installed concrete anchors must be in accordance with ACI 355.2.
8. Ensure housekeeping pads have adequate space to mount equipment and seismic restraint devices and shall also be large enough to ensure adequate edge distance for restraint anchor bolts to avoid housekeeping pad breakout failure.

B. Concrete Anchor Bolts:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid pre- or post-tensioned tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Mechanical Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.

C. Equipment Restraints:

1. Seismically restrain equipment all equipment. Install fasteners, straps and brackets as required to secure the equipment.
2. Install seismic snubbers on HVAC equipment supported by floor-mounted, non-seismic vibration isolators. Locate snubbers as close as possible to vibration isolators and attach to equipment base and supporting structure as required.
3. Install neoprene grommet washers on equipment anchor bolts where clearance between anchor and equipment support hole exceeds 1/8" (3.2 mm).

4. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

3.14 INSTALLATION OF EQUIPMENT

A. Unless otherwise indicated, mount all equipment and install in accordance with manufacturer's recommendations and approved submittals.

B. Maintain manufacture recommended minimum clearances for access and maintenance.

C. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

D. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, ductwork, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in manufacturer's catalog.

E. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all equipment furnished under this Contract.

F. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, controls, etc.

END OF SECTION

SECTION 230700

HVAC INSULATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Ductwork Insulation.

1.2 RELATED WORK

A. Division 09 - Painting.

B. Section 23 05 00 - Common Work Results for HVAC Systems.

C. Section 23 31 00 - HVAC Ducts and Casings.

D. Section 23 33 00 - Air Duct Accessories.

1.3 REFERENCES

A. ANSI/ASTM C553 - Mineral Fiber Blanket Insulation.

B. ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

C. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

D. ASTM E84 - Surface Burning Characteristics of Building Materials.

E. UL 723 - Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include product description, thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

A. Applicator: Company specializing in insulation application with three years minimum experience.

B. Materials: Flame spread/smoke developed rating of 25/50 in accordance with UL 723, ASTM E84.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

B. Shipment of materials from manufacturer to installation location shall be in weather tight transportation.

C. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesive, mastics, and insulation cements.

1.8 FIELD MEASURMENTS

A. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Certain-Teed.

B. Johns Manville.

C. Knauf.

D. Owens-Corning.

E. Manson.

F. Substitutions: Under provisions of Division 01.

2.2 INSULATION - DUCTWORK

A. Type K: Exterior FSK Duct Wrap: Flexible glass fiber; ASTM C553; commercial grade; 'k' value of 0.27 at 75º F, 0.6 lb./cu. ft. density. 0.00035 inch vinyl scrim facing with 2" stapling tab. Johns Manville "Microlite Standard Duct Wrap" or equal.

B. Type L: Exterior FSK Rigid Fiber Board Duct Insulation; ASTM C612, 'k' value of 0.23 at 75° F, 3.0 lb./cu. ft. density. 0.00035 inch foil scrim facing. Johns Manville "814 Spin-Glas" or equal.

2.3 FIELD APPLIED DUCTWORK JACKETS

A. Re-Wettable Canvas Jacketing: , Fiberglass cloth made from texturized yarns, impregnated throughout with an inorganic fire retardant asbestos free adhesive; 20x14 thread count, 14.5 oz./sq.yd, 0.04 inch thickness, 1,000º F upper temperature limit; GLT Products "Style 1989" or approved equal.

2.4 INSULATION ACCESSORIES

A. Adhesives: Waterproof and fire-retardant type.

B. Lagging Adhesive: Fire resistive to ASTM E84 and UL 723.

C. Impale Anchors: Galvanized steel, 12 gauge, self-adhesive pad.

D. Joint Tape: Glass fiber cloth, open mesh.

E. FSK Joint Tape; ASTM C1136 Foil-Scrim-Kraft (FSK) lamination coated with solvent acrylic pressure sensitive adhesive; capable of adhering to fibrous and sheet metal surfaces; tri-directionally reinforced 2x3 squares per inch fiberglass scrim; 9.5 mils thick, -40 to 240º F service temperatures; Venture Tape "1525CW" or approved equal.

F. Tie Wire: Annealed steel, 16 gauge.

PART 3 - EXECUTION

3.1 PREPARATION

A. Install materials after ductwork has been tested and approved.

B. Clean surfaces for adhesives.

C. Prepare surfaces in accordance with manufacturer's recommendations.

3.2 INSTALLATION – DUCTWORK INSULATION

A. Install materials in accordance with manufacturer's instructions.

B. Provide insulation with vapor barrier when air conveyed may be below ambient temperature. Continue insulation with vapor barrier through penetration.

C. Duct Exterior Insulation (Type K,L) Application:

1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.

2. Secure insulation without vapor barrier with staples, tape, or wires.

3. Install without sag on underside of ductwork. Use mechanical fasteners to prevent sagging. Secure insulation with mechanical fasteners on 15 inch centers maximum, on bottom and side of ductwork with dimension exceeding 20 inches. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

4. Maximum 25% compression.

D. Where canvas jacketing is indicated, apply mastic in sufficient thickness to completely cover the texture of the canvas material.

3.3 SCHEDULE - DUCTWORK

DUCTWORK	TYPE	INSULATION THICKNESS	FINISH
Outside Air Intake and Supply Air Ducts	L	2" Rigid	CANVAS

END OF SECTION

SECTION 230993

SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exhaust Fans.

B. Electric Unit Heaters.

C. Space Heaters.

1.02 RELATED SECTIONS

A. Section 230500 - Common Work Results for HVAC.

1.03 SYSTEM DESCRIPTION

A. This Section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other Sections.

1.04 SUBMITTALS

A. Submit under provisions of Division 01.

B. Submit product data and diagrams indicating mechanical system controlled and control system components. Label with settings, adjustable range of control and limits. Include written description of control sequence.

C. Include flow diagrams for each control system, graphically depicting control logic.

D. Include draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.

1.05 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Division 01.

B. Accurately record actual setpoints and settings of controls, including changes to sequences made after submission of shop drawings.

PART 2 PRODUCTS

2.01 THERMOSTATS

A. Line voltage thermostat compatible with unit heaters. Setpoint range: 50 deg F to 80 deg F minimum setpoint adjustment range. Removable setpoint adjustment knob.

2.02 HUMIDISTATS

A. NEMA 1 Enclosure, UL listed, 8amp rating, 10-90% RH control dial range, 5% RH differential, Snap Acting SPDT switch, 40-125 Deg F Operating Range.

PART 3 EXECUTION

3.01 SEQUENCE OF OPERATIONS

A. Refer to sequence of operations on mechanical drawings.

END OF SECTION

SECTION 231113
FACILITY FUEL-OIL PIPING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Fuel Oil Piping - Above Ground.

B. Fuel Oil Above Ground Tanks.

C. Unions and Flanges.

D. Valves.

E. Pipe Hangers and Supports.

F. Relief Valves.

G. Strainers.

H. Flexible Connectors.

I. Fuel Oil Dearator / Filter.

J. Above Ground Storage Tanks.

1.02 RELATED WORK

A. Section 230500 - Common Work Results for HVAC.

1.03 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME B16.3 - Malleable Iron Threaded Fittings.
2. ASME B31.1 - Power Piping.
3. ASME B31.9 - Building Services Piping.
4. ASME B36.10M - Welded and Seamless Wrought Steel Pipe.
5. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.

B. ASTM International:

1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

C. American Welding Society:

1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.

D. International Mechanical Code - IMC, latest adopted edition.

E. National Fire Protection Association:

1. NFPA 30 - Flammable and Combustible Liquids Code.
2. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.

F. Underwriters Laboratories Inc.:

1. UL 567 - Pipe Connectors for Flammable Liquids and Combustible Liquids and LP-Gas.
2. UL 842 - Valves for Flammable Fluids.
3. UL 913 - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations.

1.04 SUBMITTALS

A. Submittal Procedures under provisions of the Division 01.

B. Product Data:

1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
2. Valves: Submit manufacturer's catalog information with valve data and ratings for each service.
3. Fuel Piping Specialties: Submit manufacturer's catalog information including capacity, rough-in requirements, and service sizes.
4. Above Ground Tanks: Submit manufacturer's catalog information for tank including shop drawing.

C. Test Reports: Submit written test results for piping system pressure test.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of valves, piping system, and system components.

B. Operation and Maintenance Data under provisions the Division 01. Submit spare parts lists, exploded assembly views, for tank and inventory leak detection.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 31.

B. Perform Work in accordance with authority having jurisdiction.

1.07 QUALIFICATIONS

A. Installer: Company specializing in performing work of this section with minimum three years documented experience or approved by manufacturer.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle under the provisions of the Division 01.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Protect piping and fittings from soil and debris with temporary end caps and closures. Maintain in place until installation.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Under the provisions of the Division 01.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 COORDINATION

A. Under the provisions of the Division 01.

1.12 WARRANTY

A. Under the provisions of the Division 01.

PART 2 - PRODUCTS

2.01 FUEL OIL PIPING - ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M or ASME B36.10M Schedule 40 black.

1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M wrought carbon steel and alloy steel welding type.
2. Joints Exterior: Welded or Viega MegaPress.
3. Joints in Mechanical Room: Threaded for pipe 2 inch and smaller or Viega MegaPress; welded for pipe 2-1/2 inches and larger.

2.02 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:

1. Ferrous Piping: Class 150, malleable iron, threaded.

2. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.03 GATE VALVES

A. No allowed.

2.04 GLOBE VALVES

A. Not Allowed.

2.05 BALL VALVES

A. 1/4 inch to 1 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body; chrome plated bronze ball, reinforced Teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, full port.

2.06 CHECK VALVES

A. Swing Check Valves

1. 2 inches and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, Buna-N disc, threaded ends.

B. Spring Loaded Check Valves:

1. 2 inches and Smaller: MSS SP 80, Class 150 bronze body, in-line spring lift check, silent closing, Buna-N disc, integral seat, threaded ends.

2.07 HANGERS AND SUPPORTS

A. Conform to NFPA 31.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.

2.08 FLEXIBLE CONNECTORS

A. Manufacturers:

1. Flex-Hose Co., Inc.
2. Flex-Weld, Inc.
3. The Metraflex Company.
4. Substitutions: Under the provisions of the Division 01.

B. 2 inches and Smaller: Corrugated Type 304 stainless steel inner hose with single layer of Type 304 stainless steel exterior braiding. Maximum working pressure 200 psig.

2.09 ACCEPTABLE MANUFACTURER – DE-AERATOR / FILTER

A. Tigerholm.

B. Substitutions: None.

2.10 DE-AERATOR FUEL FILTERS

A. UL listed fuel oil de-aerator, converts single pipe supply to two-pipe system complete with fusible valve and integral fuel filter, Tigerholm Tigerloop Combi.

2.11 ABOVE GROUND STORAGE TANK

A. Product Description: Provide UL Listed above ground double-wall secondary containment tank. The tank shall consist of an inner and outer steel tank; the tank shall be a UL 142 listed and meet the standards of NFPA 30 and 30A. The entire tank system, including the saddle and secondary containment, shall be listed by Underwriters Laboratories under UL® 142 Standard for Safety as a complete, indivisible unit. The skid mounted tank assembly shall bear the UL® listing mark.

B. Tank Configuration: As Indicated on Plans.

C. Primary Tank: Single wall steel tank constructed in accordance with UL 142 not less than 10 gauge thickness.

D. Outer Tank: Single wall steel tank constructed in accordance with UL 142 not less than 10 gauge thickness.

E. Lifting Lugs: shall be attached at the top of the tank ends. Each eye shall be capable of supporting the empty weight of tank and skids without permanent distortion.

F. Tank Saddles: Provide UL Listed horizontal tank saddles meeting the requirements of UL 142.

G. Weld Joints: All joints on the inner and outer shell and the tank heads shall be that required by UL 142 listing. In addition, all non-structural external seams shall be seal welded before painting. All weld spatter shall be removed and all sharp edges shall be rounded and smoothed by grinding. Flat unflanged heads are not permitted on either the inner or outer tank.

H. Tank Attachments and Penetrations: Piping penetrations shall be made through the top of the tank only. The secondary containment shall allow for the full recovery of a release into the annular space. An additional fitting shall be incorporated into the tank (typically located on the top of the opposite end of the tank from the monitor port) to allow for flushing of any product which may accumulate as the result of a release or accidental fill of the annular space. Each tank shall be equipped with lifting lugs adequate for the safe handling of the tank during installation. Each lifting lug must be designed to support the total weight of the dual wall tank. A minimum of two lifting lugs shall be provided on tanks having a rated capacity of more than 1100 gallons.

I. Finish: Factory painted with marine grade epoxy. A two-coat system shall be applied according to the manufacturer's recommendations. The first coat shall be a minimum 2 mil dry film thickness primer coat. A second coat shall be applied to a given total of 6 mils minimum dry film thickness. All exterior surfaces shall be cleaned and prepared by sandblasting in accordance with Steel Structures Painting SSPC-3 and thereafter, coated per the coating manufacturer's recommendations.

J. Material for all steel construction shall conform to ASTM-36. All pipe and fittings shall conform to schedule 40, seamless iron pipe. All pipe connections shall be screwed or welded except for the final connection to the tank which shall be an approved welded fitting.

K. Side Fill Package: The tank shall include a bottom filling connection and a spill containment vessel designed specifically for aboveground stationary storage tanks. The vessel shall employ a full diameter hinged and gasketed lid with a strong back and lockable latch. The bottom shall have both a 2” nipple to accommodate the specified overfill valve, and a 1” threaded opening for a drainback valve. Furnish fill containment assembly with capacity of not less than 20 gallons spill containment. Include quick disconnect hose coupling with dust plug, check valve, shut-off valve, ground stud, 1 gpm hand pump for spill containment with shut-off and check valve. Positive fill limiting valve set to activate at 90-95% tank capacity, liquid level clock gauge, flexible hose connection. Factory assembled piping and fittings.

L. Normal Vent: Furnish each compartment of primary tank with 2 inch updraft venting device exhausting upward at elevation of at least 12 feet aboveground. Size vent in accordance with NFPA 30.

M. Vent Cap: Upward "V" design, steel cap and body, removable 30 mesh brass screen. Slip on style with set screw. Grooved drain lip extended beyond base.

N. Emergency Vents: Furnish each compartment of primary tank with emergency vents sized in accordance with NFPA 30. Do not use access openings for emergency venting purposes. OPW 301 or equal.

O. Leak Gauge: 2 inch top mounted leak gauge used for monitoring leaks between primary and outer tanks. Krueger sentry gauge or equal.

P. Provide one spare 4" tapping on tank.

Q. Drop Tube: Lightweight aluminum tube, buna gasket and adaptors as necessary for fill box or sufficient length to extend to six inches above tank bottom.

R. Accessories:

1. Level Gauge: Mechanical float activated level gage capable of indicating approximate fluid level in tank reading in feet and inches. Gauge to be readable up to 20 feet away within 1/8".

Gauge to be able to be rotated 360 deg after mounting. Standard float to pass through a 2" opening. Body to be aluminum with stainless steel float and cable. Morrison Bros. Co. Fig 818 or equal.

2. Tank Decals: Furnish warning and tank identification signs located prominently on tank following fire code requirements.
3. Fill Alarm: Whistles type alarm to whistle while tank is filled. Stops whistling when fuel has reached capacity level. Cast iron with corrosion resistant finish. King fill alarm model 4516 or equal.
4. Overfill prevention valve complete with tank adapter valve terminates flow of product when the liquid level reaches a preset warning level (90-95%). Valves to have built in bleed hole to provide anti-syphoning protection. Valve to be rated for a maximum pressure of 100 psi. OPW 61fSTOP or equal.

S. Signage: All tanks shall be labeled in accordance with the International Fire Code. Provide standard manufactured adhesive labels.

PART 3 - EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install hangers and supports in accordance with ASTM F708, MSS SP 69 and MSS SP 89.

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place hangers within 12 inches of each horizontal elbow.

D. Install hangers to allow 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

E. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

3.03 INSTALLATION - ABOVEGROUND PIPING

A. Install fuel oil piping in accordance with IMC and NFPA 31.

B. Route piping in orderly manner and maintain gradient.

C. Install piping to conserve building space and not interfere with use of space.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Sleeve pipe passing through partitions, walls and floors.

G. Provide clearance for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, weld, and apply one coat of zinc rich primer.

J. Prepare pipe, fittings, supports, and accessories not pre-finished, ready for finish painting.

K. Install identification on piping systems.

L. Install valves with stems upright or horizontal, not inverted.

M. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

END OF SECTION

SECTION 233100
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Duct Materials.
2. Ductwork Fabrication.

1.02 REFERENCES

A. ASTM International:

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - HVAC Air Duct Leakage Test Manual.
2. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

C. Underwriters Laboratories Inc.:

1. UL 181 - Factory-Made Air Ducts and Connectors.

1.03 DEFINITIONS

A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.

B. Low Pressure: Three pressure classifications: ½ inch WG positive or negative static pressure and velocities less than 2,000 fpm; 1 inch WG positive or negative static pressure and velocities less than 2,500 fpm and 2 inch WG positive or negative static pressure and velocities less than 2,500 fpm.

C. Medium Pressure: Three pressure classifications: 3 inch WG positive or negative static pressure and velocities less than 4,000 fpm, 4 inch WG positive static pressure and velocities greater than 2,000 fpm, 6 inch WG positive static pressure and velocities greater than 2,000 fpm.

D. High Pressure: 10 inch WG positive static pressure and velocities greater than 2,000 fpm.

1.04 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.05 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Product Data: Submit data for duct materials.

1.06 CLOSEOUT SUBMITTALS

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.07 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.09 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. Division 01 - Product warranties.

PART 2 PRODUCTS

2.01 DUCT MATERIALS

A. Galvanized Steel Ducts: ASTM A653/A653M galvanized steel sheet, lock-forming quality, having G90 zinc coating of in conformance with ASTM A90/A90M.

B. Fasteners: Rivets, bolts, or sheet metal screws.

C. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.02 DUCTWORK FABRICATION

A. Fabricate and support rectangular ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible and ASHRAE handbooks, except as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.

C. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width. Where not possible and where rectangular elbows are used, provide airfoil turning vanes. Where acoustical lining is indicated, furnish turning vanes of perforated metal with glass fiber insulation.

D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30° divergence upstream of equipment and 45°convergence downstream.

E. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

F. Provide standard 45-degree lateral wye takeoffs. When space does not allow 45-degree lateral wye takeoff, use 90-degree conical tee connections.

G. Provide easements where low pressure ductwork conflicts with piping and structure. Where easements exceed 10 percent duct area, split into two ducts maintaining original duct area.

H. Use crimp joints with or without bead for joining round duct sizes 12” and smaller with crimp in direction of airflow.

I. Use double nuts and lock washers on threaded rod supports.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify sizes of equipment connections before fabricating transitions.

3.02 INSTALLATION

A. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

C. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 12” and smaller.

D. Install duct hangers and supports in accordance with SMACNA.

E. Use double nuts and lock washers on threaded rod supports.

3.03 SCHEDULES

A. Ductwork Material Schedule:

Air System	Material
Outside Air/Supply	Galvanized Steel
Exhaust	Galvanized Steel

END OF SECTION

SECTION 233300
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Grilles, Registers, Diffusers.
2. Back-draft Dampers.
3. Control Dampers.

1.02 REFERENCES

A. Air Movement and Control Association International, Inc.:

1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.03 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Division 01 - Product Requirements: Product storage and handling requirements.

B. Protect dampers from damage to operating linkages and blades.

C. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

D. Storage: Store materials in a dry area indoor, protected from damage.

E. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

1.05 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.06 COORDINATION

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work where appropriate with building control Work.

1.07 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – GRILLES, REGISTERS AND DIFFUSERS

A. Price.

B. Titus.

C. Substitutions: Under provisions of Division 01.

2.02 GRILLES, REGISTERS AND DIFFUSERS

A. Refer to air inlet/outlet schedules on mechanical drawings for basis of design model numbers. Provide specified model and accessories or equivalent product from the acceptable manufacturers listed.

2.03 BACK-DRAFT DAMPERS

A. Manufacturers:

1. Ruskin.
2. Greenheck.
3. Penn.
4. Substitutions: Division 01 - Product Requirements.

B. Gravity backdraft dampers, size 18 x 18 inches or smaller, furnished with air moving equipment, may be air moving equipment manufacturer's standard construction.

C. Fabricate multi-blade, parallel action gravity balanced backdraft dampers of 16 gauge galvanized steel, or extruded aluminum, with center pivoted blades of maximum 6" width, with felt of flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure.

2.04 CONTROL DAMPERS – ACCEPTABLE MANUFACTURERS

A. Manufacturers:
1. Ruskin.
2. Greenheck.
3. Tamco.
4. Substitutions: Division 01 – Product Requirements.

2.05 CONTROL DAMPERS

A. Multi-blade, opposed blade action, control dampers of extruded aluminum, with airfoil type blades of maximum six inch width, blades positioned across short air opening dimension, field replaceable extruded vinyl sealed edges, linked together in rattle-free manner, non-corrosive molded synthetic bearings, square or hexagonal axles for positive locking connection to blades and linkage, with documented leakage rate not to exceed 6 CFM/sq. ft. at 4" W.G.

PART 3 EXECUTION

3.01 EXAMINATION

A. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.02 INSTALLATION

A. Install in accordance with manufacturer installation instructions and SMACNA HVAC Duct Construction Standards - Metal and Flexible.

END OF SECTION

SECTION 233400
HVAC FANS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Centrifugal square inline fans

B. Related Sections:
   1. Section 230500 - Common Work Results for HVAC.
   2. Section 233100 - HVAC Ducts and Casings.
   3. Section 233300 - Air Duct Accessories.
   4. Division 26 - Equipment Wiring Connections: Execution and product requirements for connecting equipment specified by this section.

1.02 REFERENCES

A. American Bearing Manufacturers Association:
   1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
   2. ABMA 11 - Load Ratings and Fatigue Life for Roller Bearings.

B. Air Movement and Control Association International, Inc.:
   1. AMCA 99 - Standards Handbook.
   2. AMCA 204 - Balance Quality and Vibration Levels for Fans.
   3. AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
   4. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.
   5. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

C. American Refrigeration Institute:
   1. ARI 1060 - Air-to-Air Energy Recovery Ventilation Equipment Certification Equipment Program.

D. National Electrical Manufacturers Association:
   1. NEMA MG 1 - Motors and Generators.
   2. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. Underwriters Laboratories Inc.:
   1. UL 705 - Power Ventilators.

1.03 SUBMITTALS

A. Product Data: Submit data on each type of fan and include accessories, fan curves with specified operating point plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, electrical characteristics and connection requirements.

B. Manufacturer's Installation Instructions: Submit fan manufacturer’s instructions.

1.04 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.05 QUALITY ASSURANCE

A. Performance Ratings: Conform to AMCA 210.

B. Sound Ratings: AMCA 301, tested to AMCA 300.

C. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 705.

D. Balance Quality: Conform to AMCA 204.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01 in factory-fabricated protective containers, with factory-installed shipping skids and lifting lugs.

B. Protect motors, shafts, and bearings from weather and construction dust.

1.08 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.09 WARRANTY

A. Provide warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Greenheck Corp.

B. Loren Cook Company.

C. Twin City.

D. Substitutions: Under provisions of Division 01.

2.02 GENERAL

A. Fans used shall not decrease motor size, increase noise level, or increase tip speed by more than 10 percent, or increase inlet air velocity by more than 20 percent, from specified criteria. Fans shall be capable of accommodating static pressure variations of plus or minus 10 percent.

B. Base performance on sea level conditions unless otherwise noted.

C. Statically and dynamically balance fans to eliminate vibration or noise transmission to occupied areas.

2.03 CENTRIFUGAL SQUARE INLINE FANS

A. Product Description: Direct drive with galvanized steel housing, removable access doors on 2 sides, inlet and outlet duct collar, horizontal hanging brackets.

B. Fan Wheel: Backward inclined centrifugal type, aluminum construction.

C. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

D. Motor and Drive Mounting: Out of air stream.

E. Motor: Electronically commutated variable speed.

F. Bearings: ABMA 9 life at 200,000 hours.

G. Accessories:

1. VARI-GREEN HOA Controller.
2. Backdraft damper.
3. Motor cover.
4. Disconnect Switch: Factory wired, NEMA ICS 2, AC general purpose Class A, manually operated unit with number of poles as required by the load served, full-voltage controller for fractional horsepower induction motors with thermal overload unit Type 3R enclosure with red pilot light.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify exhaust hoods are installed and dimensions are as instructed by manufacturer.

3.02 PREPARATION

A. Coordinate with other trades for installation of wall openings.

3.03 INSTALLATION

A. Secure wall fans to structure.

B. Install backdraft dampers on exhaust fans.

C. Install backdraft dampers on discharge of exhaust fans.

3.04 DEMONSTRATION

A. Demonstrate fan operation and maintenance procedures.

3.05 PROTECTION OF FINISHED WORK

A. Do not operate fans for until ductwork is clean, filters in place, bearings lubricated, and fan has been test run under observation.

END OF SECTION

SECTION 238200
CONVECTION HEATING AND COOLING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electric Unit Heaters.

B. Oil Fired Space Heaters.

1.02 RELATED SECTIONS

A. Section 230993 - Sequence of Operation for HVAC Controls.

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Indicate mechanical and electrical service locations and requirements, specifically indicating deviations from indicated products.

1.05 PROJECT RECORD DOCUMENTS

A. Submit record documents under provisions of Division 01.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include manufacturer’s descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.

1.07 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years’ experience.

1.08 REGULATORY REQUIREMENTS

A. Conform to applicable code for internal wiring of factory wired equipment.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Store and protect products under provisions of Division 01.

C. Protect units from physical damage by storing in protected areas and leaving factory covers in place.

1.10 SEQUENCING AND SCHEDULING

A. Install after walls and ceiling are finished and painted. Avoid damage.

1.11 WARRANTY

A. Provide one year manufacturer's warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 MANUFACTURERS – ELECTRIC UNIT HEATERS

A. Square D.

B. Marley.

C. Substitutions: Under provisions of Division 01.

2.02 ELECTRIC UNIT HEATERS

A. Assembly: UL listed and labeled assembly with terminal box and cover, and built-in controls.

B. Coil: Copper-brazed steel fins with steel sheathed tubular elements.

C. Cabinet: Powder-coated heavy-gauge steel cabinet. Provide with ceiling mounting bracket.

D. Provide with disconnect switch.

2.03 OIL FIRED SPACE HEATERS

A. Direct vent UL Listed oil fired space heater, minimum 87% AFUE efficiency, integral controls with 7-day programmable night setback thermostat, power failure recovery system. 120 VAC power supply. Provide with direct vent kit, UL approved fuel oil lifting pump by same manufacturer as space heater, pump shall have double safety control, power surge protection, overheating protection, over flood prevention.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work and opening dimensions are instructed by the manufacturer.

B. Verify that required utilities are available, in proper location, and ready for use.

C. Beginning of installation means installer accepts existing surfaces.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install equipment in strict compliance with state and local codes and applicable NFPA standards.

C. Maintain manufacturer's recommended clearances around sides and over top of equipment.

D. Install components that were furnished loose with equipment for field installation.

E. Provide all interconnecting electrical control and power wiring. Provide field wiring and conduits for connection to thermostat.

F. Protect units with protective covers during balance of construction.

3.03 CLEANING

A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.

B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.

END OF SECTION

SECTION 260126

MAINTENANCE TESTING OF ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Feeder Megohm Testing.

B. Receptacle Branch Circuit Testing.

C. Electrical Service Ground Testing.

D. Phase Rotation.

E. Additional Testing and Maintenance Requirements in Individual Equipment and System Sections.

1.03 REFERENCES

A. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. ANSI/IEEE Std 81-1983 Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

C. ANSI/TIA/EIA – 568-B.1 and Addendums, General Cabling System Requirements.

1.04 SUBMITTALS

A. Submit data under provisions of Division 01 and Section 260500.

B. Product Data: Submit technical information for each test instrument to include manufacturer, model number, serial number, ratings, accuracy, and National Institute of Standards and Technology (NIST) Traceable calibration certification.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit Test Reports per Section 260500.

1.06 COORDINATION

A. Provide written 72 hours advance notice of all tests to be performed to allow Owner's Representative to witness testing.

1.07 REQUIRED TEST INSTRUMENTS

A. MEGOHMMETER.

1. Product Description: 1000 Volt DC, portable, insulation and resistance test Megohmmeter.
2. Equipment Accuracy:
   a. 2000 Megohm Range - 3% of full Scale.

B. BRANCH CIRCUIT ANALYZER

1. Product Description: Branch circuit analyzer capable of receptacle testing of voltage drop under load, hot-neutral-ground conductor resistances, common mode (N-G) Voltage, and G.F.C.I. trip point.
2. Manufacturer: Ideal SureTest. Model: 61-164 ST-1THD Wiring/Harmonic Distortion Analyzer or approved equal.
3. Equipment Accuracy:
   a. Accuracy 1% full scale ± 1 digit True RMS.

C. GROUND RESISTANCE CLAMP-ON METER

1. Product Description: Digital, direct reading clamp-on resistance ground tester.
2. Manufacturer: AEMC. Model: 3711 or approved equal.

3. Equipment Accuracy:
    a. 1.0 to 50.0 Ohms ± (1.5% + 0.1 Ohm).
    b. 50.0 to 100.0 Ohms ± (2.0% + 0.1 Ohm).
    c. 100 to 200 ± (1.5% + 0.1 Ohm).
    d. 200 to 400 Ohms ± (1.5% + 0.1 Ohm).
    e. 400 to 600 Ohms ± (1.5% + 0.1 Ohm).

D. MULTIMETER
1. Product Description: Digital True RMS Multimeter.
2. Equipment Accuracy:
    a. AC Voltage Range: 0.75% ± 3 last single digits at 60 Hz.
    b. AC Current Range: 0.90% ± 3 last single digits at 60 Hz.
    c. DC Voltage Range: 0.25% ± 1 last single digit.
    d. DC Current Range: 0.75% ± 1 last single digit.
    e. Resistance Ranges: 0.50% ± 1 last single digit.
    f. Frequency Range: 0.10% ± 1 last single digit @ 60 Hz.

1.08 TEST INSTRUMENT CALIBRATION

A. All test equipment shall be in good mechanical and electrical condition.

B. Provide calibration for each test instrument directly traceable to the National Institute of Standards and Technology (NIST) of higher accuracy than that of the instrument tested.

C. Provide calibration labels visible on all test equipment. Records, which show date and results of instruments calibrated or tested, shall be kept up-to-date.

D. Calibrate instruments in accordance with the following frequency schedule:
1. Field instruments: 12 months maximum.
2. Up-to-date instrument calibration instructions and procedures shall be maintained for each test instrument with the equipment.

1.09 MINIMUM REPORT INFORMATION

A. Report Criteria: After each test, promptly submit one copy of report to the Owner's Representative. Provide form with the minimum following information:
1. Date issued.
2. Project title and number.
3. Name and Model of Tester and witnesses.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Type of inspection or test.
7. Date of test.
8. Results of tests.
9. Indicate compliance or non-compliance with Contract Documents.
10. Final adjustment setting values where applicable.

B. Submit copy of all tests performed in the O&M manual.

1.10 GENERAL REQUIREMENTS

A. Submit test results within 3 working days of each test and included in the O&M manual.

B. Provide qualified personnel at site to perform all testing.

C. Perform specified testing of products in accordance with specified standards or as denoted in this specification whichever is more stringent.

D. Promptly notify Owner's Representative of irregularities or non-conformance of Work or products.

E. Perform additional tests when test is performed incorrectly, deemed inaccurate, or incorrectly documented.

F. The Contractor shall provide all forms, instrumentation and test equipment, loads, and other consumables required to demonstrate the systems to Owner's Representative satisfaction.

G. Perform and submit all testing prior to substantial completion and system acceptance.

H. Retest all material, cables etc that are disturbed after testing.

I. Replace and retest all material installed which does not meet or exceed the minimum acceptable limits set forth in this specification in accordance with the contract original requirements at no additional charge to Contract Sum/Price.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FEEDER CONDUCTOR TEST

A. Tests Criteria:

1. Use Megohm meter to test all conductors sized #6AWG and larger.
2. Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential 1000 volts DC for 600 volt rated cable.
3. Perform test immediately after installation.
4. Clean exposed cable ends with clean cloth and alcohol.
5. Test duration shall be one minute.
6. Disconnect conductors from all equipment.
7. Record the resistance of the insulated conductor under test with all other conductors connected together and to ground (metallic raceway, grounding conductor, etc.).
8. Perform continuity test to insure correct cable connection.
    a. Submit test results to Owner's Representative.

B. Test Values:

1. Minimum insulation-resistance value: 50 megohms.
2. Investigate deviations between adjacent phases.

C. Test each new three phase circuit and feeder for consistent phase rotation for the entire power system with a phase rotation meter.

D. Correct conductor phase relationship to provide proper phase rotation.

E. Record the rotation sequence on the interior door of new equipment.

F. Submit test results of the new equipment Owner's Representative.

3.02 RECEPTACLE GROUND FAULT CIRCUIT INTERRUPTER TEST

A. Test Criteria:

1. Use Branch Circuit Analyzer to perform test of each GFCI protected receptacle.
2. Record trip level in ma for each outlet.
3. Submit test results to Owner's Representative.

B. Test Values:

1. Trip Range: Between 6-9 mA.

3.03 ELECTRICAL SERVICE GROUND TEST

A. Test Criteria:

1. Use ground resistance clamp-on meter to measure the resistance of service ground with meter clamped between system neutral bond and each grounding electrode. Perform this test on new or existing services and all separately derived systems.
2. Record resistance value in Ohms.
3. Submit test results to Owner's Representative.

B. Test Values:

1. Maximum ground resistance: 10 Ohms.

3.04 PHASE ROTATION TEST

A. Test each three phase circuit and feeder for consistent phase rotation for the entire power system with a phase rotation meter.

B. Bump test each motor for proper rotation prior to use.

C. Correct conductor phase relationship to provide proper phase rotation.

D. Record the rotation sequence on each panelboard, MDP and Service circuit schedule.

E. Submit test results of each panelboard, MDP and Service to the Owner's Representative.

END OF SECTION

SECTION 260500
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. General Requirements specifically applicable to Division 26, in addition to Division 10 provisions.

B. The electrical system equipment and installation shall comply with all provisions and requirements of this specification, as well as any and all applicable national, state and local codes and standards.

1.03 WORK SEQUENCE

A. Construct Work in sequence under provisions of Division 10.

1.04 COORDINATION

A. Coordinate the Work specified in this Division under provisions of Division 10.

B. Prepare drawings showing proposed rearrangement of Work to meet job conditions, including changes to Work specified under other Sections. Obtain permission of Engineer prior to proceeding.

1.05 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code, latest adopted edition including all state and local amendments.

B. NECA - Standard of Installation.

C. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. Electrical Reference Symbols: The Electrical "Legend" on drawings is standardized version for this project. All symbols shown may not be used on drawings. Use legend as reference for symbols used on plans.

E. Electrical Drawings: Drawings are diagrammatic; not intended to show all features of work. Install material not dimensioned on drawings in a manner to provide a symmetrical appearance. Do not scale drawings for exact equipment locations. Review existing conditions and adjust work to conform. Field verification of dimensions, locations and levels is directed.

1.06 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 70.

B. Conform to the latest adopted edition of the International Building Code and the International Fire Code including all state and local amendments thereto.

C. Obtain electrical permits, plan review, and inspections from authority having jurisdiction.

1.07 SUBMITTALS

A. Submit inspection and permit certificates under provisions of Division 10.

B. Include certificate of final inspection and acceptance from authority having jurisdiction.

C. Submittal review is for general design and arrangement only and does not relieve the Contractor from any requirements of Contract Documents. Submittal not checked for quantity, dimension, fit or proper operation. Where deviations of substitute product or system performance have not been specifically noted in the submittal by the Contractor, provisions of a complete and satisfactory working installation is the sole responsibility of the Contractor.

D. In addition to requirements referenced in Division 10, the following is required for work provided under this division of the specification.

1. Provide material and equipment submittals containing complete listings of material and equipment shown on Electrical Drawings and specified herein.
2. Submittals shall be provided in PDF format with each section indexed in the PDF document. Submittals for Division 26 shall be complete and submitted at one time. Unless given prior approval, partial submittals will be returned unreviewed.
3. Clearly identify all material and equipment by item, name or designation used on drawings and in specifications.
4. Submit only pages which are pertinent; mark catalog sheets to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring diagrams and controls; component parts; finishes; dimensions; and required clearances.
5. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
6. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
7. Coordinate submittals with requirements of work and of Contract Documents.
8. Certify in writing that the submitted shop drawings and product data are in compliance with requirements of Contract Documents. Notify Engineer in writing at time of submittal, of any deviations from requirements of Contract Documents.
9. Do not fabricate products or begin work which requires submittals until return of submittal with Engineer acceptance.
10. Equipment scheduled by manufacturer's name and catalog designations, manufacturer's published data and/or specification for that item, in effect on bid date, are considered part of this specification. Approval of other manufacturer's item proposed is contingent upon compliance therewith.

1.08 SUBSTITUTIONS

A. In accordance with the General Conditions and the General Requirements, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment.

1.09 PROJECT RECORD DRAWINGS

A. Maintain project record drawings in accordance with Division 10.

B. In addition to the other requirements, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all electrical work which will become permanently concealed. Show routing of work in permanently concealed blind spaces within the building. Show complete routing and sizing of any significant revisions to the systems shown.

C. Record drawing field mark-ups shall be maintained on-site and shall be available for examination of the Owner’s Representative at all times.

1.10 OPERATION AND MAINTENANCE MANUALS

A. Provide operation and maintenance manuals for training of Owner's Representative in operation and maintenance of systems and related equipment. In addition to requirements referenced in Division 10, the following is required for work provided under this section of the specifications.

B. Manuals shall be separate from work furnished under other divisions. Prepare a separate chapter for instruction of each class of equipment or system. Index and clearly identify each chapter and provide a table of contents.

C. Unless otherwise noted in Division 10, provide one copy of all material for approval.

D. Provide the following items in sequence for each chapter shown in Table of Contents:

1. Describe the procedures necessary for personnel to operate the system including start-up, operation, emergency operation and shutdown.
    a. Give complete instructions for energizing equipment and making initial settings and adjustments whenever applicable.
    b. Give step-by-step instructions for shutdown procedure if a particular sequence is required.
    c. Include test results of all tests required by this and other sections of the specifications.
2. Maintenance Instructions:
    a. Provide instructions and a schedule of preventive maintenance, in tabular form, for all routine cleaning and inspection with recommended lubricants if required.
        1) Provide instructions for minor repair or adjustments required for preventive maintenance routines, limited to repairs and adjustments which may be performed without special tools or test equipment and which requires no special training or skills.
        2) Provide manufacturers' descriptive literature including approved shop drawings covering devices used in system, together with illustrations, exploded views, etc. Also include special devices provided by the Contractor.
        3) Provide any information of a maintenance nature covering warranty items, etc., which have not been discussed elsewhere.
        4) Include list of all equipment furnished for project, where purchased, technical representative if applicable and a local parts source with a tabulation of descriptive data of all electrical-electronic spare parts and all mechanical spare parts proposed for each type of equipment or system. Properly identify each part by part number and manufacturer.

1.11 DEMONSTRATION OF ELECTRICAL SYSTEMS

A. During substantial completion inspection:
    1. Conduct operating test for approval under provisions of Division 10.
    2. Demonstrate installation to operate satisfactorily in accordance with requirements of Contract Documents.
    3. Should any portion of installation fail to meet requirements of Contract Documents, repair or replace items failing to meet requirements until items can be demonstrated to comply.
    4. Have instruments available for measuring light intensities, voltage and current values, and for demonstration of continuity, grounds, or open circuit conditions.
    5. Provide personnel to assist in taking measurements and making tests.

1.12 CERTIFICATE OF COMPLETION

A. Submit, at time of request for final inspection, a completed letter denoting all work has been completed in accordance with the Contract Documents.

1.13 WARRANTY

A. In addition to the requirements of Division 10, or as specified in other sections, warrant all materials, installation and workmanship for one (1) year from date of acceptance.

B. Copies of manufacturer product warranties for all equipment shall be included in the operation and installation manuals.

1.14 INSTRUCTION OF OPERATING PERSONNEL

A. In accordance with the requirements of Division 10 and this section provide services of qualified representative of supplier of each item or system listed below to instruct designated personnel of Owner in operation and maintenance of item or system.

B. Make instruction when system is complete, of number of hours indicated, and performed at time mutually agreeable.

System or Equipment	Hours of Instruction
Standby Generator & ATS	4
Motor Control Centers & VFDs	8

C. Certify that an Anchorage based authorized service organization regularly carries complete stock of repair parts for listed equipment or systems, that organization is available and will furnish service within 48 hours after request. Include name, address and telephone number of service organization.

D. Have approved operation and maintenance manuals and parts lists for all equipment on hand at time of instruction.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. All Materials and Equipment shall be new.

B. All Materials and Equipment shall be listed by Underwriter's Laboratories or equivalent third party listing agency for the use intended.

C. Materials and Equipment shall be acceptable to the authority having jurisdiction as suitable for the use intended when installed per listing and labeling instructions.

D. No materials or equipment containing asbestos in any form shall be used. Where materials or equipment provided by this Contractor are found to contain asbestos such items shall be removed and replaced with non-asbestos containing materials and equipment at no cost to the Owner.

E. In describing the various items of equipment, in general, each item will be described singularly, even though there may be numerous similar items.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Install Work using procedures defined in NECA Standard of Installation and/or the manufacturer's installation instructions.

3.02 TESTS

A. Perform tests in accordance with Section 260126 – Testing and Maintenance of Electrical Systems and the individual Division 26 Sections.

B. Notify the Owner’s representative at least 72 hours prior to conducting any tests.

C. Perform additional tests required under other sections of these specifications.

D. Perform all tests in the presence of the Owner's representative.

3.03 PENETRATIONS OF FIRE BARRIERS

A. All holes or voids created to extend electrical systems through fire rated floors, walls or ceiling shall be sealed with an asbestos-free intumescent fire stopping material capable of expanding 8 to 10 times when exposed to temperatures 250ºF or higher.

B. Materials shall be suitable for the fire stopping of penetrations made by steel, glass, plastic and shall be capable of maintaining an effective barrier against flame, smoke and gases in compliance with the requirements of ASTM E814 and UL 1479.

C. The rating of the fire stops shall be the same as the time-rated floor, wall or ceiling assembly.

D. Install fire stopping materials in accordance with the manufacturer's instructions.

E. Existing fire rated walls are not shown on the Drawings and shall be field verified by the Contractor. For bid purposes, assume all walls requiring electrical penetrations carry a two-hour fire rating.

END OF SECTION

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Building Wire.

B. Cable.

C. Wiring Connections and Terminations.

1.03 RELATED SECTIONS

A. Section 260126 – Maintenance Testing of Electrical Systems.

B. Section 260553 – Identification for Electrical Systems.

C. Section 263200 – Packaged Generator Assemblies.

D. Section 263600 – Transfer Switches.

1.04 REFERENCES

A. Federal Specification FS-A-A59544 – Cable and Wire, Electrical (Power, Fixed Installation).

B. Federal Specification FS-J-C-30B – Cable Assembly, Power, Electrical.

C. ANSI/NEMA WC 70-2009 – Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.

D. NETA ATS – Acceptance testing specifications for Electrical Power Distribution and Systems.

E. NFPA 70 – National Electrical Code.

F. NFPA 262 – Standard Method of test for flame travel and smoke of wires and cables for use in air-handling spaces.

G. UL 62 – Flexible Cords and Cables.

H. UL 83 – Thermoplastic Insulated Wire and Cable.

I. UL 1063 – Standard for Machine and Tool Wire and Cable.

J. UL 1479 – Standard for Fire Tests of Through Wall Penetration Fire Stops.

K. UL 1581 – Reference Standard for Electrical Wires, Cables and Flexible Cords.

1.05 SUBMITTALS

A. Submittals are not required for this section.

PART 2 PRODUCTS

2.01 BUILDING WIRE

A. Thermoplastic-insulated Building Wire: NEMA WC 70.

B. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation, XHHW-2 or as indicated.

C. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THHN/THWN or XHHW-2. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid or stranded conductor.

D. Branch Circuit Wire Color Code:

1. Color code wires by line or phase as follows:

   a. Black, red, blue and white for 120/208V systems.

   b. Brown, orange, yellow and gray for 277/480V systems.

2. For conductors 4 AWG and larger, identify with colored phase tape at all terminals, splices, and boxes.
3. Grounding conductors 4 AWG and larger, use green tape at both ends and at all other visible points in between, including pull and junction boxes.

E. Control Circuits: Copper, stranded conductor 600 volt insulation, THHN/THNN or XHHW-2.

2.02 REMOTE CONTROL AND SIGNAL CABLE

A. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600 volt insulation, rated 90º C, individual conductors twisted together, shielded, and covered with an overall PVC jacket; UL listed.

B. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90º C, individual conductors twisted together, shielded or unshielded (as required), and covered with a PVC jacket; UL listed.

C. Plenum Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90º C, individual conductors twisted together, shielded or unshielded (as required), and covered with a nonmetallic jacket; UL listed for use in air handling ducts, hollow spaces used as ducts, and plenums.

2.03 WIRING CONNECTIONS AND TERMINATIONS

A. For conductors 8 AWG and smaller:

1. Dry interior areas: Spring wire connectors, pre-insulated “twist-on” rated 105 degrees C per UL 468C. Where stranded conductors are terminated on screw type terminals, install crimp insulated fork or ring terminals. Thomas & Betts Sta-Kon or equal.
2. Motor connections: Spring wire connectors, pre-insulated “twist-on” rated 105 degrees C per UL 468C. Provide a minimum of 8 wraps of Scotch 33+ electrical tape around conductors and connector to eliminate connector back off.
3. Wet or exterior: Spring wire connectors, pre-insulated “twist-on”, resin filled rated for direct burial per UL 486D.

B. For conductors 6 AWG and larger:

1. Bus lugs and bolted connections: 600 V, 90 degrees C., two hole long barrel irreversible compression copper tin plated. Thomas & Betts or approved equal.
2. Two way connector for splices or taps: 600 V, 90 degrees C., compression long barrel, copper tin plated. Thomas & Betts or approved equal. Insulate with Scotch 23 rubber insulating base covering and Scotch 33+ outer wrap.
3. Cam-style Receptacles: 600V NEMA 3R rated suitable for use with Type W cable, tool-less assembly/disassembly, double cam style, withstand 1,000lbs of pulling force in locked position, high conductivity brass contacts, watertight elastomeric insulators, color coded Brown-Orange-Yellow-Gray (or White) and Green, female connectors suitable for use with male connectors provided within the Manual Transfer Switches, Eaton Crouse-Hinds Cam-Lok J-Series E-Z1016 or approved equal. Size cam-style receptacles to match Type W cable as shown on the Drawings.

PART 3 EXECUTION

3.01 GENERAL WIRING METHODS

A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 18 AWG for control wiring.

B. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere, 277 volt branch circuit home runs longer than 200 feet.

C. Splice only in junction or outlet boxes.

D. Neatly train and lace wiring inside boxes and equipment.

E. Make Conductor lengths for parallel circuits equal.

F. Do not share neutral conductors. Provide a dedicated neutral conductor for each branch circuit that requires a neutral.

G. Coordinate with manufacturers/suppliers for all required interconnecting wiring between equipment (ie generator, ATS, load banks, etc.).

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Verify that raceway is complete and properly supported prior to pulling conductors. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

B. Do not install XHHW-2 conductors when ambient temperatures are below –5 degrees C and THHN/THWN conductors when ambient temperatures are below 0 degrees C.

C. Conductors shall be carefully inspected for insulation defects and protected from damage as they are installed in the raceway. Where the insulation is defective or damaged, the cable section shall be repaired or replaced at the discretion of the Owner and at no additional cost to the Owner.

D. Place an equal number of conductors for each phase of a circuit in same raceway or cable.

E. Route conductors from each system in independent raceway system and not intermix in the same raceway, enclosure, junction box, wireway, or gutter as another system unless otherwise shown on the plans.

F. Completely and thoroughly swab raceway system before installing conductors.

3.03 CABLE INSTALLATION

A. Use suitable cable fittings and connectors.

B. After cam-style connectors are installed on portable power cable, neatly wrap and package cables and turn over to Owner for their future use.

3.04 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Thoroughly clean wires before installing lugs and connectors.

C. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

D. Do not exceed manufacturer's recommended pull tensions.

3.05 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Division 10 and Sections 260500 and 260126.

B. Inspect wire and cable for physical damage and proper connection.

C. Torque conductor connections and terminations to manufacturer's recommended values.

3.06 WIRE AND CABLE INSTALLATION SCHEDULE

A. All Locations: Building wire in raceways.

END OF SECTION

SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Power System Grounding.

B. Electrical Equipment and Raceway Grounding and Bonding.

1.03 RELATED SECTIONS

A. Section 260126 – Maintenance Testing of Electrical Systems.

B. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

C. Section 262416 – Panelboards.

D. Section 262419 – Low-Voltage Motor Control Centers.

E. Section 262726 – Wiring Devices.

F. Section 262816 – Enclosed Switches and Circuit Breakers.

G. Section 263200 – Packaged Generator Assemblies.

H. Section 263600 – Transfer Switches.

1.04 REFERENCE STANDARDS

A. ANSI/NEMA GR-1, Ground Rod Electrodes and Ground Rod Electrode Couplings.

B. ANSI/NFPA 70 – National Electrical Code.

C. ASTM B 3 – Standard Specification for Soft or Annealed Copper Wire.

D. AWS A5.8/A5.8M – Specification for Filler Metals for Brazing and Braze Welding.

E. IEEE Std 81 – Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

F. IEEE Std 142 – Recommended Practice for Grounding of Industrial and Commercial Power System.

G. UL 467 – Standard for Grounding and Bonding Equipment.

1.05 SYSTEM DESCRIPTION

A. Provide a complete grounding system for new equipment as required by State and Local Codes, NEC, applicable portions of other NFPA codes, and as indicated herein. Disconnect, extend and reconnect existing grounding electrode conductors as noted on the Drawings.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Submit product data for ground rods.

PART 2 PRODUCTS

2.01 MATERIALS

A. Solid Ground Rods: ANSI/NEMA GR-1, copper-encased steel, ¾ inch diameter, minimum length 10 feet. Ground rods shall be clean and smooth.

B. Bonding Conductors: Stranded bare copper wire for sizes No. 6 AWG and larger diameter, unless otherwise noted on the Drawings. Insulated conductors shall have a green outer jacket or be marked with green tape at both ends and all junction/pull boxes within the system.

C. Grounding Conductors: Copper conductor bare or green insulated.

D. Mechanical Grounding and Bonding Connectors: Non-reversible crimp type lugs only. Use factory made compression lug for all terminations.

E. Exothermic Grounding and Bonding Connectors: AWS A5.8/A5.8M Exothermic welded type. Welding procedure shall include the proper mold and powder charge and shall conform to the manufacturer's recommendations.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide and install grounding components in accordance with this specification and as noted on the Drawings.

B. Provide a separate, insulated equipment-grounding conductor in all feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Multiple conductors on single lug not permitted. Each grounding conductor shall terminate on its own terminal lug.

C. Bond together exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing and fuel systems.

D. Grounding conductors for branch circuits shall be sized in accordance with NEC.

E. Grounding conductor is in addition to neutral conductor and in no case shall neutral conductor serve as grounding means.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Provide grounding system test in accordance with Section 260126.

END OF SECTION

SECTION 260529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Section includes hangars and supports for Power Systems.

B. Conduit Supports.

C. Formed Steel Channel.

D. Spring Steel Clips.

E. Sleeves.

F. Mechanical Sleeve Seals.

1.03 RELATED SECTIONS

A. Section 260533 – Raceway and Boxes for Electrical Systems.

B. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

C. Section 262100 – Low-Voltage Electrical Service Entrance.

D. Section 262416 – Panelboards.

E. Section 263200 – Packaged Generator Assemblies.

F. Section 263600 – Transfer Switches.

1.04 REFERENCES

A. International Building Code (IBC), Chapter 16 – Structural Design.

1.05 SUBMITTALS

A. Submittals not required for this section.

1.06 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

B. Perform Work in accordance with the NEC and Division 26 requirements.

PART 2 PRODUCTS

2.01 CONDUIT SUPPORTS

A. Manufacturers:

1. Allied Tube & Conduit Corp.
2. Minerallac Fastening Systems.
3. O-Z Gedney Co.
4. Substitutions: per Division 10

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F, self-locking.

2.02 FORMED STEEL CHANNEL

A. Manufacturers:

1. B-Line Systems.
2. Allied Tube & Conduit Corp.
3. Unistrut Corp.
4. Substitutions: per Division 10.

B. Product Description: Galvanized 12 gage) thick steel. With holes 1-1/2 inches on center.

2.03 SLEEVES

A. Sleeves Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

B. Sleeves Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

C. Fire-stopping Insulation: Glass fiber type, non-combustible.

2.04 MECHANICAL SLEEVE SEALS

A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Division 10: Verification of existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

3.02 PREPARATION

A. Obtain permission from Owner’s Representative before using powder-actuated anchors.

B. Obtain permission from Owner’s Representative before drilling or cutting structural members.

3.03 INSTALLATION - GENERAL

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts, beam clamps, or spring steel clips.

B. Use toggle bolts or hollow wall fasteners in hollow masonry partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

C. Do not support raceways or boxes from ceiling suspension wires or suspended ceiling systems. Provide support from building structure independently to allow ceiling removal and replacement without removal of electrical system. If dedicated support wires are used, wires and wire clips must be painted or color-coded.

D. Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling suspension system.

E. Do not penetrate by drilling or screwing into metal roof decking. All penetrations into metal roof decking must be approved by the Project Manager in writing.

F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

I. Securely fasten equipment to building structure in accordance with manufacturer's recommendations and to provide necessary earthquake anchorage.

J. Provide wall attached fixtures and equipment weighing less than 50 pounds with backing plates of at least 1/8" x 10" sheet steel or 2" x 10" fire retardant treated wood securely built into the structural walls. Submit attachment details of heavier equipment for approval.

K. Earthquake Anchorages:

1. Equipment weighing more than 50 pounds shall be adequately anchored to the building structure to resist lateral earthquake forces.

2. Total lateral (earthquake) forces shall be 1.5 times the equipment weight acting laterally in any direction through the equipment center of gravity. Provide adequate backing at structural attachment points to accept the forces involved.

L. Power-driven fasteners are prohibited for tension load applications (such as supporting luminaries or conduit racks from ceiling above). Use drilled-in expansion anchors, or drilled and screw-in anchors such as Kwik-Con II or Tapcon.

3.04 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with adjustable interlocking rubber links.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Where conduit or raceway penetrates ceiling, or wall, close off space between conduit or raceway and adjacent work with suitable fire proofing and/or sealing methods as noted within 260500. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

E. Install chrome plated steel escutcheons at finished surfaces.

END OF SECTION

SECTION 260533
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Conduit.

B. Fittings and Conduit Bodies.

C. Pull and Junction Boxes.

1.03 RELATED SECTIONS

A. City of Valdez Standard Specifications – Division 20 – Earthwork.

B. Section 260500 – Common Work Results for Electrical.

C. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

D. Section 260526 – Grounding and Bonding for Electrical Systems.

E. Section 260529 – Hangers and Supports for Electrical Systems.

F. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

G. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

B. American Society for Testing and Materials (ASTM):

1. ASTM A 123 – Specification for Zinc Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strip.

C. National Electrical Manufacturers Association (NEMA):

1. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
2. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
3. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

D. Underwriters Laboratory (UL):

1. UL 6 - Rigid Steel Conduit, Zinc Coated.
2. UL 514B – Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

E. National Fire Protection Association (NFPA):

1. NFPA 70 - National Electrical Code.

F. International Building Code (IBC):

1. IBC chapters 16 and 17 seismic requirements.

1.05 RACEWAY AND BOX INSTALLATION SCHEDULE

A. Raceway Minimum Size:

1. Below Grade: Provide 1 inch minimum, unless otherwise noted.
2. Above Grade or Slab on Grade: Provide 1/2 inch minimum, unless otherwise noted. Raceway may be reduced to ½ inch for final connection of raceway up to 6 feet for connection to fixture or device where maximum conduit entry size is ½ inch.

B. Underground more than 5 feet from foundation wall:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or Schedule 40 plastic conduit.
    a. Provide detectable warning tape over all underground raceways.
    b. Provide 3-inch minimum spacing between raceways.
    c. Provide 3/4 inch minus material 6 inches above and below conduit. Backfill remaining trench free of debris or rocks greater than 1 inch in diameter.
2. Boxes and Enclosures: Provide concrete type 1A handhole

C. Under or in concrete slab, or underground within 5 feet of foundation wall:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or Schedule 40 plastic conduduit. All conduit in contact with concrete or block shall be rigid steel conduit half lapped wrapped with pipe wrap or be plastic-coated conduit. Provide transition to rigid steel conduit 12 inches prior to exit penetration through foundations, concrete walls, or block walls. Provide transition to rigid steel conduit elbow and riser for penetration through slab. Arrange raceway so the curved portion of bend is not visible above finished slab.
2. Boxes and Enclosures: Provide concrete tight cast and sheet metal steel metal boxes.

D. In or through CMU walls:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit. All conduit in contact with concrete or block shall be rigid steel conduit half lapped wrapped with pipe wrap.
2. Boxes and Enclosures: Provide concrete tight cast and sheet metal steel metal boxes.

E. Outdoor Above Grade, Damp or Wet Interior Locations:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit.
2. Boxes and Enclosures: Provide weatherproof NEMA 3R metallic enclosures, unless otherwise noted on the drawings.
3. Fittings: Provide galvanized malleable iron with gaskets. Provide Myers threaded hubs for all conduit entries into exterior enclosures.

F. Concealed Dry Locations:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or electrical metallic tubing.
2. Boxes and Enclosures: Provide sheet-metal boxes.
3. Fittings: Provide galvanized malleable iron and steel.

G. Exposed Dry Locations:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit. Electrical metallic tubing may be used where exposed conduit is allowed and where not subject to damage.
2. Boxes and Enclosures: Provide sheet-metal boxes with raised steel covers.
3. Fittings: Provide galvanized malleable iron and steel.

H. Hazardous Locations (Classified Wiring):

1. Raceway: Provide rigid steel conduit.
2. Boxes and Enclosures: Provide galvanized malleable iron rated Class I Division 1, NEMA FB1. Provide seal-off fittings and manufacturer approved sealant where required by code.

I. Equipment Connections: Provide short extensions (three feet maximum) of flexible metal conduit for connections to light fixtures, motors, transformers, vibrating equipment or equipment that requires removal for maintenance or replacement. Use Liquidtight flexible conduit and fittings for motors and equipment in damp or wet locations or subject to spilling of liquids as at pumps, kitchen equipment, in mechanical rooms, boiler rooms, pump rooms, etc.

1.06 DESIGN REQUIREMENTS

A. Raceway Minimum Size:

1. Line Voltage Circuits: Raceway is sized on the drawings for copper conductors with 600-Volt type XHHW insulation, unless otherwise noted. Where a raceway size is not shown on the drawings, it shall be calculated to not exceed the percentage fill specified in the NEC Table 1, Chapter 9 using the conduit dimensions of the NEC Table 4, Chapter 9 and conductor properties of the NEC Table 5, Chapter 9.
2. Low-Voltage Circuits: Where installed in raceways, the raceway size shall be calculated to not exceed the percentage fill specified in the NEC Table 1, Chapter 9, using the conduit dimensions of the NEC Table 4, Chapter 9, and cable diameter provided by the manufacturer.

B. Box Minimum Size: Provide all boxes sized and configured per NEC Article 370 and as specified in this section.

C. Seismic Support: Provide support in accordance with section 260529 and 260548.

1.07 SUBMITTALS

A. Submittals not required for this section.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 PRODUCTS

2.01 RIGID METAL CONDUIT (RMC)

A. Rigid Steel Conduit: ANSI C80.1, UL 6.

B. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; Galvanized malleable iron with threaded hubs for all conduit entries. Provide threaded connections and couplings only. Set Screw and running thread fittings are not permitted.

C. Provide insulated throat bushings at all conduit terminations.

2.02 INTERMEDIATE METAL CONDUIT (IMC)

A. Product Description: ANSI C80.6, UL 1242; Galvanized Steel Conduit.

B. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; use fittings and conduit bodies specified above for rigid steel conduit.

C. Provide insulated throat bushings at all conduit terminations.

2.03 FLEXIBLE METAL CONDUIT (FMC)

A. Product Description: UL 1, FS WW-C-566; galvanized or zinc-coated flexible steel, full or reduced-wall thickness.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel or malleable iron with insulated throat bushings. Die cast zinc or threaded inside throat fittings are not acceptable.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Product Description: UL 360, flexible metal conduit with interlocked steel construction and PVC jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; liquid tight steel or malleable iron with insulated throat bushings. Die cast fittings are not acceptable.

2.05 ELECTRICAL METALLIC TUBING (EMT)

A. Product Description: ANSI C80.3, UL 797; galvanized steel tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel or malleable iron, compression type with insulated throat bushings. Zinc die cast, set screw, and indentor fittings are not acceptable.

C. Maximum size shall be 2". Provide factory elbows on sizes 1-½" and larger.

2.06 RIGID NONMETALLIC CONDUIT (RNC)

A. Product Description: NEMA TC 2; Schedule 40 PVC, rated for 90º C cable.

B. Fittings and Conduit Bodies: NEMA TC 3.

C. Provide PVC-coated rigid steel factory elbows for bends in all plastic conduit runs, regardless of length.

2.07 HIGH DENSITY POLYETHYLENE CONDUIT (HDPE)

A. Not approved for use on this project.

2.08 ELECTRICAL NONMETALLIC TUBING (ENT)

A. Not approved for use on this project.

2.09 PULL AND JUNCTION BOXES

A. Sheet Metal Pull and Junction Boxes: ANSI/NEMA OS 1, UL514A galvanized steel.

1. Minimum Size: 4 inches square or octagonal, 1-1/2 inches deep, unless otherwise noted.

B. Sheet Metal Boxes Larger Than 12 Inches in Any Dimension: Hinged enclosure, Hoffman or approved equal.

C. Non-Metallic Boxes for Outdoor Locations: NEMA 250, Type 3R, 4 or 4X, fiberglass or thermoset plastic, hinged door, lockable.

D. Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250, Type 4; flat-flanged, surface mounted junction box, UL listed as raintight:

1. Material: Galvanized cast iron.

2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover and screws.

E. Hazardous Locations: Suitable for use in Class I Division 1 and/or Class I Division 2 locations, as shown on the Drawings.

2.10 EXPANSION FITTINGS

A. Galvanized malleable iron, galvanized with grounding bond jumper.

2.11 RACEWAY SEALING FITTINGS

A. Galvanized malleable iron, filled with sealing compound.

B. Class I Division 1 boundaries and isolation of arcing devices use Class I Division 1 sealing compound.

2.12 BUSHINGS

A. Non-grounding: Threaded impact resistant plastic.

B. Grounding: Insulated galvanized malleable iron/steel with hardened screw bond to raceway and conductor lug.

2.13 LOCKNUTS

A. Threaded Electro Zinc Plated Steel designed to cut through protective coatings for ground continuity.

2.14 WIREWAY

A. Product Description: General purpose type wireway, NEMA 1 for indoors or NEMA 4 for outdoors. Size per NEC minimum fill capacity required.

B. Knockouts: Field-installed, no factory knockouts acceptable.

C. Cover: Screw cover.

D. Fittings and Accessories: Include factory couplings, offsets, elbows, adapters and support straps required for a complete system. Provide internal ground bonding jumper bonded to each section.

PART 3 EXECUTION

3.01 INSTALLATION

A. Ground and bond raceway and boxes in accordance with Section 260526.

B. Provide seismic support and fasten raceway and box supports to structure and finishes in accordance with Section 260529 and 260548.

C. Identify raceway and boxes with origin and destination in accordance with Section 260553.

D. Unless otherwise noted, do not inter-mix conductors from separate panelboards or any other system in the same raceway system or junction boxes.

E. Install raceway and boxes in hazardous locations in accordance with NEC Articles 500 and 501.

3.02 INSTALLATION - GENERAL RACEWAY

A. Install raceway for all systems, unless otherwise noted.

B. Install an equipment grounding conductor inside of all raceways containing line voltage conductors.

C. Raceway routing and boxes are shown in approximate locations unless dimensioned. Where raceway routing is not denoted, field-coordinate to provide complete wiring system.

D. Do not route raceways on floor or finished grade. Arrange raceway and boxes to maintain a minimum of 6 feet 6 inches of headroom and present a neat appearance. Install raceways level and square to a tolerance of 1/8” per 10 feet. Route exposed raceways and raceways above accessible ceilings parallel and perpendicular to walls, ceiling, and adjacent piping.

E. Maintain minimum 6-inch clearance between raceway and mechanical and piping and ductwork. Maintain 12-inch clearance between raceway and heat sources such as flues, steam pipes, heating pipes, heating appliances, and other surfaces with temperatures exceeding 104 degrees F.

F. Do not install raceway imbedded in spray applied fire proofing. Seal raceway penetrations of fire-rated walls, ceilings, floors in accordance with the requirements of Section 260500.

G. Where raceway penetrates fire-rated walls and floors, seal opening around conduit with UL listed firestop sealant or intumescent firestop, preserving the fire time rating of the construction. Install in accordance with Section 250500.

H. Raceways and boxes penetrating vapor barriers or penetrating areas from cold to warm shall be taped and sealed with a non-hardening duct sealing compound to prevent the accumulation of moisture, and shall include a vapor barrier on the outside.

I. Arrange raceway supports to prevent misalignment during wiring installation. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

J. Do not attach raceway to ceiling support wires or other piping systems and do not fasten raceway with wire or perforated pipe straps. Remove all wire used for temporary raceway support during construction, before conductors are pulled. Raceway shall be installed to permit ready removal of equipment, piping, ductwork, or ceiling tiles.

K. Group raceway in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps, as specified in Section 260529.

L. Cut conduit square; de-burr cut ends. Bring conduit to the shoulder of fittings and couplings and fasten securely. Where locknuts are used, install with one inside box and one outside with dished part against box.

M. Use threaded raintight conduit hubs for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations. Sealing locknuts are not acceptable.

N. Install no more than the equivalent of three 90-degree bends between boxes.

O. Install conduit bodies to make sharp changes in direction, such as around beams. “Goosenecks” in conduits are not acceptable.

P. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size.

Q. Provide protective plastic bushings or insulated throat bushings at each raceway termination not installed to an enclosure. Bushings shall be threaded to the raceway end or connector.

R. Avoid moisture traps; install junction box with drain fitting at low points in raceway system.

S. Install fittings and flexible metal conduit to accommodate 3-axis movements where raceway crosses seismic joints.

T. Install fittings designed and listed to accommodate expansion and contraction where raceway crosses control and expansion joints.

U. Use suitable caps to protect installed raceway against entrance of dirt and moisture.

V. Paint all exterior exposed conduit to match surface to which it is attached or crosses. Clean greasy or dirty conduit prior to painting in accordance with paint manufacturer's instructions. Where raceway penetrates non-rated ceilings, floors or walls, provide patching, paint and trim to retain architectural aesthetics similar to surroundings.

3.03 INSTALLATION – GENERAL BOXES

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance. All electrical box locations shown on Drawings are approximate unless dimensioned.

B. Coordinate layout and installation of boxes to provide adequate headroom and working clearance.

C. Provide knockout closures for unused openings.

D. Install boxes in walls without damaging wall insulation or reducing its effectiveness.

E. Install with minimum 24 inches separation in fire rated walls. Limit penetrations in fire rated walls to 16 square inches each and a maximum total combined penetration area of 100 square inches in any given 100 square feet of wall. Where penetrations are in excess of these requirements provided UL listed fire stop wrap acceptable to Authority having Jurisdiction.

F. Do not fasten boxes to ceiling support wires or other piping systems.

G. Support boxes independently of conduit.

H. Clean interior of boxes to remove dust, debris, and other material and clean exposed surfaces and restore finish.

I. Provide blank covers or plates for all boxes that do not contain devices.

3.04 INSTALLATION – BURIED CONDUITS

A. Excavation and backfilling shall be in accordance with these specifications and the applicable portions of the City of Valdez Standard Specifications – Division 20 - Earthwork:

1. Excavate and backfill as necessary for proper installation or work.
2. Provide bracing and shoring as necessary or required.
3. Compact backfill under footings, floor slabs and paving using materials and methods specified under Division 20, Earthwork.
4. All conduits outside the building perimeter shall be buried a minimum of 24 inches below grade, unless otherwise noted on the Drawings. Bottom of trench shall be smoothed and all rocks and cobbles 3 inches and larger shall be removed. Conduits shall be bedded in a minimum of 2 inches of sand and shall have a cover of 2 inches minimum of sand. Trench shall be backfilled with non-frost susceptible material and compacted.
5. Conduits below slab on grade shall be installed in the top 6 inches of classified material.

B. Damage to existing underground utilities shall be repaired immediately by the Contractor at no cost to the Owner.

END OF SECTION

SECTION 260548

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Seismic installation of electrical equipment.

1.03 RELATED SECTIONS

A. City of Valdez Standard Specifications – Division 30 – Portland Cement Concrete.

B. Section 260529 – Hangers and Supports for Electrical Systems.

C. Section 262419 – Low-Voltage Motor Control Centers.

D. Section 263200 – Packaged Generator Assemblies.

1.04 DESCRIPTION

A. Provide seismic anchorage and restraint of electrical systems including, equipment, raceways, etc. Coordinate with the civil/structural drawings for concrete housekeeping pads.

B. Seismic Category D, Hazard Zone 4:

1. All electrical items that are of Importance Factor (Ip) = 1.5 are required to be seismically braced. This applies to the following:

   a. The component is required to function for life safety purposes after an earthquake, including fire protection systems, fire alarm systems, emergency lighting, etc.

   b. The component contains hazardous materials.

   c. The component is in or attached to an Occupancy Category IV structure (Hospitals, fire station, police station, emergency shelters, etc. per ASCE 7-05, Table 1-1) and it is needed for continued operation of the facility or its failure could impair the continued operation of the facility.

C. All other electrical equipment shall be assigned a component importance factor (Ip) = 1.0 and are required to be seismically braced unless one of the following conditions is satisfied:

1. Component is MOUNTED (connection to structure) at less than 4' above the floor (to the center of gravity of the component), and weighs less than 400 lbs.

2. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 50 lbs (if it is concealed).

3. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 100 lbs (if it is exposed).

4. Flexible connections between the components and associated conduit are provided.

5. All runs or groupings of conduits on or off of trapezes shall be seismically braced, unless the distribution system (including conduit, wiring and fittings) weighs less than 5 pounds per linear foot.

D. In accordance with ASCE 7-10 13.6.4, all electrical components with Ip = 1.5 shall also satisfy the following requirements:

1. Provisions shall be made to eliminate seismic impact between components.

2. Loads imposed on the components by attached utility or service lines that are attached to separate structures shall be evaluated.

3. Electrical cabinet design shall comply with the applicable National Electrical Manufacturers Association (NEMA) standards. Cutouts in the lower shear panel that have not been made

by the manufacturer and reduce significantly the strength of the cabinet shall be specifically evaluated.

4. The attachments of additional external items weighing more than 100 lbs shall be specifically evaluated if not provided by the manufacturer.
5. Where conduit, cable trays, or similar electrical distribution components are attached to structures that could displace relative to one another and for isolated structures where such components cross the isolation interface, the components shall be designed to accommodate the seismic relative displacements defined in ASCE 7-10 Section 13.3.2.

E. Unless otherwise exempted above, electrical component supports and the means by which they are attached to the component shall be designed for the Seismic Category they are installed in accordance with ASCE 7-10 Section 13.6.5, which includes the following additional requirements:

1.05 REFERENCE STANDARDS

A. Seismic anchorage and restraints shall be designed and installed in accordance with codes and standards as enforced by authorities having jurisdiction in Valdez, Alaska.

B. Where applicable, building standards supersede those of other evaluation or listing agencies referenced in specification.

C. International Building Code (IBC), Chapter 16 – Structural Design.

D. ASCE 7-10 Chapter 13.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials and devices shall be in accordance with the City of Valdez Standard Specifications, applicable codes and standards, and shall be appropriate for intended use.

B. Concrete housekeeping pads, anchors, and attachments to building structure shall be as approved by building Civil/Structural engineer.

C. Seismic restraints used in conjunction with vibration isolators may consist of loose cables, telescoping pipes or box sections, angles or sections, flat plates used as limit stops or snubbers, or other types of housing used either integral with or separate from vibration isolators to accomplish necessary seismic restraint.

2.02 EQUIPMENT

A. Equipment available with seismic rating shall be provided with rating applicable to seismic zone of project location.

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure stationary equipment, raceways and equipment supports to structure, concrete bases, or special supports to provide protection against earthquakes and to restrain lateral or vertical movement. Where vibration isolators are used, seismic restraints shall be designed to limit lateral or vertical movement during earthquake without short-circuiting vibration isolation system.

B. Coordinate seismic restraint and concrete housekeeping pad requirements with a State of Alaska licensed Professional Structural engineer.

C. Seismic restraint methods and materials shall be supplementary to support devices specified in other sections of this specification and together shall serve as equipment support criteria.

D. Installation of devices shall be in accordance with seismic Structural engineer's drawings and details and in accordance with seismic guidelines.

E. Modify raceway and equipment locations as required for seismic restraint system.

F. Seismic restraint systems shall not interfere with installation of other building systems or access.

END OF SECTION

SECTION 260553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 WORK INCLUDED

A. Nameplates and Tape Labels.

B. Wire and Cable Markers.

C. Conduit Markers.

D. Underground Warning Tape.

1.03 RELATED WORK

A. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

B. Section 260533 – Raceway and Boxes for Electrical Systems.

C. Section 262100 – Low-Voltage Electrical Service Entrance.

D. Section 262416 – Panelboards.

E. Section 262419 – Low-Voltage Motor Control Centers.

F. Section 262726 – Wiring Devices.

G. Section 262816 – Enclosed Switches and Circuit Breakers.

H. Section 263200 – Packaged Generator Assemblies.

I. Section 263600 – Transfer Switches.

1.04 SUBMITTALS

A. Submittals not required for this section.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 PRODUCTS

2.01 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved white letters on black background.

B. Letter Size:

1. 1/4-inch high letters for identifying individual panel or equipment.

2. 1/8-inch high letters for remaining lines with 1/8 inch spacing between lines.

C. Minimum nameplate size: 1/8 inch thick with a consistent length and height for each type of nameplate wherever installed on the project.

2.02 TAPE LABELS

A. Product Description: Adhesive tape labels, with 3/16 inch Bold Black letters on clear background made using Dymo RhinoPro 5000 label printer or approved equal.

B. Embossed adhesive tape will not be permitted for any application.

2.03 WIRE MARKERS

A. Power and Lighting Description: Machine printed heat-shrink tubing, cloth or wrap-on type, for all neutrals and Phase conductors.

2.04 UNDERGROUND WARNING TAPE

A. Product Description: Red, 6-inch wide, detectable.

B. Wording to read “Caution – Buried Electric Line Below”.

PART 3 EXECUTION

3.01 GENERAL INSTALLATION

A. Degrease and clean surfaces to receive nameplates and tape labels.

B. Install nameplates and tape labels parallel to equipment lines.

C. Underground Warning Tape Installation: Install underground warning tape along length of each underground conduit, raceway, or cable 6 to 8 inches below finished grade, directly above buried conduit, raceway, or cable.

3.02 NAMEPLATE INSTALLATION

A. Secure nameplates to equipment fronts using machine screws tapped and threaded into panelboard, or using rivets. The use of adhesives is not acceptable. Machine screws to not protrude more than 1/16 inch on back side.

B. Panelboard, Transformer, Transfer Switch, Generator and Load Bank Nameplates:

1. Provide nameplate for each panelboard with the following information:

a. Line 1: Panelboard name.

b. Line 2: Source(s) from which the equipment is fed.

c. Line 3: Voltage, phase and wire configuration (primary and secondary).

3.03 LABEL INSTALLATION

A. Conduit Feeder Labels - Provide conduit labels on all feeder raceways as follows:

1. Distribution Panels – “PANEL xxxx IN ROOM #xxx”.

2. Panelboards – “PANEL xxxx FED FROM MDP xxx”.

3.04 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identification shall be as follows:

1. Markers shall be located within one inch of each cable end, except at panelboards, where markers for branch circuit conductors shall be visible without removing panel deadfront.

2. Each wire and cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations.

3. Color code phases, neutral, and ground per NEC requirements and Section 260519.

4. For power circuits, identify with branch circuit or feeder number.

B. Provide pull string markers at each end of all pull strings. Marker shall identify the location of the opposite end of the pull string.

3.05 JUNCTION BOX IDENTIFICATION

A. Label each power junction box with the panelboard name and circuit number.

3.06 PANELBOARD IDENTIFICATION

A. Provide panelboard circuit directories in accordance with Section 262416.

B. Install one-line and panel map adjacent to each MDP.

END OF SECTION

SECTION 262100

LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Arrangement with Utility Company for disconnecting and reconnecting the permanent electric service to new service entrance equipment, including payment of Utility Company charges.

B. Underground service entrance.

1.02 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements and Section 260500 – Common Work Results for Electrical.

B. Section 260526 – Grounding and Bonding for Electrical System.

C. Section 260533 – Raceway and Boxes for Electrical Systems.

D. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

E. Section 260553 – Identifications for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NEMA 250 – 2003 Enclosures for Electrical Equipment (1000 Volts Maximum).

B. UL 50 – 1995 Enclosures for Electrical Equipment.

C. UL 414 – 1999 Standard for Meter Sockets.

1.04 SYSTEM DESCRIPTION

A. System Voltage: 480 volts, three phase, four-wire, 60 Hertz.

B. Service Entrance: Underground.

1.05 SUBMITTALS

A. Product Data: Submit product data for all components provided, showing electrical characteristics, material, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

B. Shop Drawings: Submit shop drawings and manufacturer's literature for circuit breaker disconnecting means, transformer rated meter base, and current transformer cabinet.

1.06 QUALITY ASSURANCE

A. Utility Company: Copper Valley Electric Association (CVEA).

B. Install service entrance in accordance with Utility Company's rules and regulations.

PART 2 PRODUCTS

2.01 METERING EQUIPMENT

A. Meter: Furnished and installed by the Utility Company.

B. Transformer Rated Meter Base: NEMA 3R, 13-terminal, transformer rated 20 amperes, 600 volts with mounting provisions to accommodate a covered test switch with test switch cover sealing provisions. The test switch mounting provisions shall accept a 10 pole covered test switch with a base dimension of 9.5 inches in width and a depth (the dimension from the rear edge of the test switch base to the top of the cover sealing stud) of no less than 3.375 inches. The lower cover of the meter socket shall seat fully with a covered test switch in place. Meet requirements of NEMA standards for watthour meter sockets-NEMA EI17-1978 (similar to EUSERC Drawing No. 339). The utility company will furnish and install the test switch and CT wiring.

C. Current Transformer Cabinet: NEMA 3R, UL 414 listed, minimum size as shown on the drawings. All current transformer cabinets and compartments shall have hinged front cover access to the current transformers. The hinged front cover shall be lockable and shall accept a padlock with a

shackle diameter of not less than 5/16 inch. Current transformer cabinets for services from 201 Amperes to 800 Amperes shall have ¼ x 20 mounting studs on the enclosure body spaced to accept a current transformer mounting base.

D. All removable covers for compartments containing un-metered conductors shall be sealable or lockable with sealable latches, stud and wing-nuts, sealing screws, or slot and tab devices. All top cover panels, side cover panels and rear cover panels providing access to un-metered conductors shall be secured in place with devices that cannot be loosened from the outside, screws or bolts requiring special tools for installation or removal are not acceptable alternates. No removable panel or cover requiring sealing or locking shall be located behind other panels, covers or doors except for rain-tight enclosures. Hinged cover panels shall be lockable on the side opposite the hinges. Hinged panel covers shall accept a padlock with a shackle diameter of not less than 5/16 inch. Stud and wing-nut sealing assemblies shall consist of a ¼ inch x 20 (minimum) stud and associated wing-nut, each drilled 0.0635 inch (minimum) for sealing purposes.

E. Current Transformer: Provided by Utility.

PART 3 EXECUTION

3.01 INSTALLATION

A. Make arrangements with Utility Company for disconnecting and reconnecting permanent electric service for the Project.

B. Underground: Modify and extend service entrance conduits to new building service entrance equipment. Utility Company will connect service lateral conductors to service entrance conductors.

C. Spray all exposed conductor sections and termination lugs with Scotch #1602 Ivi-Spray or approved equal red electrical sealer.

D. Meter sockets shall be installed with the centerline of the socket opening no more than 72 inches and no less than 60 inches above finished grade. The meter socket shall be installed with a minimum 10 inches of side clearance to each side of the socket. On current transformer rated meter sockets, the conduit connecting the meter socket and the current transformer cabinet shall be rigid steel or IMC and have a minimum diameter of 1 inch, shall not be longer than 25 feet, shall have no access points (junction boxes, condulets, etc.), and shall connect to the meter socket at a factory supplied knockout located below the test switch mounting provisions.

E. Wall mounted current transformer enclosures shall be mounted with the top of the cabinet no more than 96 inches above grade and the bottom of the cabinet no less than 16 inches above grade.

F. All service entrance equipment shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

END OF SECTION

SECTION 262416
PANELBOARDS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Lighting and Appliance Branch Circuit Panelboards.

1.03 RELATED SECTIONS

A. Section 260526 – Grounding and Bonding for Electrical Systems.

B. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCES

A. NEMA AB 1 - Molded Case Circuit Breakers.

B. NEMA PB 1 - Panelboards.

C. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

D. UL 50 – Enclosures for Electrical Equipment.

E. UL 67 – Panelboards.

F. UL 489 – Molded Case Circuit Breakers and Circuit Breaker Enclosures.

G. Federal Specification W-C-375B/Gen – Circuit Breakers, Molded Case, Branch Circuit and Service.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided which fall under this section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

C. Shop drawings: Submit shop drawings for each panelboard indicating features and device arrangement and size. Include outline and support point dimensions, voltage, main bus ampacity, and integrated short circuit ampere rating.

1.06 DELIVERY, STORAGE AND HANDLING

A. Store and protect products under provisions of General Conditions and Supplementary Conditions to the Contract.

B. Upon arrival at the site inspect equipment and report on any damage.

C. Handle carefully on site to avoid any damage to internal components, enclosures and finishes.

D. Store in a clean, dry environment. Maintain factory packaging and provide an additional heavy canvas or plastic cover to protect enclosures from dirt, water, construction debris and traffic.

1.07 OPERATION AND MAINTENANCE MATERIALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Provide product data and shop drawing information including replacement parts list.

C. Provide installation, operation and maintenance information per manufacturer.

D. Project record data: Submit final record panel schedules as hardcopy and in Microsoft Excel format.

1.08 WARRANTY

A. Manufacturer shall warrant specified equipment to be free of defects for a period of one year from the date of installation.

1.09 SPARE PARTS

A. Keys: Furnish 2 each to Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS - PANELBOARDS

A. Square D.

B. Substitutions: Under provisions of Division 01.

2.02 BRANCH CIRCUIT PANELBOARDS

A. Lighting and Appliance Branch Circuit Panelboards: NEMA PB 1; circuit breaker type.

B. Enclosure: NEMA PB 1; Type 1 or 3R as indicated on Drawings. Boxes shall be galvanized steel constructed in accordance with UL50 requirements. Interiors shall be field convertible for top or bottom incoming feed. Main lug interiors up to 400 amperes shall be field convertible to main breaker. Interior leveling provisions shall be provided for flush mounted applications.

C. Cabinet Size: 6 inches deep; 20 inches wide minimum.

D. Provide flush or surface cabinet front as indicated on the Drawings with door-in-door cover concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

E. Provide panelboards with copper bus, ratings as scheduled on Drawings. Provide one continuous bus bar per phase each. Panelboards shall have sequentially phased branch circuit connectors suitable for bolt-on branch circuit breakers. Bussing shall be fully rated.

F. Integrated Short Circuit Rating: Provide panelboards with short circuit ratings as shown on the Drawings. Minimum ratings shall be 10,000 amperes RMS symmetrical for 250 volt panelboards.

G. Main/Sub Feed Circuit Breakers: NEMA AB 1; Provide vertical mount main and/or sub feed circuit breaker in panelboards as shown on the drawings.

1. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free. Automatic tripping of the breaker shall be clearly indicated by the handle position. Contacts shall be nonwelding silver alloy and arc extinction shall be accomplished by means of DE-ION arc chutes.

2. Lugs shall be UL Listed to accept copper and aluminum conductors and shall be suitable for 90^{o}C rated wire, sized according to the 75^{o}C temperature rating per NEC Table 310-16. Lug body shall be bolted in place.

H. Branch Circuit Breakers: NEMA AB 1; Provide panelboards with bolt-on type thermal magnetic trip circuit breakers.

1. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free with common trip handle for all poles.

2. Lugs shall be UL Listed to accept copper and aluminum conductors and shall be suitable for 90^{o}C rated wire, sized according to the 75^{o}C temperature rating per NEC Table 310-16. Lug body shall be bolted in place.

3. Provide circuit breakers UL listed as Type SWD for lighting circuits.

4. Provide circuit breakers UL listed as type HACR for use with heating, air conditioning and refrigeration equipment.

5. Provide UL Class A ground fault interrupter circuit breakers where scheduled on Drawings.

2.03 PANELBOARD IDENTIFICATION

A. For each new panelboard and each existing panelboard where circuits are added or modified, provide typed schedule denoting each circuit load by the load type and final name and room number actually in use in the facility. Schedule shall not be typed with names shown on the Contract Drawings unless names are acceptable to the Owner.

B. Provide panel schedule in O&M manual for every new panelboard and every existing panelboard where circuits are added or modified.

C. Where more than one nominal voltage system is present on the premises, the conductor color-coding legend shall be permanently posted at each branch circuit and distribution panelboard per NEC requirements.

D. All panelboards shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

E. Provide electronic copies of all panel schedules in Microsoft Excel format, submitted with the O&M manuals.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1.

B. Height: 6 feet, 6 inches to top of panelboard.

C. Provide filler plates for unused spaces in panelboards.

D. Panel Schedules: Revise schedules to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.

B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

END OF SECTION

SECTION 262419
LOW VOLTAGE MOTOR CONTROL CENTERS

PART 1 GENERAL

1.01 SCOPE

A. The requirements of the contract, Division 26 applies to work in this section. Motor Control Centers as specified and as shown on the contract drawings shall be furnished and installed by the contractor.

B. Section 409010 Control Strategies Descriptions, Section 409100 Instrumentation, Control and Telemetry Systems, and the Instrumentation Drawing sheets supplement and provide the basis of required programming within the MCC. The manufacturer or its designated field service group shall program, test, commission and certify operation of the MCC equipment.

1.02 RELATED DOCUMENTS

A. Related sections include the following:

1. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.
2. Section 260529 – Grounding and Bonding for Electrical Systems.
3. Section 260548 – Vibration and Seismic Controls for Electrical Systems.
4. Section 260553 – Identification for Electrical Systems.
5. Section 262923 – Variable-Frequency Drives.
6. Section 409010 – Control Strategies Descriptions.
7. Section 409100 – Instrumentation, Control and Telemetry Systems.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's printed product data.

B. Documents: Submit shop drawings for approval. Documents shall include all dimensions, weights, electrical ratings, wiring diagrams and required clearances.

1.04 RELATED STANDARDS

A. The Motor Control Center shall be manufactured and tested according to the latest applicable standards of the following agencies:

1. UL 845 – Motor Control Centers
2. NEMA ICS 18-2001 – Motor Control Centers
3. NEMA ICS 1-2001 – Industrial Control and Systems: General Requirements
4. NEMA ICS 2.3-2008 – Industrial Control and Systems: Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers

B. Manufacturer Seismic Qualification: The low voltage motor control center(s) shall meet and be certified to seismic requirements specified in the IBC 2012 International Building Code.

1. The low voltage motor control center(s) shall be complaint with IBC 2012 parameters:
   a. Building Occupancy Category (as defined in Table 1.1 from ASCE 2010): IV
   b. Seismic Design Category: D
   c. Site Class: C – Very dense soil and soft rock as defined in IBC 2006 Table 1613.5.2 Site Class Definitions
   d. Ip – Importance Factor: 1.5 – Components must function after an earthquake for life safety purposes (Building Occupancy Code IV).
   e. Ss: Mapped Spectral Accelerations for Short Periods at 0.2 seconds – 1.4g
   f. Sds – 5% Damped Design Spectral Response Accelerations for Short Periods at 0.2 seconds – 0.93g

g. z/h – Height factor ratio: 0.083. Note: Ratio is a calculated value equal to the floor the gear is installed on divided by 12. A 6th floor installation is a 0.5 value. A basement or ground floor installation is a 0.0 value.

1.05 QUALITY ASSURANCE

A. Manufacturer: For equipment required for the work of this section, provide products which are the responsibility of one manufacturer.

B. Manufacturer shall have had produced similar electrical equipment for a minimum of 5 years.

C. Manufacturer shall be ISO 9001; 2008 certified.

1.06 DELIVERY, STORAGE AND HANDLING

A. Handle and store equipment in accordance with manufacturer's Installation and Maintenance Manual. One (1) copy of this document shall be provided with the equipment at the time of shipment.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design is Siemens Tiastar for ultimate compatibility with the existing City of Valdez system components.

B. Alternative "or equal" equipment shall be submitted via variance request for Engineer and City of Valdez approval prior to award.

2.02 GENERAL REQUIREMENTS

A. STRUCTURES

1. The enclosure shall be NEMA Type 1A with gasketed doors. Vertical sections shall be constructed with steel divider sheet assemblies formed or otherwise fabricated to eliminate open framework between adjacent sections or full-length bolted-on side sheet assemblies at the ends of the MCC(s).
2. Vertical sections shall be 90" high excluding mounting sills, 20" wide and 20" deep for front mounting of units.
3. Vertical structures shall be divided into six (6) 12" space factors and shall accommodate six (6) full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters. MCC unit sizes shall be multiples of 1/2 space factor (6"). The vertical structures shall accommodate 6" high density and dual mounted units.
4. Back-to-back, front and rear unit mounting, structures shall be 21" deep maximum and shall accommodate 12 full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters per section.
5. Each standard 20" and 24" wide structure shall be supplied with a vertical wireway. 4" wide wireways shall be installed on 20" wide structures and 8" wide wireways on 24" wide structures. Wireways shall be completely isolated from all power busses. The rear surface of the vertical wireway shall be painted white. A minimum of three (3) formed wire cable supports, extending the full depth of the vertical wireway shall be supplied in each vertical section. A separate hinged door shall cover the vertical wireway.
6. Each standard structure shall be supplied with a 12 inch top and six (6) inch bottom horizontal wireway that are continuous for the entire length of the MCC. The minimum horizontal wireway opening between sections is 40 square inches for the top and 30 square inches for the bottom horizontal wireway. A hinged door shall be supplied to cover the top horizontal wireway.
7. Doors are to be hinged in a manner that allows for the removal of individual doors without the removal of any door above or below. Unit doors shall be hinged on the left and vertical wireway doors on the right for unobstructed access to the units and associated vertical wireway. All doors shall be mounted on removable pin-type hinges and secured with steel quarter-turn, indicating type fasteners.

8. Wireways shall be completely isolated from bus compartments by suitable barriers. Sliding barriers between the horizontal bus and top horizontal wireway are not acceptable.
9. Removable top cover plates shall be provided for conduit entry to the top horizontal wireway and shall provide a minimum of 116 square inches of area for conduit location. Top cover plates shall be fabricated from 13 gauge steel.
10. All MCC structures shall be supplied with 1-1/8” high X 3” wide base channel sills that are continuous for the entire length of the shipping split. The base channel sills shall be fabricated of 7 gauge steel and shall be suitable for grouting the base channel sills in place, welding to leveling plates or securing to the floor with 1/2” anchor bolts. MCC structures shall be supplied with reversible bottom end cover plates to cover the bottom horizontal wireway and ends of the base channel sills. The bottom end cover plates shall be factory installed to cover the ends of the base channel sills to prevent entrance of dirt and rodents into the MCC when installed flush on the floor and shall be removable to expose the ends of the base channel sills if they are to be grouted into the floor.
11. A removable, full length lifting angle shall be provided for each shipping split of each MCC. The lifting angle shall be bolted to each side sheet or divider sheet of the shipping split to evenly distribute the weight of the MCC during lifting.
12. MCC’s shall be assembled in such a manner that it is not necessary to have rear accessibility to remove any internal devices or components.

B. BUSSING

1. The main horizontal bus shall be
    a. Tin plated copper rated at 400 amperes with a conductivity rating of 100% IACS. The horizontal bus bars shall be fully sized to carry 100% of the rated current the entire length of the MCC. Horizontal bus bars shall be mounted edge wise and located at the top of the MCC. Tapered horizontal bus is not acceptable.
    b. All power bus shall be braced to withstand a fault current of 42,000 RMS symmetrical amperes.
    c. The entire horizontal bus assembly must be located behind the top horizontal wireway at any amperage. Horizontal bus bars located behind usable unit space are not acceptable.
    d. The horizontal bus shall be isolated from the top horizontal wireway by a clear, flexible, polycarbonate, barrier allowing visual inspection of the horizontal bus without removing any hardware.
2. The vertical bus:
    a. Shall be rated 300 amperes. Vertical bus bars shall be fabricated of tin plated solid copper bars with a conductivity rating of 100% IACS.
    b. The vertical bus assembly shall be isolated from the unit mounting space by means of a full height steel barrier. Provisions shall be made to close off unused unit stab openings in the vertical bus barrier with removable covers.
3. All bus ratings are to be based on a maximum temperature rise of 65ºC over a 40ºC ambient temperature.
4. Horizontal to vertical bus and horizontal bus splice connections shall be made with two (2) 3/8” grade 5 bolts and conical washers at each connection point. All connecting hardware shall be designed to be tightened from the front of the MCC without applying any tools to the rear of the connection.
5. The horizontal ground bus shall be rated 300 amp copper.
6. The neutral bus connection shall be rated 400 amp copper.

C. UNITS

1. Plug-in units shall connect to the vertical bus by means of self-aligning, tin plated copper stab-on connectors provided with spring steel back-up springs to insure positive connection to the vertical bus.
2. When vertical ground bus is specified, plug-in units shall include a ground stab which engages the vertical ground bus before the power stabs engage the vertical bus when the unit is inserted into the structure. When the plug-in unit is withdrawn from the vertical bus, the vertical ground stab shall release after the power stabs.
3. The interior of all MCC units shall be painted white, including unit top and bottom plates or isolation barriers.
4. All plug-in units 12” tall and larger will include two (2) auxiliary handles to aid in installation, removal and transporting plug-in units.
5. All plug-in units will include a racking mechanism to assure full engagement with the stab-on connectors with the vertical bus.
6. Plug-in units shall be provided with interference mechanism type draw-out to prevent complete removal of the plug-in unit from the structure in one motion. The interference mechanism shall also provide clear indication when the plug-in unit has been withdrawn to the “TEST” position.
7. A mechanical interlock shall be supplied on all plug-in units to prevent insertion or removal of a unit from the structure when the unit operator handle is in the ON position. This interlock may not be defeated.
8. Each 12” tall and larger plug-in unit shall be secured in the structure by two (2) readily accessible devices, one of which is tool operated. These devices shall be located at the front of the unit.
9. Plug-in units with NEMA Type B or C wiring shall be supplied with unit terminal block mounted within the unit, adjacent to the vertical wireway. For non-high density units, the terminal blocks shall be mounted on a movable bracket that maintains the terminals inside the unit structure for normal operation and pivots into the vertical wireway exposing the terminals for wiring, test and maintenance.
10. All plug-in units shall include a positive means of grounding the unit to the structure at all times.
11. The MCC unit disconnect operator shall operate in a vertical, up-down, plane. 6” units shall operate in a horizontal motion. All unit disconnects shall remain engaged with the disconnect device at all times, regardless of the unit door position. The operating handles shall be interlocked with the unit door so that the door can neither be opened with the disconnect device in the ON position, nor can the disconnect device be turned ON with the unit door open except by operation of a defeater mechanism. Indication of the disconnect device shall be clearly indicated by the position of the operating handle. When applied with circuit breaker devices, the handle shall also provide clear indication of a circuit breaker trip.
12. When pilot lights, push buttons or sector switches are specified. The devices shall be mounted in a formed metal device panel that is capable of accepting four (4) such devices in any combination. The device panel shall be secured to the unit door for normal operation, or mounted on the plug-in unit as required for unit removal and bench testing.
13. Pilot devices shall be heavy duty, oil tight 30mm devices with a NEMA 4 rating. Pilot device contacts shall be rated at 10A, 600 VAC (NEMA A600). The pilot device bodies shall be fabricated from metal.
14. Unit identification nameplate shall be provided for each unit. Nameplates shall be a black surface with white core. Engraving shall cut through the black surface exposing white lettering of the unit designation. Nameplates shall be 1” tall by 3 1/2” wide. Adhesives or glues are not an acceptable means of mounting unit nameplates.

D. WIRING

1. The wiring shall be NEMA Class 1.
2. All internal wiring shall be labeled using heat shrink type material.

E. AUTOMATIC TRANSFER SWITCH

1. Provide Automatic Transfer Switch (ATS) section integral to MCC.
2. Ratings:
   a. Amperage as shown on the Drawings.
   b. Three switched poles, plus a solid neutral bus with lugs.
   c. Combination load inrush rating.
   d. 250% interrupting capacity.
   e. 42,000A Withstand Current Rating.
3. Product Options and Features:
   a. Microprocessor controls with digital display for status information.
   b. Transfer switch voltage sensors shall be close differential type providing source vailability information to the control system based upon the following functions:
      1.) Monitoring all phases of the normal source for under voltage conditions (adjustable for pickup in a range of 85 to 98% of the normal voltage leave and dropout in a range of 75 to 98% of normal voltage level).
      2.) Monitoring all phases of the standby source for under voltage conditions (adjustable for pickup in a range of 85 to 98% of the normal voltage leave and dropout in a range of 75 to 98% of pickup voltage level).
      3.) Monitoring all phases of the normal and standby sources for voltage imbalance.
      4.) Monitoring all phases of the normal and standby sources for loss of a single phase.
      5.) Monitoring all phases of the normal and standby sources for phase rotation.
      6.) Monitoring all phases of the normal and standby sources for over voltage conditions (adjustable for dropout over a range of 105 to 135% or normal voltage and pickup at 95 – 99% of dropout voltage level).
      7.) Monitoring of all phases of the normal and standby sources for over or under frequency conditions.
   c. The transfer switch shall incorporate adjustable time delays for generator set start (adjustable in a range from 0 – 15 seconds, set at 5 seconds); transfer (adjustable in a range from 0 – 120 seconds, set at 3 seconds); retransfer (adjustable in a range from 0 – 30 minutes, set at 5 minutes); and generator stop (cool down)(adjustable in a range of 0 – 30 minutes, set at 10 minutes).
   d. The transfer switch shall provide an isolated relay contact for starting of the generator set. The relay shall be normally held open, and close to start the generator set. Output contacts shall be form C.
   e. Provide one set of Form C auxiliary contacts on both sides operated by transfer switch position, rated 10 Amps, 250 VAC.
   f. Generator set exercise (test) with load mode: The control system shall be configurable to test the generator set under load. In this mode the transfer switch shall control the generator set in the following sequence:
      1.) Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program or when manually initiated by the operator.

2.) When the control system senses the generator set at rated voltage and frequency it shall operate to connect the load to the generator set.

3.) The generator set shall operate connected to the load for the duration of the exercise period. If the generator set fails during this period the transfer switch shall automatically reconnect the load to the normal source.

4.) At the completion of the exercise period the transfer switch shall operate to connect the load to the normal source.

5.) The transfer switch shall operate the generator set unloaded for the programmed cool down period and then remove the start signal from the generator set. If the normal source fails at any time when the generator set is running the transfer switch shall immediately connect the load to the generator set.

g. Generator set exercise (test) without load mode: The control system shall be configurable to test the generator set without transfer switch load connected. In this mode the transfer switch shall control the generator set in the following sequence:

1.) Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program or when manually initiated by the operator.

2.) When the control system senses the generator set at rated voltage and frequency it shall operate the generator set loaded by the automatic load bank only for the duration of the exercise period.

3.) At the completion of the exercise period the transfer switch shall remove the start signal from the generator set and shut the generator down. If the normal source fails at any time when the generator set is running the transfer switch shall immediately connect the load to the generator set.

h. Operator Panel: Provide with a control panel to allow the operator to view the status and control the operation of the transfer switch. The operator panel shall be a sealed membrane panel rated NEMA 3R that is permanently labeled for switch and control functions. The operator panel shall be provided with the following features and capabilities:

1.) High intensity LED lamps to indicate the source that the load is connected to and which sources are available. Source available LED indicators shall operate from the control microprocessor to indicate the true condition of the sources as sensed by the control.

2.) High intensity LED lamps to indicate that the transfer switch in “Not in Auto” and “Test/Exercise Active” to indicate that the control system is testing or exercising the generator set.

3.) “OVERIDE” pushbutton to cause the transfer switch to bypass any active time delays for start, transfer, and retransfer and immediately proceed with its next logical operation.

4.) “TEST” pushbutton to initiate a preprogrammed test sequence for the generator set and transfer switch. The transfer switch shall be programmable for test with load or test without load.

5.) “REST/LAMP TEST” pushbutton that will clear any faults present in the control or simultaneously test all lamps on the panel by lighting them.

6.) The control system shall continuously log information on the number of hours each source has been connected to the load, the number of times transferred, and the total number of times each source has failed. This information shall be available via the operator display panel.

7.) Alphanumeric display panel with pushbutton navigation to display all source and load information to include voltage, frequency, current, power, power factor, etc.

8.) Display panel shall allow user adjustments after entering an access code to change electrical parameters, set points, clock, load sequence, with and without load test times, etc.

9.) Display panel shall display service and fault history.

F. VARIABLE FREQUENCY DRIVES

1. Provide Variable Frequency Drive (VFD) sections with line side circuit breaker and disconnecting means.
2. VFDs shall be provided integral to the MCC meeting the requirements of Section 262923.

G. FEEDERS

1. Feeder disconnects shall be Siemens thermal-magnetic circuit breaker.

H. TRANSFORMERS

1. Provide transformer with primary overcurrent protection integral to MCC section in accordance with the Drawings.
2. Dry type transformers shall meet ANSI/NEMA ST 20 for factory-assembled, air cooled dry type transformers. Sized in accordance with the Drawings.

I. PANELBOARDS

1. Provide panelboard integral to MCC section in accordance with the Drawings.
2. Panelboards shall meet the applicable requirements of Section 262416.

2.03 NETWORK

A. The Siemens Smart Motor Control Center shall be connected to the control system via the ProfiNet switch located in the PLC enclosure.

B. Siemens tiastar Smart Motor Control Center is supplied with ***ProfiNet.*** The network shall be installed at the factory to provide simplify commissioning on site.

C. All programmable devices shall be configured per sheet I3 of the project drawings for interoperability of the MCC with the control system.

2.04 METERING

A. Multifunction digital-metering monitors shall be, microprocessor-based unit suitable for three or four wire systems. Units shall communicate via:

1. ProfiNet module

B. The meter shall mounted on the door and shall meter at the Main Lugs

C. Metering Equipment

1. Provide a multi-function, high accuracy digital power metering instrumentation module equipped with LCD display. The power metering module shall provide simultaneous measurements for current, voltage and power parameters. Power meter shall be Siemens type PAC4200 equipped with a communications port for Industrial Ethernet connection.

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation shall be per the manufacturer's recommendations, written instructions, final shop drawings, and contract documents. Installation shall be coordinated with adjacent work to ensure proper sequence of construction, clearances and support.

B. Provide concrete housekeeping pad below MCC in accordance with the Civil/Structural Drawings.

C. The Motor Control Center shall not be placed in hazardous locations. The location shall be well ventilated and free from humidity, dust, and dirt. The temperature shall be no less than 32°F and no greater than 104°F. Protection shall be provided to prevent moisture from entering the enclosure.

3.02 TESTING

A. Perform factory and installation tests in accordance with applicable NEMA and UL requirements.

B. Coordinate onsite testing activities with VFD and Generator manufacturer representatives, as applicable, for a complete and functional test of the MCC.

C. Provide onsite instruction for Owner personnel.

3.03 WARRANTY

A. Equipment manufacturer warrants that all goods supplied shall be free of non-conformities in workmanship and materials for one year from date of initial operation, and not more than eighteen months from date of shipment.

END OF SECTION

SECTION 262726
WIRING DEVICES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Wall Switches.

B. Receptacles.

C. Device Plates and Box Covers.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 - General Requirements and Section 260500 – Common Work Results for Electrical.

B. Section 260526 – Grounding and Bonding for Electrical Systems.

C. Section 260533 – Raceway and Boxes for Electrical Systems.

D. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCE STANDARDS

A. FS W-C-596 – Federal Specification for Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. FS W-S-896 – Federal Specification for Switches, Toggle (Toggle and Lock), Flush Mounted.

C. NEMA WD 1 - General Color Requirements for Wiring Devices.

D. ANSI/NEMA WD 6 – Wiring Devices – Dimensional Requirement.

E. UL 20 – General-Use Snap Switches.

F. UL 498 - Attachment Plugs and Receptacles.

G. UL 943 – Ground-Fault-Circuit-Interrupters.

1.05 SUBMITTALS

A. Submit information under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided that are specified in this section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

1.06 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations of new Reefer Pedestals on the project record drawings. Submit under Section 260500.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - WALL SWITCHES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Arrow Hart

E. Substitutions: Under provisions of Division 01.

2.02 WALL SWITCHES

A. Wall Switches for Lighting Circuits: UL 20; NEMA WD 1; and Federal Specification FS W-S-896 AC industrial grade snap switch with toggle handle, rated 20 amperes and 120-277 volts AC. Handle: White nylon. Provide single-pole, 3-way, or 4-way switches as indicated on Plans.

B. Pilot Light Type: UL 20; NEMA WD 1; and Federal Specification FS W-S-896 AC industrial grade snap switch, rated 20 amperes and 120-277 volts AC. Handle: Red pilot light toggle (illuminated when load is on). Provide single pole unless otherwise indicated on Plans.

2.03 ACCEPTABLE MANUFACTURERS - RECEPTACLES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Arrow Hart

E. Substitutions: Under provisions of Division 01.

2.04 RECEPTACLES

A. Convenience and Straight-blade Receptacles: UL 498, NEMA WD 1 and Federal Specification FS W-C-596 industrial grade receptacle.

B. Locking-Blade Receptacles: NEMA WD 5.

C. Convenience Receptacle Configuration: NEMA WD 1; Type 5-20R, white [ivory] nylon face.

D. Specific-use Receptacle Configuration: NEMA WD 1 or WD 5; type as indicated on Drawings, black phenolic face.

E. GFCI Receptacles: 20A, duplex convenience receptacle with integral class ‘A’ ground fault current interrupter, LED indicator lamp and integral lockout.

F. Weather-Resistant Receptacles: Listed to the weather-resistant supplement of UL498 and complying with the requirements of NEC 406.9.

2.05 DEVICE PLATES

A. Weatherproof Cover Plate: UL listed, cast aluminum, hinged outlet cover/enclosure, with gasket between the enclosure and the mounting surface, suitable for wet locations while in use and identified as “Extra Duty” per NEC 406.9 (B)(1).

B. Exposed Work Cover Plate: ½ inch raised, square, pressed, galvanized or cadmium plated steel cover plate supporting devices independent of the outlet box.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install wall switches 48 inches above floor, OFF position down.

B. Unless otherwise noted install wall switches within 6 inches of the door jamb on the strike side.

C. Install convenience receptacles 18 inches above floor, 4 inches above counters or backsplash, grounding pole on bottom.

D. Install specific-use receptacles at heights shown on Contract Drawings.

E. Unless otherwise noted, mounting heights are for finished floor to center line of outlet.

F. Drill opening for poke-through fitting installation in accordance with manufacturer's instructions.

G. Install decorative plates on switch, receptacle, and blank outlets in finished areas. Use midsize or jumbo plates for outlets installed in masonry walls, where required to cover up imperfections in the wall opening.

H. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

I. Install devices and wall plates flush and level.

J. Ground receptacles to boxes with a grounding wire. Grounding through the yoke or screw contact is not an acceptable alternate to the ground wire.

K. Install circuit label on each receptacle and light switch in accordance with Section 260553.

END OF SECTION

SECTION 262816
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Enclosed Circuit Breakers.

B. Enclosed Manual Motor Starters.

C. Enclosed Combination Magnetic Motor Starters.

D. Enclosures.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements and Section 260500 – Common Work Results for Electrical.

B. Division 23 – Heating, Ventilating, and Air Conditioning (HVAC).

C. Section 260526 – Grounding and Bonding for Electrical Systems.

D. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

E. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCE STANDARDS

A. ANSI/UL 98 Enclosed and Dead Front Switches.

B. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

C. UL 489 – Molded Case Circuit Breakers and Circuit Breaker Enclosures.

D. NEMA AB-1 – Molded Case Circuit Breakers and Molded Case Switches.

E. NEMA IC 2 – Industrial Control Devices, Controllers, and Assemblies.

F. NEMA ICS 6 – Enclosures for Industrial Controls and Systems.

G. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

H. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.05 SUBMITTALS

A. Submit information under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided, showing electrical characteristics, material, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

C. Shop Drawings: Submit shop drawings include outline drawings with dimensions, and equipment ratings for voltage, capacity, horsepower, and short circuit current interrupting rating.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Square D.

B. Siemens.

C. Cutler Hammer.

D. Substitutions: Under provisions of Division 01.

2.02 ENCLOSED CIRCUIT BREAKERS

A. Molded case circuit breakers shall provide circuit overcurrent protection with inverse time and instantaneous tripping characteristics.

B. All circuit breakers shall have a quick-make, quick break over center toggle type mechanism and the handle mechanism shall be trip free to prevent holding contacts closed against a short circuit or sustained overload. All circuit breaker handles shall assume a position between "ON" and "OFF" when tripped automatically. Multiple pole circuit breakers shall be common trip such that an overload or short circuit on any one pole will result in all poles opening simultaneously. Arc extinction is to be accomplished by magnetic arc chutes. All ratings are to be clearly visible.

C. Circuit breakers shall have a minimum symmetrical interrupting capacity as indicated on the drawings. The interrupting rating of the circuit breakers shall be at least equal to the available short circuit current at the line terminals of the circuit breaker. Where indicated or allowed, circuit breakers shall be UL listed for series application.

D. Where indicated, circuit breakers shall be current limiting. Current limiting circuit breakers shall limit the let-through I^2t to a value less than the I^2t of one-half cycle wave of the symmetrical prospective current without any fusible elements when operating within its current range.

E. Where combination motor control is indicated on the drawings, instantaneous only circuit breakers shall be furnished as the means to provide short circuit protection. The magnetic trip settings for each phase shall be individually adjustable from the front of each circuit breaker.

F. Unless otherwise noted on the drawings, all circuit breakers 250A ampere frame and below shall have thermal-magnetic trip units, with inverse time-current characteristics.

1. Automatic operation of all circuit breakers shall be obtained by means of thermal-magnetic tripping devices located in each pole providing inverse time delay and instantaneous circuit protection. Instantaneous pick-up settings for each phase shall be individually adjustable on all frames 250A and above.

2. Circuit breakers shall be ambient compensating in that, as the ambient temperature increases over 40º C, the circuit breaker automatically derates itself to better protect its associated conductor.

3. Circuit breakers from 250 to 2000A frames shall have thermal magnetic interchangeable trip units. When reverse feed is indicated on the drawings, in accordance with UL, circuit breakers with sealed trip units shall be supplied.

G. Circuit breaker enclosure assembly shall be listed as service entrance rated.

2.03 MANUAL MOTOR STARTERS

A. Fractional Horsepower Manual Starter: NEMA ICS 2; AC general-purpose Class A manually operated, number of poles as required by the load served, full-voltage controller for fractional horsepower induction motors, with thermal overload unit, red pilot light, and toggle operator.

2.04 COMBINATION MAGNETIC MOTOR STARTERS

A. Magnetic Motor Starters: NEMA ICS 2; AC general-purpose Class A magnetic controller for induction motors rated in horsepower.

B. Full Voltage Starting: Non-reversing type.

C. Coil Operating Voltage: 120 volts, 60 Hertz.

D. Size: NEMA ICS 2; size as required by the load served.

E. Overload Relay: NEMA ICS 2; bimetal.

F. Combination Motor Starters: Combine motor starters with [non-fusible switch] [fusible switch] disconnect in common enclosure.

G. Auxiliary Contacts: NEMA ICS 2; two field convertible contacts in addition to seal-in contact.

H. Pushbuttons: NEMA ICS 2; START/STOP in front cover.

I. Indicating Lights: NEMA ICS 2; RUN: red LED light in front cover.

J. Selector Switches: NEMA ICS 2; HAND/OFF/AUTO, in front cover.

K. Control Power Transformers: 120 volt secondary, VA capacity as required by the load served in each motor starter.

2.05 ENCLOSURES AND ACCESSORIES

A. Enclosure materials:

1. Exterior Locations – NEMA ICS 6; Type 304 or 316 Stainless Steel, NEMA 3R rating (minimum).

2. Interior Non-Hazardous Locations – NEMA ICS 6; NEMA 1 or NEMA 12 rating.

3. Interior Hazardous Locations – NEMA ICS 6; NEMA 7,9 rating, Suitable for Class I, Division 2 locations as shown on the Drawings.

B. Unless otherwise noted, mechanical lugs shall be provided with all Molded Case Breakers.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install enclosed switches, circuit breakers, and motor starters were indicated on Drawings, and where required for NEC required disconnect of equipment specified under other divisions, but installed under Division 26.

B. Select and install heater elements in motor starters to match installed motor characteristics.

C. Provide neatly typed label inside each motor starter enclosure door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

D. Check and correct the rotation of all motors after final connections are made.

E. Ground and bond enclosures per Section 260526.

F. Install engraved nameplates per Section 260553.

G. All enclosed switches, circuit breakers, and motor starters shall have signage for arc hazard installed.

END OF SECTION

SECTION 262923
VARIABLE FREQUENCY MOTOR CONTROLLERS

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide complete simplex type Variable Frequency Drive (VFD) units and appurtenances including drive reactors, DC chokes, harmonic filters, enclosures, and certain auxiliary items, as indicated and as specified, to provide a complete operating system.

B. The Contractor and manufacturer of the driven equipment shall be responsible for the integration of VFD units with the driven equipment. VFD manufacturer is responsible for reviewing pump and motor data and coordinating with those manufacturers to ensure proper equipment selection. Installation of the units shall be the responsibility of the Motor Control Center manufacturer in accordance with Section 262419.

1.02 RELATED SECTIONS

A. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

B. Section 262419 – Low-Voltage Motor Control Centers.

1.03 REFERENCES

A. American Society for Testing and Materials International (ASTM):

1. D178: Standard Specification for Rubber Insulating Matting

B. National Electrical Manufacturers Association (NEMA):

1. ICS 2: Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 Volts.
2. AB 1: Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures.
3. KS 1: Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
4. MG 1: Motors and Generators.

C. National Fire Protection Association (NFPA):

1. 70: National Electrical Code (NEC).

D. Underwriter's Laboratories Inc. (UL):

1. 489: Molded-Case Breakers, Molded-Case Switches, and Circuit Breaker Enclosures.
2. 508: Electrical Industrial Control Equipment.

1.04 SEISMIC DESIGN REQUIREMENTS

A. Conform to the requirements within Section 260548.

1.05 SUBMITTALS

A. Submit shop drawings and manufacturers' product data in accordance with the requirements of Section 260500.

B. Submit all materials required for coordination with motor and driven equipment manufacturers promptly.

C. Complete list of equipment and materials, including manufacturer’s descriptive and technical literature, catalog cuts, and installation instructions for all major components.

D. Complete, project-specific wiring and schematic diagrams for the equipment furnished. Each wiring diagram shall be legible and not reduced from the original design drafted format. Provide a list of equipment on each wiring diagram for which it is applicable.

E. Panel layout and front view drawings.

F. Time versus current curves for protection devices.

G. Data sheets for all devices provided as part of the assembly.

H. All other details required to demonstrate that system has been coordinated and will properly function as a unit.

I. Provide data to verify that drives can be used for motor lead lengths up to 100 feet (30 meters) without output filters. Include information from the VFD manufacturer or output filter or reactor manufacturer (if required) stating that the motor terminal voltage limitations as defined by NEMA Standard MG 1, Part 31 are met. For VFDs located more than a cable length of 100 feet from the motor load, provide drawings which include information demonstrating that an output filter or reactor is included within the VFD.

J. Provide enclosure drawings and details showing all dimensions and construction details.

K. Submit harmonic analysis report for accepteance by Engineer prior to release of drives for fabrication. Analysis will show compliance with harmonics requirements specified herein including all voltages and current harmonics up to the 49th.

1. Submit voltage THD frequency scan of each type of VFD supplied for use in field testing.

L. Submit information relative to location and expertise of local service office and personnel.

M. Submit a Statement of Compliance indicating conformance to the Seismic Requirements specified. Certificate shall be signed and sealed by a Professional Structural Engineer holding current registration in the state for work of this project.

N. For informational purposes only, provide installation and anchoring details to meet earthquake requirements as specified and indicated on structural drawings.

O. For informational purposes only, submit manufacturer’s printed installation instructions.

P. Spare Parts Data: Submit a list of spare parts for the equipment specified.

Q. Operating and Maintenance Instruction Manuals:

1. Furnish:

a. Operating instruction manuals outlining step-by-step procedures required for system startup and operation.

b. Manufacturer's name, model number, service manual parts list.

c. Brief description of equipment and basic operating features.

d. Maintenance instruction manuals outlining maintenance procedures.

e. Troubleshooting guide listing possible breakdown and repairs.

f. Point-to-point connection wiring diagram for the system.

R. Performance Test Reports: Upon completion of installed system, submit in electronic .pdf form all shop and field tests performed to prove compliance with specified performance criteria.Submit copy of Pump, Motor and VFD Statement of Compliance Coordinate Certificate.

1.06 QUALITY ASSURANCE:

A. The Contractor shall ensure proper coordination and compatibility of motors specified herein with motor control equipment and the driven equipment as specified in Sections pertaining to the driven equipment.

B. Provide variable frequency drives in accordance with UL 508A, supplement SB, and Article 409 of the National Electrical Code (NEC). All VFD units shall be provided with a UL label.

C. Ensure that conduit size and wire quantity, size, and type are suitable for the equipment supplied. Coordinate all design information with the Electrical Contractor. Review the proper installation of each type of VFD unit with the equipment supplier prior to installation.

1. Services of Service Engineer, specifically trained on type of equipment specified. Person-day requirements listed exclusive of travel time.

a. Assist in location of devices, methods of mounting, field erection, etc.

(1) 1 person-day.

b. Functional Completion Testing, Startup, Commissioning, and Training for a maximum of six members of the Owner's staff at the facility site from the startup/testing service Engineer at the end of the start-up service.

(2) person-day.

c. Service-inspections during first year of operation, for use at Owner's request, and exclusive of repair, malfunction or other trouble-shooting service calls:

(1) 1 person-day.

d. Person-day is defined as one 8-hour day, excluding travel time.

1.07 DELIVERY, STORAGE AND HANDLING:

A. Shipping:

1. Ship equipment and materials, except where partial disassembly is required by transportation regulations or for protection, complete with identification and quantity of items.
2. Pack spare parts in containers bearing labels clearly designating contents and pieces of equipment for which intended.
3. Deliver spare parts after installation but as specified before start-up of drives. Deliver to Owner after completion of work.

B. Storage:

1. Inspect and inventory items upon delivery to site.
2. Store and safeguard equipment, material and spare parts.

a. If the equipment cannot be placed into service after its receipt, store in a closed building or structure, in a clean, dry and ventilated area free from temperature, dirt and moisture extremes. Acceptable storage temperatures are from 32 degrees F to 104 degrees F with temporary heaters provided within enclosures to prevent condensation. Provide heavy plastic envelope directly over motor control center to protect against dust, dirt, and moisture. Provide lifting angles outside of envelope.

1.08 WARRANTY AND SERVICE

A. Guarantee components, parts, and assemblies supplied by manufacturer against defects in materials and workmanship for a period of 12 months after turning the equipment over to the Owner, and in this time period include onsite, parts and labor warranty. All labor to be performed by local factory trained service engineers.

B. Ensure that equipment manufacturer has local branch office staff with trained, full-time employees who are capable of performing testing, inspecting, repair, and maintenance services.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. All VFD units shall be the product of a single Manufacturer having at least 5 years commercial experience in the manufacture, operation and servicing of equipment of type, size, quality, performance, and reliability equal to that specified.

B. Variable Frequency Drive Units:

1. Eaton Corporation, Electric Drives Division.
2. Square D Company.
3. Siemens Inc.
4. Toshiba Industrial.
5. Or acceptable equivalent product.

C. VFD Input Filters and Output Filters/Reactors:

1. Trans-Coil, Inc.
2. MTE Corporation.
3. Power Quality International.
4. Or acceptable equivalent product.

2.02 HARMONIC SUPPRESSION EQUIPMENT

A. VFDs shall meet the requirments outlined in IEEE 519 for each individual unit and total harmonic current distortion and as specified herein. Total Demand Distortion (TDD) as defined in IEEE 519, caused by simultaneous operation of the VFDs, shall not exceed 5% at point of common coupling (PCC). If needed, provide harmonic filters as specified to meet these requirements.

B. Current distortion at the PCC will be in accordance with Table 262923-1.

Table 262923-1
Maximum Harmonic Current Distortion In Percent II Odd Harmonic

Ratio	5 to 9	11 to 15	17 to 21	23 to 33	35 +	TDD
Less than 20	4.0	2.0	1.5	0.6	0.3	5.0
20 to 50	7.0	3.5	2.5	1.0	0.5	8.0
50 to 100	10.0	4.5	4.0	1.5	0.7	12.0
100 to 1000	12.0	5.5	5.0	2.0	1.0	15.0
1000 +	15.0	7.0	6.0	2.5	1.4	20.0

Notes:

1. Even harmonics are limited to 25 percent of odd harmonics.
2. DC offset distortions not allowed.
3. Ratio = Isc/IL where:

   Isc = Maximum short circuit current at PCC.

   IL = Maximum demand load current at PCC (fundamental frequency component)

C. For each VFD unit, provide a harmonic analysis study at the PCC based on pre-submittal data.

1. The Contractor shall supply the following pre-submittal information to the VFD supplier to complete the harmonics study.
   a. Available fault current information from the electric utility and upstream transformer data.
   b. Distribution transformer sizes and impedances, if any.
   c. VFD input line reactor and/or isolation transformer sizes and impedances from the utility source to the VFD units.
   d. Conductor information between transformer secondary and generator terminals to the distribution buses and VFDs.
   e. Generator kW, impedance, subtransient reactance, generator constants for the condition when the electrical system is powered from the generator.
2. The results of the harmonics study shall verify that the total contribution of VFDs to system harmonic distortion complies with IEEE 519 and is within the limits of Table 262923-1. The study shall specify additional equipment required (e.g., filters) at each harmonic where harmonic reduction is required to insure compliance.

D. The study shall consider the following conditions:

1. The electrical system shall be powered by the electric utility, case 1, or solely by local generation, case 2.

2. The study shall include an explanation of all assumptions, sources of data, methodologies and formulas used in the study and a summary of the study results.
3. The Contractor shall supply all equipment required as a result of the final accepted harmonics study at no additional cost to the Owner.

2.03 PROVISIONS

A. Service Conditions:

1. Ambient Temperature Range: 0 degrees C to 40 degrees C.
2. Operational Humidity: Up to 90 percent non-condensing.
3. Environment: Indoor, normally environmentally controlled..
4. Altitude: Below 3,300 feet above sea level.
5. Input Power:
   a. Nominal Voltage: 480volt (plus 10 percent or minus 10 percent), 3-phase, 3 wire
   b. Nominal Frequency: 60 Hertz (plus or minus 3 Hertz.)
   c. Service provided from feeder breaker on MCC bus downstream of main distribution switchboard.
   d. Drives may be fed by an on-site standby diesel generator.

B. Drive System: 0-500 HP Units

1. Controller:
   a. Furnish solid state Pulse Width Modulated (PWM) controller with 6-pulse rectifier-grade phase-shifting transformer on the incoming line feeding IGBT output inverter section.
   b. Controller shall be constant volts per hertz control type.
   c. Controller ratings shall be as follows
      1) Input power supply: 460Vac +/-10% at rated load, 3 phase, 3 wire, 60 Hz.
      2) Output Power: 460Vac, 3-phase, 3-wire.
      3) Fault withstand: 65k symmetrical amperes or as shown in the Drawings.
      4) Input power surge protector.
      5) 20 Hz to 60 Hz continuous operating range.
      6) 115% overload rating for 100 seconds, 100 percent continuous rating.
      7) Voltage Dip Ride-Through: Continued operation with 40% dip in nominal line voltage. Output speed may decline during voltage dip only if current limit rating of the controller is exceeded.
      8) Power Loss Ride-Through: Minimum 3-cycle power loss ride-through without fault activation.
      9) Efficiency: minimum 97 percent at rated speed and torque; 88 percent at half-speed and 25 percent torque.
   d. VFD control shall ensure accurate zero to full load torque control at low frequencies, including zero speed, with torque repeatability accuracy of 2 percent or better and torque response time less than 20 ms.
   e. The drive unit shall be of modular design to provide for ease and speed of maintenance.
2. Three-phase PWM rectifier section shall be 6-pulse or higher full wave diode bridge. Provide multiple secondary integral transformer within enclosure at input bridge to provide appropriate phase shift.

a. As a minimum, the transformer shall provide for the cancellation of the 5th, 7th, 17th, 19th, positive and negative sequence harmonic currents at the primary connection.

b. The transformer shall reduce voltage and current distortion on the primary side and voltage distortion on the secondary side.

c. The design shall be optimized for harmonic rich and high neutral current environment.

d. Harmonic cancellation shall be by electromagnetic means only, capacitors or electronics are not acceptable.

3. The unit shall withstand drive output terminal line-to-line and line-to-ground short circuits without component failure during start-up and during operation. Drive to safely shutdown until short is cleared.

4. Controller shall initiate an orderly system shut-down which avoids component failure and requires manual reset under the following conditions:

a. Motor inverse time overload

b. Instantaneous overcurrent

c. Inverter fault

d. Overfrequency

e. DC Link overvoltage

f. Ground fault

g. Input undervoltage (up to 5 automatic resets upon return to normal).

5. The controller shall ride through and alarm on the following conditions:

a. Incorrect phase sequence

b. Input power loss of phase

6. For inverter rated squirrel cage motors, per NEMA Standard MG-1, Part 31.40.4.2, the following limit values at the motor terminals are to be observed:

a. For motors with base rating voltage less than or equal to 600 volts, the peak instantaneous voltage must be limited to 1600 volts or less, with a voltage rise time greater than or equal to 0.1 micro-seconds.

7. The VFD manufacturer shall guarantee that the required voltage limits will be met with the motor installed up to 100 cable feet (30 m) from the VFD drive unit. If the VFD manufacturer is not able to guarantee that the above voltage limits will be met, provide a drive output filter or reactor, appropriately rated, located within the VFD enclosure and near the VFD output terminals, which shall ensure that the limitations listed above are maintained. A device located at the motor terminals is not acceptable.

8. VFD shall be capable of full rated output when powered by incoming voltage with Total Harmonic Distortion (THD) in excess of 10 percent.

9. Furnish series choke and capacitors on dc bus to reduce ripple in rectifier output and to reduce harmonic distortion reflected into incoming power feeders.

10. Drive shall be blower-cooled with thermal detection and high-temperature cutout swtich.

C. Enclosure

1. VFDs shall be factory mounted within the Motor Control Center in accordance with Section 262419.

2.04 DRIVE PROTECTION

A. General:

1. Fault detection and trip circuits shall protect VFD and connected motor against line voltage transients, single-phase, power line overvoltage and undervoltage, output overvoltage and overcurrent, and VFD overtemperature.

a. The VFD shall employ three current limit circuits to provide trip free operation.

b. The slow current regulation limit circuit shall be adjustable to a minimum 125 percent of the VFD's variable torque current rating.

c. The rapid current regulation limit shall be adjustable to a minimum 170 percent of the VFD's variable torque current rating.

d. The current switch off limit shall be fixed at a minimum 225 percent of the VFD's variable torque current rating.

2. Internal Protection: Minimum circuitry as follows:

a. Current limiting, fast acting, semiconductor input fuses for protection of internal power semiconductors.

b. Instantaneous output overcurrent trip maximum: 200 percent.

c. DC bus and control circuit transformer fusing.

d. Grounded control chassis.

e. Under and over voltage trip, 3 phases.

f. Motor overload protection, with solid state relays.

g. Circuit breaker, with door interlocked handle. Provide means to allow entry into panel where required by authorized personnel. Circuit breaker to be rated 42,000 AIC minimum.

h. Fault reset push button.

i. Input power Surge Protective Device.

j. VFD overtemperature.

k. Input and output EMI/RFI filters. Manufacturer shall certify that filters suppress objectionable interference to AM and FM radio signals per:

1) IEC 61800-2 and –3

2) EN 50082-1 and –2

3) EN 61000-6-1, -6-2, and -6-4

4) EN 61800-3 A11

2.05 CONTROL INTERFACE

A. Password-protected, microprocessor-based digital control and diagnostic systems shall monitor its own control functions and diplay faults and operating conditions in plain English without use of codes.

1. The following features shall be available to operators:

a. Selectable frequency control with critical speed avoidance. Controller shall ignore any input command requiring the drive to operate within a specified band around critical frequencies

b. Start/Stop command

c. Acceleration/Deceleration rates

d. Minimum/maximum speed setpoints

e. Auto or Remote control mode selection.

2. Self-test software program shall verify proper operation of all controller components. A fault log shall record, store and display Mode, Elapsed Time Since Fault, and Fault Type for minimum 15 most recent fault events. The following indications shall be available for display:

a. Speed input command

b. Output current (amps)

c. Output frequency (Hz)
d. Input voltage (Vac)
e. Output voltage (Vac)
f. Total 3-phase power (kW and kVA or kW and power factor)
g. Power consumption (kW-hr)
h. Elapsed run time (hr/min/sec)
i. Motor speed (RPM)
j. DC bus voltage (Vdc)

B. Furnish the following control circuit components, mounted and wired within MCC or on the drive enclosure as necessary for a complete and functional system as specified.
1. Control power transformer sized by the drive manufacturer for energizing and operating the following control devices:
2. Contacts for remote indication of motor overload trip, power failure and other failure conditions.
3. Pilot lights for local indication of motor overload trip, power failure and other failure conditions. Devices shall be full-voltage LED cluster type, heavy duty, 30 mm oil tight units
4. Contacts for remote indication of control circuit being in AUTO or REMOTE mode.
5. Manual keypad or touchscreen interface, front-panel mounted, capable of controlling the VFD, setting drive parameters and displaying fault history.
6. Accept a grounded, isolated, 4-20 mA input remote speed control signal from an external device. Input shall be optically isolated from controller circuits.
7. Provide a 4-20 mA output signal proportion to VFD output frequency for remote speed indication.
8. Speed indicating meter in percent speed to indicate speed of the converter powered motor.
9. Run time meter, mechanical type, round, UL Certified, non-reset type, with register to indicate hours and tenths of hours up to 99,999.9 hours. shall be
10. Control circuits shall be physically isolated from power circuits.

C. Controller shall be equipped to communicate with Owner's control and monitoring system using Profibus/Profinet network protocol with configurable register capable of transmitting all available control, alarm, and diagnostic parameters.

2.06 SHOP TESTING

A. Provide a factory performance test for each variable frequency drive unit. The test to consist of simulating the expected load to be driven. The drive to operate the actual motor load through the expected speed ranges. Test length to be a minimum of two hours.

B. Provide a factory burn-in test for 24 hours minimum and a control and alarm test on each drive unit by simulating each control signal and each alarm function to verify proper and correct drive unit action.

C. Provide typical prototype factory test data for short circuit testing of each type of drive supplied. Data to verify that each drive can be started into a line-to-line fault and line-to-ground fault on the drive terminals. Each drive can be operating at full load and be subjected to a line-to-line fault and line-to-ground fault on the drive terminals. All phases (A, B & C) to be included in test data.

D. Provide certified documentation of all tests performed.

E. Provide above stated tests in addition to routine factory tests.

F. Owner shall witness all factory tests at his/her option. Notify Owner two weeks before all tests.

2.07 SPARE PARTS

A. Label all spare parts containers with manufacturer's name, manufacturer's local representative's name and contact information, and a complete list of all parts enclosed.

B. Provide one spare board and card of each type, one diode module, for each horsepower size drive. Spares will be color-coded or otherwise keyed to their original counterpart such that improper installation of spare cards is impossible. In addition to the cards, the manufacturer shall provide three spares for all expendable items such as pilot lamps, power fuses, and control fuses. Provide one spare keypad.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine VFD location for satisfactory preparation. Check conduits and raceway location for connection to units.

B. Visually inspect delivered unit(s) and accessories for conformance with specification and drawings.

C. Verify availability of appropriate pacing signal.

D. Maintain variable frequency drive in upright position at all times.

E. Protect variable frequency drive against damage. Store drive in clean, dry environment with temperature and humidity within range as specified by drive manufacturer. Energize space heaters during storage as recommended by manufacturer.

3.02 INSTALLATION

A. Erect, install, and start-up equipment.

B. The VFDs shall be installed as shown on the drawings, in accordance with the manufacturer's installation instructions, and accepted shop drawings.

C. Install VFDs to allow complete door swing required for component removal. This is specifically required where a VFD is set in the corner of a room.

D. Factory-trained service personnel, other than sales representatives, shall supervise field installation, inspect, make final adjustments and operational checks, make functional checks of spare parts, and prepare a final report for record purposes. Adjust control and instrument equipment until this equipment has been field tested.

3.03 FIELD TESTING

A. Perform testing checkout, and start-up for variable frequency drive equipment under technical direction of manufacturer's service engineer. Under no circumstances energize any portion of the drive system without authorization from manufacturer's technical representative.

B. Field Tests:

1. Test each drive over the total speed range that it will be required to operate through for the load being driven for a minimum of two hours. Determine for each drive, motor, and load combination the following at minimum speed, maximum speed, and at 1/3 and 2/3 points between the minimum and maximum speeds:
    a. Input power (kW), voltage, current and RMS power factor on the line side of the drive isolation device.
    b. Output to the driven load in kilowatts.
    c. For each drive, measure the harmonic voltage distortion and harmonic current distortion for each harmonic at the main distribution bus for maximum and minimum load conditions.
    d. Measure the total harmonic voltage distortion and total harmonic current distortion at each PCC for maximum and minimum load conditions.
2. Test each drive by using the actual control signal for remote and local operation.
3. Test each drive's alarm functions.

4. Perform all tests in the presence of the Engineer or Owner representative.
5. Perform the above test in addition to the manufacturer's normal field tests.
6. Submit final test report with summary comparing field test data with harmonic analysis design calculated values for each drive.
7. Testing determined not in compliance with Contract documents shall be repeated by the Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 263200
PACKAGED GENERATOR ASSEMBLIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Packaged diesel engine generator system.

B. Weatherproof/sound attenuated enclosure.

C. Genset accessories.

1.03 RELATED SECTIONS

A. Section 260519 - Low Voltage Electrical Power Conductors and Cables.

B. Section 260526 - Grounding and Bonding for Electrical Systems.

C. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

D. Section 260553 - Identification for Electrical Systems.

E. Section 262419 – Low-Voltage Motor Control Centers for Automatic Transfer Switch Coordination.

1.04 REFERENCES

A. ANSI/NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA MG 1 - Motors and Generators

C. ANSI/NEMA AB 1 – Molded Case Circuit Breakers.

D. IEEE 446 – Recommended Practice for Emergency Standby Power Systems for Commercial and Industrial Applications

E. NPFA 70 – National Electric Code

F. NFPA 37 – Installation and Use of Stationary Combustion Engines

G. NFPA 110 – Emergency and Standby Power Systems

H. UL 2200 – Stationary Engine Generator Assemblies

1.05 SYSTEM DESCRIPTION

A. Packaged diesel engine generator systems to provide source of standby power for Well House #5 in Valdez, Alaska.

B. System Capacity: KW and KVA ratings as shown on the Drawings, at elevation of 300 feet above sea level and an ambient temperature between -20°F and 104°F.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Contractor to coordinate with manufacturer(s) to provide shop drawings showing dimensioned plan and elevation views, interconnection points, electrical schematic and interconnection diagrams for connecting new generator to new automatic transfer switch.

C. Submit product data showing dimensions, weights, ratings, interconnection points and wiring diagrams for engine, generator, control panel, batteries, battery charger, exhaust silencer, sub-base fuel tank, fuel system controls and remote annunciator.

D. Submit manufacturer's installation instructions and Operation and Maintenance manuals to include normal operation, routing maintenance requirements, battery inspection and maintenance, system coolant and other fluid inspection and replacement, oil sampling and

analysis for engine wear and emergency maintenance procedures. Provide service manuals for engine, generator, radiator and fuel tank.

1.07 PROJECT RECORD DRAWINGS

A. Submit record documents showing the accurate location of engine generator and all mechanical/electrical connections and routing. Provide as-builts of interconnection diagrams.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in packaged engine generator systems with a minimum five years of documented experience.

B. Supplier: Authorized distributor of engine generator manufacturer with service facilities in Anchorage and authorized by the manufacturer to maintain and administer the warranty and employ factory certified mechanics to perform warranty work.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Store and protect products under provisions of General Conditions and Supplementary Conditions to the Contract.

B. Deliver generators, transfer switches and all associated accessories to site for storage prior to installation.

C. Accept packaged engine generator and all accessories on site in crates and verify no damage was incurred during shipping.

D. Store and protect onsite from damage, dirt and moisture.

1.10 WARRANTY

A. Supplementary Conditions: Product warranties and product bonds.

B. Provide manufacturer’s standard warranty for the generator, enclosure and transfer switch. Warranty shall include parts, labor, travel expenses and labor to remove/reinstall equipment.

1.11 EXTRA MATERIALS

A. Submit maintenance materials list.

B. Furnish a complete set of tools required for preventative maintenance of the engine generator system. Package tools in adequately sized metal tool box.

C. Provide a one year supply of each fuel filter, oil filter, and air filter element required for the engine generator. The supply shall be based on filter changes performed at manufacturer's suggested maintenance intervals.

1.12 MAINTENANCE SERVICES

A. Furnish service and maintenance of packaged engine generator system for one year from the Date of Substantial Completion. The maintenance service shall include two semi-annual inspections and test run the engine to perform manufacturer’s recommended preventative maintenance service on the equipment furnished.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Caterpillar as the Basis of Design.

B. Kohler.

C. Substitutions: Under provisions of Division 01.

2.02 ENGINE

A. Type: Water-cooled, inline or V-type, four stroke cycle, compression ignition diesel internal combustion engine.

B. Rating: Emergency power rated, sufficient to operate at 10 percent overload for one hour in 12 in accordance with ISO30461/1, AS2789, DIN6271 and BS5514 at specified elevation and ambient limits.

C. Fuel System: Appropriate for use of #2 diesel fuel.

D. Engine Speed: 1800 rpm.

E. Mounting: Provide unit with suitable spring-type vibration isolators and mount on structural steel base within the enclosure.

F. Governor: Isochronous type to maintain engine speed within .5 percent steady state and 5 percent no load to full load, with recover to steady state within 2 seconds following sudden load changes.

G. Safety Devices: Provide engine shutdown on high water temperature, high oil temperature, low oil pressure, overspeed, engine overcrank, low oil level and low water level. Limits to be selected by manufacturer.

H. Engine Starting: Electric DC starting system capable of three complete cranking cycles without overheating. Starters shall have positive engagement, number and voltage of starter motors in accordance with manufacturer's instruction. Include remote starting control circuit with MANUAL-OFF-REMOTE selector switch on engine generator control panel.

I. Engine Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity and performance. Unit shall be designed for operation on a single 208 VAC, single-phase power connection and shall be prewired to enclosure mounted junction box. Heater shall be install with isolation valves to isolate the heater for replacement of the element without draining the engine cooling system or significant coolant loss. Provide with thermostat installed at the engine housing and prewired to the control system.

J. Cooling System: Closed loop, liquid cooled. The generator set manufacturer shall provide prototype test data for the specific hardware proposed demonstrating that the machine will operate at rated standby load in an outdoor ambient condition of 40 deg C. Coolant shall be a solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer. Overflow tank size shall be adequate to contain expansion of total system coolant from cold start to 110 percent load condition. Expansion tank shall be constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock. Temperature control shall be self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

2.03 ENGINE ACCESSORIES

A. Fuel System: The engine fuel system shall be installed in strict compliance to the engine manufacturer's instruction.

B. Fuel Pump: An engine driven, mechanical, positive displacement fuel pump. Include fuel priming pump.

C. Fuel Filter: Provide with replaceable spin-on canister element. Provide Racor pre-filter, sized by manufacturer, with water shutdown sensor tied to control panel.

D. Air Cleaner: Provide replaceable dry element air cleaner with restriction indicator.

E. Water Pump: As selected by manufacturer.

F. Lube Oil Pump: Engine/skid mounted, positive displacement, mechanical, full pressure pump.

G. Lube Oil Filter and Strainer: As recommended by the engine manufacturer to provide adequate filtration for the prime mover to be used.

H. Lube Oil Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without the use of pumps, siphons, special tools, or appliances.

2.04 GENERATOR

A. ANSI/NEMA MG 1; three phase, six pole, reconnectible brushless synchronous generator with brushless exciter.

B. Rating: KW and KVA ratings as shown on the Drawings at .8 power factor, Voltage as shown on the Drawings, wye connected, 60Hz at 1800 rpm.

C. Insulation: ANSI/NEMA MG 1, Class B.

D. Temperature Rise: 105°C / Class B / standby.

E. Enclosure: ANSI/NEMA MG 1; open drip proof.

F. Permanent Magnet Generator (PMG) shall provide excitation power for optimum motor starting and short circuit performance.

G. Steady-State Voltage Operational Bandwidth: 0.5 percent of rated output voltage from no load to full load.

H. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 5 seconds. On application of a 100% load step the generator set shall recover to stable voltage within 10 seconds.

I. Steady-State Frequency Operational Bandwidth: 0.25 percent of rated frequency from no load to full load.

J. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.

K. Transient Frequency Performance: Not more than 15 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within 5 seconds. On application of a 100% load step the generator set shall recover to stable frequency within 10 seconds.

L. Output Waveform: At full load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for any single harmonic. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.

M. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 8 seconds without damage to generator system components. For a 1-phase, bolted short circuit at system output terminals, system shall regulate both voltage and current to prevent over-voltage conditions on the non-faulted phases.

N. Start Time: Comply with NFPA 110, Level 1, Type 10, system requirements.

O. Ambient Condition Performance: Engine generator shall be designed to allow operation at full rated load in an ambient temperature under site conditions, based on highest ambient condition. Ambient temperature shall be as measured at the air inlet to the engine generator for enclosed units, and at the control of the engine generator for machines installed in equipment rooms.

P. Alternator: The alternator shall produce a clean AC voltage waveform, with not more than 5% total harmonic distortion at full linear load, when measured from line to neutral, and not more than 3% in any single harmonic. Provide alternator with anti-condensation heater wired to enclosure panel.

Q. Alternator shall be capable of accepting full rated load in a single step and be capable of recovering to a minimum of 90% of rated no load voltage. Following the application of the specified kVA load at near zero power factor applied to the generator set.

R. Windings: Two-thirds pitch stator winding and fully linked armortisseur winding.

S. Generator Leads: The generator leads shall be brought out and terminated on a unit-mounted generator circuit breakers, quantity and sizes as shown on the Drawings. The generator leads shall have sufficient length to allow for any connection configuration.

2.05 ACCESSORIES

A. Enclosure: Cold-weather rated enclosure with 14-gauge steel or aluminum housing. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Instruments, control, and battery system shall be mounted within enclosure.

B. Enclosure Construction:

1. Louvers: Equipped with bird screen to permit air circulation when engine is not running while excluding birds and rodents.
2. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to prevent door to keep door open at 180 degrees during maintenance. Rain lips over all doors.
3. Exhaust muffler located within enclosure.
4. All hardware shall be stainless steel.
5. Mounting Base: Suitable for mounting on sub-base fuel tank.
6. A weather protective enclosure shall be provided which allows the generator set to operate at full rated load with a static pressure drop equal to or less than 0.5 inches of water.
7. Inlet ducts shall include rain hoods.
8. Enclosure color – white or other neutral color.

C. Engine Cooling Airflow through Enclosure: Housing shall provide ample airflow for engine generator operation at rated load in an ambient temperature of 40 deg C.

1. Louvers: Fixed-engine, cooling-air inlet and discharge.
2. Motorized Louvers (if required by Generator Enclosure manufacturer): At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating. Dampers shall be of a “fail open” design to allow airflow in the event of failure.

D. Enclosure Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 78 dBA measured at any location 7 m from the engine generator in a free field environment.

E. Enclosure Electrical Provisions: Package shall comply with the requirements of the National Electrical Code for all wiring materials and component spacing. Provide the following components:

1. Factory wired 120/208V connections to heaters, battery charger, controls, etc. shall be brought to two junction boxes for ease of field wiring connections. Two 20A, 120V circuits shall be provided by the Contractor from an external panel to the junction boxes as shown on the Drawings.

F. Sub-Base Tank: Provide a double-wall, all-welded construction, secondary containment type sub base-mounted fuel tank with a minimum of 24 hours capacity at full load rating of generator, suitable for use in seismic category D. The tank shall be constructed of corrosion resistant steel and shall be UL 142 listed and labeled. The secondary containment basin shall be sized at a minimum of 110% of the tank capacity to prevent escape of fuel into the environment in the event of a tank rupture. The tank shall have foundation to ground clearance for visual secondary leak detection, shall have the structural integrity to support the engine-generator set, shall be supplied by the engine-generator set manufacturer, and shall be installed before shipment. The tank shall have the following features; normal and emergency vents (extend vent piping to 12ft above grade per code requirements), lockable fuel fill, mechanical fuel level gauge, leak detector switch, fill port with overfill prevention valve, 5 gallon fill/spill dam or bucket, flexible fuel line connections, check valve, high and low fuel level alarm contacts and indicating lights, complete fuel tank and gravity drainage capabilities. All appurtenances shall meet all state and local codes.

G. Exhaust Silencer: Selected with performance as required to meet sound requirements of the application (78db max at 7m), sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements. For generator sets with outdoor enclosures the silencer shall be inside the enclosure.

H. Air-Intake Filter: Engine-mounted air cleaner with replaceable dry-filter element and restriction indicator.

I. Starting System: 12 or 24V, as recommended by the engine manufacturer: electric, with negative ground.

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum.
2. Cranking Cycle: As required by NFPA 110 for level 1 systems.
3. Battery Cable: Size as recommended by engine manufacturer for cable length as required. Include required interconnecting conductors and connection accessories.
4. Battery Compartment: Factory fabricated of metal with acid-resistant finish.
5. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation. The battery charging alternator shall have sufficient capacity to recharge the batteries with all parasitic loads connected within 4 hours after a normal engine starting sequence.

J. Battery Charger: Dual-rate, 10-Amp, current limiting type designed to float at 2.17 volts per cell and equalize at 2.33 volts per cell. Provide overload protection, full wave rectifier, DC voltmeter and ammeter, and 120 volts AC fused input. Provide wall-mounted enclosure to meet ANSI/NEMA 250, Type 1 requirements. Charger shall provide relay contacts for fault conditions as required by NFPA 110. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amp, 120 VAC, 30 VDC for remote indication of:

1. Loss of AC power: Red light.
2. Low battery voltage: Red light.
3. High battery voltage: Red light.
4. Power on: Green light, no relay contact.

K. Line Circuit Breakers: Quantity and size as shown on Drawings. NEMA AB 1 molded case circuit breakers on generator output with integral thermal trip in each pole; sized in accordance with ANSI/NFPA 70. Include battery-voltage operated shunt trip, connection to open circuit breaker on engine failure and connected to field provided remote generator shutdown. Mount units in enclosures to meet ANSI/NEMA 250, Type 1 requirements.

L. Engine-Generator Control Panel: NEMA 250, Type 1 generator-mounted control panel enclosure with UL508 listed and labeled microprocessor based control, designed to provide automatic starting, monitoring and control functions. Include provision for padlock and provide the following equipment and features:

1. Digital Frequency Meter: 45-65 Hz range, LED display.
2. AC Output Digital Voltmeter: LED display, 2 percent accuracy, with phase selector switch.
3. AC Output Digital Ammeter: LED display, 2 percent accuracy, with phase selector switch.
4. AC Output Digital Kilowatt Meter: LED display, 2% accuracy.
5. Output Voltage Adjustment: Via touchpad on control panel.
6. Push-to-test indicator lamps, one each for low oil pressure shutdown, high water temperature shutdown, high oil temperature shutdown, overspeed shutdown, overcrank shutdown, low water shutdown, low oil pressure pre-alarm and high water temperature pre-alarm, battery charger malfunction, low water temperature, and low fuel level.
7. Engine manual-off-remote selector switch.

8. Engine running time meter.
9. Oil pressure gauge.
10. Water temperature gauge.
11. Fuel pressure gauge.
12. Auxiliary Relay: 3PDT, operates when engine runs, with contact terminals prewired to terminal strip.
13. Remote Alarm Contacts: Pre-wire SPDT contacts to terminal strip for remote alarm functions required by ANSI/NFPA 99.
14. Auxiliary Contacts: Provide the following auxiliary contacts for generator monitoring by DDC system:
    a. Generator Status
    b. Generator Alarm
15. Overcrank protection with manual reset.
16. Trouble horn with silencing switch, red indicating light and reset switch.

M. Heaters: Provide manufacturer's recommended heaters with thermostatic controls to keep engine oil pan, engine block, generator controls, and generator windings within manufacturer's recommended temperature at -20°F. Prewire to junction boxes.

N. Mounting: The complete engine/generator package shall be mounted on a common, self-supporting, low profile, structural steel skid base with rubber in shear vibration isolators between the engine and base. The base shall extend from the rear end of the generator to the most forward point of the engine and shall be predrilled to accept up to a 4/0 AWG copper grounding conductor.

O. Load bank and Automatic Load Bank Controller:

1. Stationary Remote-Mounted Load Banks:

2. Capacity: 100 kW, 1.0 power factor.

3. Ratings: 480V, 3-phase, 3-wire, 60 Hz, Continuous Duty.

4. Load Steps: 5kW step resolution.

5. Airflow Requirements: Forced air, CFM as required by manufacturer. Provide factory wired internal fan to match load bank voltage/phase configuration.

6. Control Power: Internal from generator, fused circuits, controls operate at 120V via internal control power transformer.

7. Load Elements and Control: Open wire, helically wound, chromium alloy, UL recognized component. Provide branch circuit magnetic contactors with current limiting fused short circuit protection.

8. Wiring: Power wiring rated for 150 degrees C connected to power distribution block with compression terminals. Control wiring rated for 105 degrees C.

9. System Protection: Fan failure, fan motor overload, high exhaust temperature, high intake temperature, and airflow pressure differential switch. Circuits to disconnect load bank on alarm with alarms to display on Controller.

10. Interior Heater: Provide anti-condensation heater with thermostatic control, factory or field wired.

11. Enclosure: NEMA 3R, outdoor/weatherproof, powder-coated steel enclosure with removable access panels, and suitable for pad-mounting.

12. Automatic Load Bank Controller:

    1. Controller shall be capable of manual and automatic load control with PLC based color touchscreen with programmable softkeys.
    2. Automatic load leveling and load regulation shall maintain total generator load within a preset bandwidth. PLC controller senses generator load and automatically adds/subtracts load bank steps in order to maintain total generator load at a desired level.
    3. Auto Exercise option shall provide automatic incremental load step addition and subtraction during generator exercise.
    4. Controller senses amperes. Adjustable level and delay. Provide with control power on/off switch, manual/off/automatic load step switches, master load control switch, overtemp indicator and normal operation indicator.
    5. Mounting and Enclosure: Local, mounted on unit within weatherproof cover.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that concrete housekeeping pads are installed per civil/structural Drawings, surfaces are ready to receive work, and field dimensions are as shown within submittals. Ensure all conduits required to stub up through concrete housekeeping pads are installed and located per manufacturer requirements.

B. Verify that required utilities are available in proper locations and ready for use and all required utility agreements have been made prior to starting work (ie emergency generator and open transition transfer switch agreements).

C. Beginning of installation means installer accepts existing conditions.

3.02 INSTALLATION

A. Install new generator, accessories and interconnections in accordance with manufacturer's instructions and as shown on the Drawings.

B. Ground and bond generator and other electrical system components in accordance with NEC requirements and as shown on the Drawings.

3.03 FIELD QUALITY CONTROL

A. Generator system testing shall be performed in accordance with NFPA 110 requirements for Level 1 Systems, namely Part 7.13. Coordinate scheduling of testing with Owner and Authority Having Jurisdiction a minimum of seven (7) days prior to testing.

B. Perform the initial 1.5 hour on-site acceptance test utilizing all loads that are served by the EPSS, per NFPA 110 7.13.4.1. Record all values required within NFPA 110 7.13.4.1.4 (1) through (12).

C. Upon completion of the above test, provide a two (2) hour load test utilizing a portable load bank per NFPA 110 7.13.4.3 (note, generator shall be allowed to cool a minimum of 5 minutes prior to beginning the second test). Simulate power failure including operation of transfer switch, automatic starting cycle, automatic shutdown and return to normal. Demonstrate all automatic features as direct by the Owner. Load bank testing shall be performed as follows:

    13. 30 minutes at 50% rated load.
    14. 30 minutes at 75% rated load.
    15. 60 minutes at 100% rated load.

D. During the test record the following at 20 minute intervals:

    1. Kilowatts
    2. Amperes

3. Voltage
4. Coolant temperature.
5. Room temperature.
6. Frequency.
7. Oil Pressure

E. Furnish records of tests to the Owner.

3.04 MANUFACTURER'S FIELD SERVICES

A. Provide authorized manufacturer representative to prepare, start, test, and adjust systems in accordance with this specification.

B. Manufacturer’s representative shall also provide a minimum 4-hour (per generator) onsite training for the Owner’s personnel prior to project Final Completion. Coordinate onsite testing with Owner a minimum of 2-weeks in advance of scheduling.

3.05 ADJUSTING

A. Adjust generator output voltage and engine speed.

3.06 CLEANING

A. Clean engine and generator surfaces. Replace oil, oil filters and fuel filters after testing and commissioning.

END OF SECTION

SECTION 265000
LIGHTING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Interior and Exterior Luminaires and Accessories.

B. Lamp Modules.

C. Drivers.

D. Emergency Driver Power Supplies.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under General Conditions of the Contract General Requirements, and Section 260500 – Common Work Results for Electrical.

B. Section 260519 – Low Voltage Electrical Power Conductors and Cables.

C. Section 260526 - Grounding and Bonding for Electrical Systems.

D. Section 260529 - Hangers and Supports for Electrical Systems.

E. Section 260533 – Raceway and Boxes for Electrical Systems.

F. Section 260553 – Identification for Electrical Systems.

G. Section 262726 – Wiring Devices.

1.04 DEFINITIONS

A. CCT: Correlated Color Temperature.

B. CRI: Color Rendering Index.

C. Driver: LED Power Supply.

D. Fixture: See "Luminaire."

E. IES: Illuminating Engineering Society of North America

F. IP: International Protection or Ingress Protection Rating.

G. Lamp Module: Replaceable LED board array/light engine including a plug-in connector.

H. LED: Light-emitting diode.

I. Lumen: Measured output of lamp and luminaire, or both.

J. Luminaire: Complete lighting unit, including lamp or lamp module, driver, reflector, and housing.

K. THD: Total Harmonic Distortion.

1.05 REFERENCE STANDARDS

A. NECA/IESNA 500 – Recommended Practice for Installation Indoor Commercial Lighting System.

B. IES TM-21-11 Projecting Long Term Lumen Maintenance of LED Light Sources.

C. IES LM-80 IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules.

D. UL 924 - Emergency Lighting and Power Equipment.

1.06 SUBMITTALS

A. Product Data: Submit the following:

1. Luminaires: Include manufacturer’s product data sheets and/or shop drawings including outline drawings showing support points, weights, and accessory information for each

luminaire type. Clearly indicate all options being provided. Arrange data for luminaires in the order of fixture designation.

2. Prior to preparing submittals, coordinate with the reflected ceiling plan for ceiling finishes and provide all necessary kits, brackets, stems, trim, etc. to install the specified fixtures in the ceilings provided. Clearly note these configurations on the product data sheets.

B. Shop Drawings: Provide detailed shop drawings for specialty luminaires as required by the manufacturer.

C. Warranty: Provide copies of manufacturer's warranty information for each luminaire. If warranty information is the same for a group of manufacturer's luminaires, provide a letter or schedule clearly indicating what warranty applies to each fixture.

D. LED Luminaire Substitutions: Due to the constantly evolving technology, it is difficult to evaluate a true "equal" LED luminaire since the wattage, LED life, lumen output, etc. vary significantly from fixture to fixture, even for luminaires that have a similar shape and style. The luminaires shown on the Plans in the Fixture Schedule are not intended to be sole sourced but are considered a Basis of Design. If a substitution is proposed by the contractor, it will be evaluated based on the following criteria:

1. Does it have the same basic shape/style and characteristics? Note that there may be space constraints above the ceiling.
2. Does the luminaire have the same (or superior) light output and distribution? If not, would it still produce enough light to illuminate the space per minimum IES recommendations or other project specific lighting levels? Note that the Engineer may request .ies files or lighting calculations be provided by the Contractor to evaluate substitution requests.
3. Does it use the same (or less) wattage than the specified fixture? If it uses slightly more power, does it provide enough value to the Owner by adding additional light to offset the additional power used? Is that appropriate for the project compliance requirements. (LEED, ASHRAE 90.1, etc.)
4. Does it have the same nominal color temperature and CRI values? Note that for certain luminaires this may be more important where [medical procedures are being performed or where] artwork or merchandise is illuminated.
5. Does it have an equal or better lamp life as calculated in accordance with IES TM-21 and LM-80?
6. Does the manufacturer offer an equal or better warranty than the specified fixture?
7. Are the LED lamps modules and LED boards field changeable? What guarantees does the manufacturer have that replacement parts will be available in the future?

1.07 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations and mounting heights of all lighting fixtures and accessories on the project record drawings. Update part numbers and description on the Lighting Fixture Schedule to match the actual luminaires installed. Submit under Section 260500.

B. Operation and Maintenance Manuals:

1. Provide recommended luminaire cleaning and re-lamping schedule. If any luminaire lenses require special lubricants for cleaning, include this in the schedule.
2. Provide detailed bill of materials for all items purchased in this section including distributor's contact name, phone number and pertinent information.
3. Provide luminaire manufacturer's installation instructions.
4. Provide manufacturer's step-by-step installation instructions showing how to replace the LED lamp modules and drivers for each luminaire.
5. Include any specific warranty information provided by the manufacturer for luminaires, LED boards and drivers.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site, store and protect in a clean, dry environment under provisions of General Conditions of the Contract.

1.09 EXTRA MATERIALS

A. Provide spare parts under provisions of Division 01.

B. Lenses: One of each size and type.

C. Drivers: One of each size and type installed.

PART 2 PRODUCTS

2.01 INTERIOR AND EXTERIOR LUMINAIRES AND ACCESSORIES

A. Luminaires: Provide UL listed luminaires as scheduled on the drawings or as approved equal.

B. Listing: Luminaires shall be listed for use in the environment in which they are installed. For example, luminaires installed in return air plenums, direct contact with insulation, or in hazardous, wet, damp, or corrosive locations shall be UL listed for such application.

C. Accessories: Provide all mounting kits, supports, interconnecting wiring, power supplies, trim kits, gaskets, etc. for a complete installation.

D. Housing:

1. Metal parts shall be free of burrs and sharp corners and edges. Form and support to prevent warping and sagging.

2. Doors, Frames and Other Internal Access: Smooth operating, free of light leakage under operating conditions. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

3. Luminaires shall be factory painted and free of discoloration. Color as scheduled.

2.02 LAMP MODULES – LED

A. All LED's shall be nominal 4000 degrees Kelvin (nominal) within a 3-step MacAdam Ellipse unless special circumstances require a different color temperature application, see Luminaire Schedule on Plans.

B. Color Rendering: Minimum CRI as scheduled on the Plans for each fixture. Under no circumstances shall the CRI be less than 70.

C. Lamp Life: Minimum lamp life shall be calculated in accordance with IES LM-80. Lamp life for each luminaire shall be equal or greater than scheduled on the Plans. Under no circumstances shall an interior luminaire have a minimum rated life (L70) less than 50,000 hours at 75 degrees F average indoor ambient temperature and an outdoor luminaire less than 75,000 hours at 40 degrees F average outdoor ambient temperature.

D. Replaceable: Unless otherwise scheduled, all LED modules shall be field replaceable with quick disconnect connections.

E. Luminaires and lamps installed outdoors shall be rated for starting and operating at a minimum of -20F.

2.03 DRIVERS - LED

A. LED Driver: Provide UL listed power supply as recommended by the LED fixture manufacturer for operation of the specified LED lamps. Power supply shall be integral to the luminaire unless otherwise noted on the Plans. Power supply shall be dual voltage (120/277V) where available or operate at the supply voltage indicated on the Plans.

2.04 EMERGENCY DRIVERS

A. LED Unit: UL listed self-contained emergency LED driver with automatic transfer to battery supply on power failure, optional test switch, AC ON pilot light, fully-automatic two-rate charger, Ni-cad battery, and power supply capable of operating an LED load of up to the rated fixture wattage (as

shown on the Plans) at rated current (700mA) for a minimum of 90 minutes. Bodine #BSL series or approved equal.

B. Test Switches:

1. Standard and Low-Profile Units:

a. Recessed Linear led Fixtures: Mount test switch in driver channel so that it is accessible from below. Affix red driver identification label (supplied with driver) to door trim on fixture to denote location of emergency driver.

b. Pendant Fixtures: Mount test switch in end cap of fixture, at end closest to driver. Affix red driver identification label (supplied with driver) to bottom of fixture housing below test switch to denote location of emergency driver.

2. High Output Unit: Self-testing, as specified above.

3. Recessed Downlights: Mount test switch in ceiling, in recessed single-gang box adjacent to downlight.

PART 3 EXECUTION

3.01 INSTALLATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction items that penetrate ceilings or are supported by them, including luminaires, occupancy sensors, HVAC equipment, smoke detectors, fire-suppression system, IP video cameras, and partition assemblies. Adjust locations as required.

B. Unless otherwise noted on Plans, provide drivers integral to luminaires, pre-wired and installed at the factory, suitable for use with the selected LED lamps.

C. Support surface-mounted luminaires directly from building structure. Install level and parallel/perpendicular with ceiling or wall surfaces.

D. Install recessed luminaires to permit removal from below. Use plaster frames in hard ceilings.

E. Support luminaires in suspended ceilings from structure above in accordance with Section 260529.

F. Rigidly align continuous rows of lighting fixtures for true in-line appearance.

G. Provide luminaire disconnecting means in the wiring compartment of each luminaire. Where the luminaire is fed from a multi-wire branch circuit, provide multi-pole disconnect to simultaneously break all supply conductors to the ballast, including the grounded conductor.

H. LED Power Supplies: Install power supplies to be readily accessible. Where power supplies are installed in plenum areas, provide plenum rated listing. Where remote power supplies are used, install in concealed, accessible locations or in utility room that provides adequate sound dampening. Locate driver to allow free air movement in accordance with manufacturer's installation instructions and securely mount to structure.

I. Mechanical Rooms: Lighting fixture locations shown on Plans in mechanical and electrical equipment rooms are approximate. Coordinate mounting height and location of lighting fixtures to clear mechanical, electrical and plumbing equipment and to adequately illuminate meters, gauges and equipment. Support all lighting fixtures independently of duct work or piping.

J. Tandem wiring: Provide factory harness for all tandem mounted light fixtures.

K. Support exterior surface-mounted luminaires directly from building structure. Maintain wall waterproofing.

L. Aim directional lampheads of emergency lighting units to illuminate the path of egress.

M. Install emergency driver {or single fixture emergency transfer device} in the driver channel of the fixtures [or the mounting tray of downlight fixtures] indicated on the drawings. Provide an unswitched source of power to the emergency driver from the same circuit that powers the fixture the driver is installed in.

N. Coordinate location of wall mounted emergency lighting units with mechanical equipment, ductwork, piping, or any other obstruction that would impact the lighting output.

O. Wiring installed between a luminaire and an emergency lighting inverter or remote emergency driver is considered “emergency” wiring and shall be separated from the normal wiring and installed in a dedicated raceway per NEC Article 700.

3.02 RELAMPING

A. Re-lamp or replace luminaires that have failed lamps at completion of work.

3.03 ADJUSTING AND CLEANING

A. Align luminaires and clean lenses and diffusers at completion of work. Clean paint splatters, dirt, and debris from installed luminaires.

B. Touch up luminaire finish at completion of work.

3.04 FIELD QUALITY CONTROL

A. Tests: Perform tests listed below according to manufacturer’s written instructions. Test unit functions, operations, and protective features. Adjust to ensure operation complies with Specifications. Perform tests required by NFPA 70, Articles 700 and 701. Perform tests on completion of unit installation and after building circuits have been energized. Provide instruments to permit accurate observation of tests. Include the following tests:

1. Simulate power outage: Verify proper operation of each individual emergency power supply.
2. Verify emergency supply duration.
3. Verify operation of remote test switches.
4. Provide reports for load test conducted on individual batteries.

B. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

3.05 ADJUSTING

A. Aim lamps on wall-mounted emergency lighting units to obtain the following illumination of egress pathway:

1. An average of 1 foot-candle.
2. A minimum at any point of 0.1 foot-candle measured along the path of egress at floor level.
3. Maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

B. Test emergency lighting equipment in accordance with the manufacturer’s instructions and NECA/IESNA 500.

3.06 DEMONSTRATION

A. Walk owner’s representative through the emergency lighting system. Note how to maintain, test and troubleshoot all units. Provide maintenance schedule for NFPA required testing and note locations of remote test switches, and which units have self-diagnostic features.

END OF SECTION

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
B. Design Mixtures: For each concrete mixture.
C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.
D. Vertical and Horizontal sealer/finish products: provide product literature, MSDS, and technical data information for each product.

1.3 INFORMATIONAL SUBMITTALS

A. Welding certificates.
B. Material certificates.
C. Material test reports.
D. Floor surface flatness and levelness measurements.
E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
   1. Location of construction joints is subject to approval of the Architect.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
B. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
   1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
   2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
F. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
   1. Portland Cement: ASTM C 150, Type I/II.
B. Normal-Weight Aggregates: ASTM C 33, graded.
   1. Maximum Coarse-Aggregate Size: 1 inch nominal.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.4 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

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2.5 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

2.7 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.8 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: As indicated.
2. Maximum Water-Cementitious Materials Ratio: As indicated.
3. Slump Limit: 4 inches 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

2.9 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

D. Form Liners: Units of face design, texture, arrangement, and configuration indicated. Furnish with manufacturer's recommended liquid-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent surface treatments of concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions. Refer to Section 07210 for vapor retarder specification

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

3.7 FINISHING FORMED SURFACES

A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view.
2. Panel surfaces shall be free of voids, holes, pockets and other surface deformations greater than 1/8 inch.
3. Surfaces of panels shall not project reinforcing patterns, floor joints or other projections or voids from the casting surface.
4. Cracks are not permissible in excess of 1/32 inch.
5. Surface repairs shall be performed in such a way as to prevent the projection of repair strokes through the intended finish.
6. Holes shall be filled with patching material to present a smooth surface ready for painting unless the designed finish is to result in exposed aggregates whereby the patching material shall match the intended color and texture.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

C. Seal exposed vertical surfaces with penetrating water repellant, silane-based sealer: Basis of Design—Sika Sikagard 705L Water Repellent Penetrating Sealer; complies with EN 1504-2.

3.8 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with thin-film-finish coating system.
2. Seal slab with penetrating water repellant, silane-based sealer: Basis of Design—Sika Sikagard 705L Water Repellent Penetrating Sealer; complies with EN 1504-2.
   a. Apply per manufacturer's instructions.
   b. Protect slab during construction per manufacturer's instructions.
3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.

E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.9 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.10 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.11 FIELD QUALITY CONTROL

A. Testing and Inspecting: Engage a qualified testing agency to perform field tests and prepare test reports.

END OF SECTION 033000

SECTION 051200
STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Structural steel.
   2. Grout.

1.2 DEFINITIONS

A. Structural Steel: Elements of the structural steel indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Shop Drawings: Show fabrication of structural-steel components.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.
B. Welding certificates.
C. Field quality-control and special inspection reports.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
B. Comply with applicable provisions of the following specifications and documents:
   1. AISC 303.
   2. AISC 360.
   3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. Plate and Bar: ASTM A 36/A 36M.
B. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade C, structural tubing.
C. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. Headed Anchor Rods: ASTM F 1554, Grade 36, straight.
   1. Finish: Plain.
B. Threaded Rods: ASTM A 36/A 36M.
   1. Finish: Plain.

2.3 PRIMER

A. Primer: SSPC-Paint 25, Type I, zinc oxide, alkyd, linseed oil primer.

2.4 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.5 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

2.6 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.7 SHOP PRIMING

A. Shop prime steel surfaces except the following:
   1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
   2. Surfaces to be field welded.
   3. Galvanized surfaces.
B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
   1. SSPC-SP 3, "Power Tool Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.8 SOURCE QUALITY CONTROL

A. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
   1. Liquid Penetrant Inspection: ASTM E 165.
   2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
   3. Ultrasonic Inspection: ASTM E 164.
   4. Radiographic Inspection: ASTM E 94.

B. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
   1. Set plates for structural members on wedges, shims, or setting nuts as required.
   2. Weld plate washers to top of baseplate.
   3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
   4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

3.3 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
   1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
   1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

3.4 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
   1. Verify structural-steel materials and inspect steel frame joint details.
   2. Verify weld materials and inspect welds.
   3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

END OF SECTION 05120

SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Framing with dimension lumber.
   2. Framing with engineered wood products.
   3. Rooftop equipment bases and support curbs.
   4. Wood blocking and nailers.
   5. Wood furring.
   6. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Engineered wood products.
   4. Power-driven fasteners.
   5. Powder-actuated fasteners.
   6. Expansion anchors.
   7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. For exposed lumber indicated to receive a stained or natural finish.
   3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
   1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, which meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 but Use Category UC3b for exterior construction and Use Category UC4a for items in contact with ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:

2.4 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.

1. Application: Interior partitions not indicated as load-bearing.
2. Species:
   a. Northern species; NLGA.
   b. Western woods; WCLIB or WWPA.

B. Framing Other Than Non-Load-Bearing Interior Partitions: No. 2 grade.

1. Application: Framing other than interior partitions.
2. Species: As Indicated.

C. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

1. Application: Exposed exterior framing indicated to receive a stained or natural finish.

2.5 ENGINEERED WOOD PRODUCTS

A. Engineered Wood Products, General: Products shall contain no urea formaldehyde.

B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal-depth members.
2. Modulus of Elasticity, Edgewise: 2,000,000 psi.

2.6 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Nailers.
   3. Rooftop equipment bases and support curbs.
   4. Cants.
   5. Furring.
   6. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
   1. Northern species; No. 2 Common grade; NLGA.
   2. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

2.7 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.8 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
   1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

2.9 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, provide products by the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   1. Cleveland Steel Specialty Co.
   2. KC Metals Products, Inc.
   3. Phoenix Metal Products, Inc.
   4. Simpson Strong-Tie Co., Inc.
   5. USP Structural Connectors.

C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

D. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
   1. Use for interior locations unless otherwise indicated.

2.10 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.

Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

F. Do not splice structural members between supports unless otherwise indicated.

G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
   1. NES NER-272 for power-driven fasteners.
   2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 061600
SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Wall sheathing.
   2. Roof sheathing.

B. Related Requirements:
   1. Section 06 10 00 "Rough Carpentry" for plywood backing panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
   3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.
   4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For following products, from ICC-ES:
   1. Preservative-treated plywood.
   2. Fire-retardant-treated plywood.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory."

2.2 WOOD PANEL PRODUCTS

A. Emissions: Products shall meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plywood: DOC PS 2.

C. Oriented Strand Board: DOC PS 2.

D. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
E. Factory mark panels to indicate compliance with applicable standard.

2.3 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.4 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
   1. Use treatment that does not promote corrosion of metal fasteners.
   2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
   3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
   4. Design Value Adjustment Factors: Treated lumber plywood shall be tested according ASTM D 5516 and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified.
C. Kiln-dry material after treatment to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.
D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.
E. Application: Treat plywood indicated on Drawings.

2.5 WALL SHEATHING

A. Plywood Wall Sheathing: Exposure 1, Sheathing.
   1. Span Rating: 32/16.
   2. Nominal Thickness: Not less than 15/32 inch.
B. Oriented-Strand-Board Wall Sheathing: Exposure 1, Sheathing.
   1. Span Rating: Not less than 32/16.
   2. Nominal Thickness: Not less than 15/32 inch.

2.6 ROOF SHEATHING

A. Plywood Roof Sheathing: Exposure 1 sheathing.
   1. Span Rating: Not less than 48/24.
   2. Nominal Thickness: Not less than 3/4 inch.
B. Oriented-Strand-Board Roof Sheathing: Exposure 1 sheathing.
   1. Span Rating: Not less than 48/24.
   2. Nominal Thickness: Not less than 3/4 inch.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

2.8 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:
1. Wall and Roof Sheathing:
   a. Nail to wood framing.
   b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 061600

SECTION 061753
METAL-PLATE-CONNECTED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Wood roof trusses.
   2. Wood truss overframing.
   3. Wood truss bracing.
   4. Metal truss accessories.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads indicated. Comply with requirements in TPI 1.

1.3 SUBMITTALS

A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.
B. Shop Drawings: Show fabrication and installation details for trusses.
   1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
   2. Indicate sizes, stress grades, and species of lumber.
   3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
   4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
   5. Show splice details and bearing details.
   6. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
C. Qualification Data: For metal-plate manufacturer and fabricator.
D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
   1. Metal-plate connectors.
   2. Metal truss accessories.

1.4 QUALITY ASSURANCE

A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
   1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
   2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
C. Comply with applicable requirements and recommendations of the following publications:
   1. TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
   2. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
   3. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER

A. Lumber: DOC PS 20. Provide lumber that complies with the applicable rules of any rules writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Provide dry lumber with 19 percent maximum moisture content at time of dressing.

B. Grade and Species: For truss chord and web members, provide dimension lumber of any species, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

C. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 6 Section Rough Carpentry.

2.2 METAL PRODUCTS

A. Connector Plates: Fabricate connector plates to comply with TPI 1 from hot-dip galvanized steel sheet complying with ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 coating designation; and not less than 0.036 inch thick.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Spenard Builders Supply, Inc.
   b. Builder's Choice

B. Fasteners: Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

1. Nails, Brads, and Staples: ASTM F 1667.
2. Power-Driven Fasteners: NES NER-272.
3. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

C. Metal Truss Accessories: Provide truss accessories made from hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable products by one of the following:
   a. KC Metals Products, Inc.
   b. Simpson Strong-Tie Co., Inc.
   c. USP Structural Connectors.
4. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.3 FABRICATION

A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wood trusses only after supporting construction is in place and is braced and secured.

B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

D. Install and brace trusses according to TPI recommendations and as indicated.

E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in truss accessories according to manufacturer's fastening schedules and written instructions.
F. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
   1. Install bracing to comply with Division 6 Section Rough Carpentry.
G. Install wood trusses within installation tolerances in TPI 1.
H. Do not cut or remove truss members.
I. Replace wood trusses that are damaged or do not meet requirements.

END OF SECTION 061753

SECTION 061800
GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes framing using structural glued-laminated timber.

B. Related Requirements:

1. Section 06 10 00 "Rough Carpentry" for dimension lumber items associated with structural glued-laminated timber.

1.3 DEFINITIONS

A. Structural Glued-Laminated (Glulam) Timber: An engineered, stress-rated timber product assembled from selected and prepared wood laminations bonded together with adhesives and with the grain of the laminations approximately parallel longitudinally.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data on lumber, adhesives, fabrication, and protection.
2. For connectors. Include installation instructions.

1.5 INFORMATIONAL SUBMITTALS

A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in AITC A190.1.

B. Material Certificates: For preservative-treated wood products, from manufacturer. Indicate type of preservative used and net amount of preservative retained.

C. Research/Evaluation Reports: For structural glued-laminated timber, from ICC-ES.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: An AITC- or APA-EWS-licensed firm.

1.7 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with provisions in AITC 111.

B. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Structural glued-laminated timber and connectors shall withstand the effects of structural loads shown on Drawings without exceeding allowable design working stresses listed in AITC 117 or determined according to ASTM D 3737 and acceptable to authorities having jurisdiction.

2.2 STRUCTURAL GLUED-LAMINATED TIMBER

A. General: Provide structural glued-laminated timber that complies with AITC A190.1 and AITC 117 or research/evaluation reports acceptable to authorities having jurisdiction.

1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.
2. Provide structural glued-laminated timber made from single species.
3. Provide structural glued-laminated timber made from solid lumber laminations; do not use laminated veneer lumber.
4. Provide structural glued-laminated timber made with wet-use adhesive complying with AITC A190.1.

B. Species and Grades for Structural Glued-Laminated Timber: Beams and headers shall be DF with structural properties as indicated in the drawings.

C. Appearance Grade: Exposed beams shall be Architectural Grade, complying with AITC 110.

2.3 TIMBER CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable product by one of the following:

1. Simpson Strong-Tie Co., Inc.
2. USP Structural Connectors.

C. Provide bolts, 3/4 inch unless otherwise indicated, complying with ASTM A 307, Grade A; nuts complying with ASTM A 563; and, where indicated, flat washers.

D. Materials: Unless otherwise indicated, fabricate from the following materials:

1. Structural-steel shapes, plates, and flat bars complying with ASTM A 36/A 36M.
2. Round steel bars complying with ASTM A 575, Grade M 1020.

E. Finish steel assemblies and fast eners with rust-inhibitive primer, 2-mil dry film thickness.

2.4 MISCELLANEOUS MATERIALS

A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.5 FABRICATION

A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.
1. Dress exposed surfaces as needed to remove planing and surfacing marks.

B. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.

C. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit except for preservative-treated wood where treatment included a water repellent.

2.6 FACTORY FINISHING

A. Clear Finish: Manufacturer's standard, two-coat, clear varnish finish; resistant to mildew and fungus.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates in areas to receive structural glued-laminated timber, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.

B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing and finishing.
1. Predrill for fasteners using timber connectors as templates.
2. Finish exposed surfaces to remove planing or surfacing marks and to provide a finish equivalent to that produced by machine sanding with No. 120 grit sandpaper.
3. Coat cross cuts with end sealer.

D. Install timber connectors as indicated.
1. Unless otherwise indicated, install bolts with same orientation within each connection and in similar connections.
2. Install bolts with orientation as indicated or, if not indicated, as directed by Architect.

3.3 ADJUSTING

A. Repair damaged surfaces and finishes after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.4 PROTECTION

A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.
1. Coordinate wrapping removal with finishing work. Retain wrapping where it can serve as a painting shield.
2. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800

SECTION 409010
CONTROL STRATEGIES DESCRIPTIONS

PART 1 -- GENERAL

Well 5

New Well 5 automation system includes field sensors, instrumentation, control panels and integration into the City's existing comprehensive SCADA system. The automation system is interconnected with critical control devices including the motor control center (MCC) and provide autonomous control of the pumping systems based on locally sensed conditions.

Data from this site is routed from the Remote Telemetry Unit (RTU) via Cellular to the Master Telemetry Unit (MTU) located at City Sewer Treatment Plant (STP) and viewed through the SCADA graphic computers). Updates from this site are estimated at 5 seconds based on this design.

Primary hydraulic equipment at the station includes one 150hp variable speed pumps. The RTU control panel is designed for UL508 label compliance as it is not located in the hazardous.

Control system enclosures are rated NEMA type 4X stainless, for outdoor mounting, and NEMA type 12 inside the pump station. The RTU is indoors and contains input/output modules and a ProfiNet industrial Ethernet connection to provide pump control, flow and level monitoring.

Automation equipment used in this system is as manufactured by Siemens Industry, with the primary controller selected as a model S7-1500 in ET200SP form factor PLC to match City standard. A 12" color Human Machine Interface (HMI) graphic control screen is mounted on the control panel, providing an intuitive interface to the controller for viewing and changing operating parameters. The PLC, HMI, flowmeter, power meter, and motor starter variable frequency drive (VFD) equipment used on this project shall be network connected, and programmed using Siemens TIA Portal software as a fully integrated package.

The RTU logic is autonomous, operating the station independent of communication with the master system. The MTU may request changes to the pump start and stop levels, request pump alternation and reset alarm conditions only. The RTU programming has features to detect various abnormal operating conditions and take corrective action. Alarms detected at the station may be viewed locally on a message panel and viewed at the STP location using WinCC screen. Alarms and events monitored by the RTU include authorized entry and exit detection, air quality (smoke/temp), station high water (flood), operator in trouble, room temperature low, and equipment alarm conditions.

The control system shall connect using ProfiNet cabling for auto operation of the motor controllers and monitoring of the power metering unit, and the flowmeter. ProfiNet connectivity shall provide information required for determining pump efficiency and cost of pumping via the HMI panel. Faulting conditions of electronic motor starting equipment due to power outages shall be automatically reset by the control system without need for operator interaction. The SCADA system shall receive fault indication and be able to remotely reset fault conditions by operator action. The SCADA system shall relay applied horsepower, speed and efficiency data on screen. Utility and auxiliary power measurements shall be displayed on the touch panel and on the SCADA system.

1.01 SUBMERSIBLE LEVEL TRANSMITTER

A submersible level sensor is used to provide accurate level indication of aquifer well level. The level sensor is located a stilling well in the well casing. Design is based on a Keller Micro Level series submersible level measurement system.

1.02 DISCHARGE PRESSURE TRANSMITTER

An analog pressure transmitter measures pressure in the pipeline and provides an analog signal proportional to the pressure input. The two-wire 4-20mA signal is proportional to span and is battery backed during an outage to provide continuous measurement during a power outage. The instrument includes a digital LCD display showing measured pressure.

1.03 MAGNETIC FLOWMETER

Magnetic induction flowmeters are very accurate devices that measure the flow of water at a station. Proper flow conditions require straight pipe approach for a minimum of three pipe diameters upstream of the meter. Additional distance is often required when upstream piping contains throttled valves and skewed pipe angles. Accuracy of the flowmeter will be verified during startup by volumetric tests and proved to be within 1% of calculated volumes. The meter sensor shall be located in the meter vault and the flow transmitter mounted to the wall in the pump Station. Flow rate and totalizer data signals from this meter transmitter are fed to the RTU. Total flow is in 1000-gallon units. This meter requires 24Vdc power to operate. Design is based on Siemens FMT020 and FMS500 series equipment, with Profinet communication to the RTU

1.04 TEMPERATURE TRANSMITTER

The temperatures instrument measures indoor and outdoor temperature using RTD temperature sensors with a two-wire 4-20mA output, providing instantaneous temperature readings. The SCP standard display and SCADA computers will display the site current temperatures. Both indoor and outdoor temperatures are used in the control algorithm for the ventilation system.

1.05 HATCH/DOOR AJAR SENSOR

A mechanically actuated industrial limit switch mounted on the hatch access doors provide security for the wet well, vaults and building doors. Switch contact shall open as the hatch/door opens. Environment rating of the limit switch shall be Nema type 4 for the building interior, Nema type 6P with intrinsically safe barrier protection for the wet well and vault hatches.

1.06 AIR QUALITY / SMOKE SENSOR

The sensor is sensitive to both smoke and temperature. A red LED should flash four to six times per minute during normal operation. If the unit senses an alarm condition, the LED will illuminate and remain in the alarm state until reset by removing power. Any alarm condition sensed by this unit requires a reset action from the reset switch on the RTU.

1.07 FLOOD SENSORS

A float switch located 2” off the floor senses high water condition and provide notification to operations personnel via the SCADA system.

1.08 STATION SHUTDOWN

The red mushroom button is available on the SCP panel door and in the pipe gallery. When depressed, the alarm is transmitted to the Public Works Operations facility. In addition, pumps are stopped to secure station process operations.

WELL 4 / RESERVOIR 2

Well 4 Reservoir 2 Station, a new Remote I/O panel (RIO) will be installed at Reservoir 2. New conduit from Well 4 to Reservoir 2 will be installed that will provide 120vac and fiber between the sites. The new RIO panel will use Siemens Industry, with the primary controller selected as a model S7-1500 in ET200SP form factor remote I/O module to match City standard. The RIO will locally connect to a new pressure transmitter for reservoir level and overflow float to monitor tank overflow conditions, RIO panel temperature to control the RIO panel heater and provide low temperature alarms. Alarms, events and analogs will be displayed on the existing Well 4 RTU HMI and added to the SCADA system

1.09 PRESSURE TRANSMITTER (RESERVOIR LEVEL)

An analog pressure transmitter measures pressure in the pipeline, indicting reservoir level and provides an analog signal proportional to the pressure input / Reservoir level. The two-wire 4-20mA signal is proportional to span and is battery backed during an outage to provide continuous measurement during a power outage. The instrument includes a digital LCD display showing measured pressure.

1.10 TEMPERATURE TRANSMITTER

The temperatures instrument measures RIO temperature using RTD temperature sensors with a two-wire 4-20mA output, providing instantaneous temperature readings. The SCP standard display and SCADA computers will display the site current temperatures. The RIO enclosure temperature is used to control the enclosure heater.

1.11 RESERVOIR OVERFLOW SENSORS

A float switch located 2” – 6” below the overflow discharge piping senses high water condition and provide alarm and pump lockout notification to operations personnel via the SCADA system.

PART 2 -- WELL 5 MOTOR CONTROL CENTER INTERFACE

2.01 GENERAL

The MCC is a modular system, a specially designed electrical switchgear panel designed to work with line voltages and high amperages and containing motor starters for each pump unit. The MCC is connected to the PLC system via a digital interface to command the switchgear to actuate the motor(s) according to a prescribed algorithm and read complete power data. All motors are started with variable frequency drive units which allow for efficient operation of motors at a wide range of speed. Software in the PLC sequences the motor controllers and monitors for status and alarm conditions. Design is based on Siemens TIA Star MCC.

2.02 POWER METER

The power meter is located on the front panel of the MCC and monitors the 480V power on the load side of the ATS and manual transfer switch. The power meter provides harmonic distortion monitoring and site power consumption information. This meter also provides real time information about incoming utility power quality. The unit is self-contained and its readings and parameters are maintained in nonvolatile memory. All data is passed via ProfiNet connection including Volts L-L, Volts L-N, kW, kVAr, kVA, Amps, harmonic distortion and frequency. Design based on Siemens PAC3200 with ProfiNet interface.

2.03 VARIABLE FREQUENCY DRIVE

VFDs are designed to produce variable output flows from pump motors by varying the speed of the motor. The control system continually monitors the pressure and flow rate and adjusts the pump speed as required to maintain a constant pressure or flow setpoint. The VFD is configured to ramp the motor up to speed over a fifteen second time period to a minimum speed where flow is achieved. The ramping speeds are controlled by entries made in the VFD control panel. A drive fault will remove the motor start operation and signal the PLC system of the condition. The run indication is active when the start command is received and the drive has begun to pass energy to the motor.

The VFD system is equipped with a “Hand/Automatic” (HA) switch and an intelligent operator panel (IOP) on each motor controller’s panel door. Running and Fail conditions are displayed on the local keypad. In the “Auto” position, the pump motor will start and stop by command of the automation system PLC via the ProfiNet® network. In the “Hand” position, the motor is turned on and ramped up to the speed prescribed by the keypad buttons located on the controller.

The Drives have the following features: Automatic voltage adjustment within the power range. Self Tuning (Measurement of motor resistance & Speed loop optimization), 0.001 Hz setpoint resolution, Flying restart, Frequency avoidance, Kinetic buffering with power dip ride-through, Microprocessor based adjustable frequency drive with sinusoidal PWM current control, IGBT inverter bridge through entire power range, ProfiNet® communication for all control and status information, programming diagnostic port for RS232/485 with programming software, Warning and Fault messages viewable through the text / pgm display unit, and an External Fault Reset button. The unit shall be configured for: Minimum Frequency, Maximum Frequency, Voltage Boost/ Current Boost, Motor Overload, Overload Time, Slip Compensation Method, Analog Scaling, Acceleration Time, Deceleration Time, Frequency avoidance with adjustable bandwidth.

Design is based on Siemens G120 with PM240-2, CU-230P-2PN control unit and IOP-2 display.

A. Harmonic Filter

A passive harmonic filter system is included within the MCC bucket for each VFD and connected upstream of the VFD. The VFD is a 6-pulse input and at high amperage will require the filter to ensure compliance with harmonic distortion noise limits imposed by the power utility according to IEEE-519-1992. Filter integration with VFD shall be performed by the MCC manufacturer with the manufacturer providing unit responsibility.

The VFD assembly includes an output contactor to activate the capacitor bank in the harmonic filter when the drive is up to speed and to monitor input from the filter. The operator should hear the contactor engage when the drive exceeds 60% load and release when load falls below 50% load. The harmonic filter is equipped with a thermal sensor to sense high temperature in the filter. High temperature switch breaks the enable logic in the VFD and provides a shutdown of the VFD as an "external fault". All other inputs and outputs to the drive are derived via the ProfiNet® network.

B. Additional VFD Programming
Logic within the VFD system shall be independent of the network connection such that the features are functional in manual operation or without network cabling.

1. Provide logic within the VFD to automatically restart following a power failure or brown out condition, with up to 3 restarts, one minute apart.
2. Provide logic in the VFD to sequence the capacitor bank.
3. Configure data exchange values listed on the project drawings.
4. Configure for direct fixed speed operation of the pump when the "high float" operation is active. (Applicable for sewage pumps only).

PART 3 -- PUMP CONTROL ALGORITHMS

The Well pump is controlled by a variable frequency drive motor controller, adjusting the motor RPM as necessary to maintain the required flow rate. The VFD is an energy efficient method of flow production when operating a well at less than full capacity.

3.01 STARTUP PROCEEDURE

A. Manually operated valves must be set for discharge to the system. Any valves redirecting water from the standard flow path will cause the well pump to alarm and shutdown as the system will detect out of normal conditions.

B. No critical alarms active (lo-lo aquifer level, hi-hi reservoir level, motor controller fault, overtemperature, phase/power failure, or shutdown/OIT). Critical alarms constitute a "Well System Shutdown" alarm.

C. Minimum time exceeded since last motor operation. Following each time the motor stops, a minimum rest period is required to expire. Time is user adjustable, recommended to be twice the observed time for flow to pass through the pump bowls and come to a stop. Typical values are 2.0 to 5.0 minutes.

D. Flow pathway valves open and ready to accept flow.

E. Destination reservoirs are not at high-high level.

3.02 PUMP OPERATION

A. Upon startup of the pump, motor speed immediately moves to minimum operating speed (default 50% speed) to provide needed water lubrication in the pump bowls, pump control valve is commanded open, and then flow is slowly ramped to desired flow rate setpoint and discharge pressure is monitored continuously.

B. Pump efficiency is continuously monitored and provides low efficiency warning and low-low efficiency process shutdown alarms.

C. Flow is allowed to increase to meet flow setpoint at a rate of 1000gpm/min (adjustable).

D. A change to flow routing sensed by valve position feedback that removes a pathway to the reservoir will initiate a latched alarm and a normal shutdown sequence.

E. High-High pressure in the discharge pipeline or low-low level in the pump supply source initiates a latched alarm and alarm shutdown sequence. In a alarm shutdown condition, the automation provides a controlled stop of operation, ramping flow to avoid pressure surging. High warning conditions are provided for each variable to provide advance notification of pending shutdown conditions. Shutdown alarms require operator reset to allow return to automatic operation.

F. Hand (or manual) operation of the VFD at the motor controller is discouraged and should only be considered when the user is aware of all process conditions that are described in the operating narrative. Hand position at the VFD will bypass process safety responses including vibration, temperature and flow path verification.

3.03 PUMP SHUTDOWN SEQUENCE

A. When the auto-call signal is de-activated or if the VFD selector is placed to the Off position, the VFD ramps the motor speed down at a 1%/sec rate until reaching the minimum speed of the motor at which time, the pump control valve is commanded close and the motor is de-energized and will spin to a stop based on inertia.

B. The automation system tracks the time when the motor is stopped and will not allow an automatic restart until the minimum off-time period is exceeded.

3.04 INDIVIDUAL PUMP CONTROL FEATURES

A. Override Control Using Local HOA Switches

The local Hand position will allow the operator to override the PLC and run the pumps as desired. The Off condition is reached by placing the VFD selector switches into the Hand position and then pushing the red 'O' button. The start command is selected by depressing the green 'I' button while in the 'Hand' position. All automatic control in the RTU requires the associated equipment switches to be placed in the "Auto" position. The RTU monitors the switch position by sensing if the control voltage in the MCC is on and passes this information to the MTU for operator information. The RTU is electrically disconnected when the switch is placed in the Hand. This allows for the operator to manually control the pumps at any pump station without intervening in the RTU or MTU operation.

B. Pump Operation Checks and Safety Features

For a pump to be called to run from the RTU, the PLC must recognize the pump as qualified to start. The pump must not have a "too many starts" alarm, exceeding the manufacturer's recommended number of starts within a given time and the pump must not have a command failure alarm, when the pump fails to respond to control commands from the RTU/MTU. The pump VFD is also monitored for fault conditions and a fault condition will prevent the pump start.

C. Pump Failure Conditions

Pump failure alarms may be caused by a number of events. All events may not place the equipment at risk, but all warrant the operator's time to investigate the situation. When a pump is failed, the RTU sends this data out to the MTU immediately for action. The two failure conditions used by these RTUs are Fail to Command and Too Many Starts.

1. Too Many Starts Alarm

This alarm monitors the number of starts of each pump. If any pump exceeds three starts in a ten-minute period, this alarm becomes active. Similar to the Fail to Start Alarm, the Too Many Starts Alarm (or Start Limit) will be displayed locally on the touch panel under the Alarm Message Log. This alarm will automatically clear after ten minutes or may be reset using the Reset push button on the panel face.

2. Fail to Command Alarm

The RTU monitors the status of each motor by the run feedback. If the pump operating status is not in sync with the RTU command, the RTU initiates a timer to measure the length of time the pump takes to comply with the commanded state. When starting the pump, the RTU expects a run report-back confirmation within five seconds. Since some pump applications have control valves, which are designed to slowly close, a second timer is used for measuring the time taken for a pump to stop once the stop signal is sent. This time is set at ten minutes. This time is set for a longer period to allow for the operator to occasionally test a pump without initiating a fail alarm. Anytime a pump fails to start, the fail to start alarm will be displayed locally under the Alarm Message Log. This alarm normally requires a "Reset" at the RTU or may be remotely reset at the MTU.

PART 4 -- STATION MONITORING AND VISUALIZATION

The station control is provided by the programmable logic controller (PLC) based remote telemetry unit (RTU) located inside the pumping station. This device exchanges data continuously with the Master Telemetry Unit (MTU) via a cellular connection. Data is visualized at the station through a color touch screen panel and at the STP via a comprehensive SCADA computer system that acquires data from the MTU.

4.01 RTU TOUCH PANEL

A 12” touch panel shall be supplied to display process screens, trends and control setups. Include the following list of screens developed for this project as a minimum: Screen Menu, Process Overview, System Diagnostics, Network View, Event Messaging (date/time stamped), Alarm Messaging (date/time stamped), Intrusion setup and status, security setup and status, analog setup, pump mode setup, VFD information and tuning, alternation setup, pump efficiency data, power meter data, generator status, and trending for level and flow. Trending shall be locally stored on a removal media card and configured for a minimum of two months data in a circular archive.

4.02 MASTER SCADA SYSTEM

The existing pump station screen data shall be updated to reflect new process features and equipment. Utilize pop-up screens accessible from the station screen to display pump configuration, mode selection, all setpoints, and trending. Add new analog variables, alarms and event conditions to SQL based Historian. Provide ability to disable alarms and disable off-duty callout on an alarm by alarm basis. Update the off-duty call out system to monitor all alarms from this station.

SECTION 409100
INSTRUMENTATION, CONTROL AND TELEMETRY SYSTEMS

PART 1 -- GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. International Society of Automation (ISA):

a. S5.1, Instrumentation Symbols and Identification.

b. S5.4, Standard Instrument Loop Diagrams.

c. S20, Specification Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves.

d. S50.1, Compatibility of Analog Signals for Electronic Industrial Process Instruments.

2. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).

b. ICS 1, General Standards for Industrial Control and Systems.

3. National Institute of Standards and Technology (NIST).

4. Underwriters Laboratory, Inc. (UL): 508A, Standard for Safety, Industrial Control Panels.

5. National Electrical Code: NFPA 70.

1.02 SUMMARY

A. Work Includes Engineering, furnishing, installing, calibrating, adjusting, testing, documenting, starting up, and Owner training for complete Instrumentation and Control (I&C) including the pump motor controllers. The system integrator shall have unit responsibility of the design and implementation of the control system including software and hardware in accordance with the design directives provided herein.

B. Major parts are:

1. Primary elements, transmitters, and control devices.

2. Programmable Logic Controller (PLC) based station control panel.

3. Application software development for PLC, HMI and SCADA systems.

4. Networked Integration with equipment procured and delivered outside this Section including the Motor Control Center MCC [per Section 16443].

C. The I&C system provided as part of this Contract is an addition and modification to the Owner's existing SCADA system, which was designed and furnished by S&B, Inc. For compatibility with their comprehensive system, I&C design and system integration will be provided by the Owner's I&C System Integrator, S&B, Inc.

D. Installation of equipment supplied in this section shall be performed by the electrical and mechanical contractors as assigned by the General Contractor.

1.03 DEFINITIONS

A. Abbreviations:

1. I&C: Instrumentation and Control System

2. LCP: Local Control Panel.

3. PLC: Programmable Logic Controller.

4. RTU: Remote Telemetry Unit

5. RIO: Remote Input/Output Unit

6. VFD: Variable Frequency Drive (Motor Controller).

B. Rising/Falling actions of discrete devices about their setpoints.

1. Rising contacts close when an increasing process variable rises through setpoint.

2. Falling contacts close when a decreasing process variable falls through setpoint.

C. Signal Types:

D. Analog Signals, Current Type:

1. 4 to 20 mA dc signals conforming to ISA S50.1.

2. Unless otherwise indicated for specific I&C Subsystem components, use the following ISA 50.1 options:

3. Transmitter Type: Number 2, two-wire.

4. Transmitter Load Resistance Capacity: Class L.

5. Fully isolated transmitters and receivers.

6. Analog Signals, Voltage Type: 1 to 5 volts dc within panels where a common high precision dropping resistor is used.

7. Discrete signals, two-state logic signals using dc or 120V ac sources as indicated.

8. Pulse Frequency Signals:

a. Direct current pulses whose repetition rate is linearly proportional to process variable.

b. Pulses generated by contact closures or solid state switches as indicated.

c. Power source less than 30V dc.

9. Network Communicated Signals: Process fieldbus data communicated over RS485 and Ethernet signal cables.

E. Instrument Tag Numbers:

1. A shorthand tag number notation is used in the Equipment Descriptions. For example: AI-2 [pH].

Notation	Explanation
PIT	ISA designator for Pressure Indicator Transmitter.
2	Loop number.
[A]	Same notation shown at 2 o'clock position on ISA circle symbol on P&ID. Refers to redundancy or detail in function.

1.04 SUBMITTALS

A. Action Submittals:

1. General:

a. Shop Drawings, full-scaled details, wiring diagrams.

b. Identify proposed items and options. Identify installed spares and other provisions for future work (for example, reserved panel space; unused components, wiring, and terminals).

c. Legends and Abbreviation Lists:

d. Complete definition of symbols and abbreviations used on this Project (for example, engineering units, flow streams, instruments, structures, and other process items used in nameplates, legends, and data sheets).

2. Bill of Materials: List of required equipment.

a. Group equipment items by enclosure and field, and within an enclosure, as follows:

b. I&C Components: By component identification code.

c. Other Equipment: By equipment type.

d. Data Included:

1) Equipment tag number.

2) Description.

3) Manufacturer, complete model number, and all options not defined by model number.

4) Quantity supplied.

5) Component identification code where applicable.

3. Field Instrument and Sensor Data: for

a. I&C components supplied for installation by the mechanical and electrical contractors:

b. Catalog information, identifying proposed items and options.

c. Descriptive literature.

d. External power and signal connections.

e. Scaled drawings showing exterior dimensions and locations of electrical and mechanical interfaces.

4. Panel Construction Drawings:

a. Scale Drawings:

b. Show dimensions and location of panel mounted devices, doors, louvers, and subpanels, internal and external.

c. Panel Legend:

d. List front of panel devices by tag numbers, nameplate inscriptions, service legends, and annunciator inscriptions.

e. Construction Details:

f. UL conformance, NEMA rating, materials, lifting lugs, mounting brackets, doorhinges and latches, and welding and other connection callouts and details.

g. Construction Notes:

h. Finishes, wire color schemes, wire ratings, wire and terminal block, numbering and labeling scheme.

5. Panel Control Diagrams: For discrete control and power circuits.

a. Diagram Type: Ladder diagrams in format same as shown on Drawings. Include devices, related to discrete functions, that are mounted in or on the panel and that require electrical connections.

b. Item Identification: Identify each item with attributes listed.

1) Wires: Wire number and color. Cable number if part of multiconductor cable.

2) Terminals: Location (enclosure number, terminal junction box number, or MCC number), terminal strip number, and terminal block number.

3) Discrete Components:

4) Tag number, terminal numbers, and location

5) Switching action (open or close on rising or falling process variable), setpoint value and units, and process variable description (for example, Sump Level High).

6) Relay Coils: Tag number and its function.

c. Ground wires, surge protectors, and connections.

d. Circuit Names: Show names corresponding to Circuit and Raceway Schedule for circuits entering and leaving a panel.

6. Panel Plumbing Diagrams:

7. For each panel containing piping and tubing. Show type and size for:

8. Pipes and Tubes: Thickness, pressure rating, and materials.

a. Components: Valves, regulators, and filters.

b. Connections to panel mounted devices.

c. Panel interface connections.

9. Interconnecting Wiring Diagrams:

a. Diagrams, device designations, and symbols in accordance with NEMA ICS 1.

b. Show:

1) Electrical connections between equipment, consoles, panels, terminal junction boxes, and field mounted components.

2) Component and panel terminal board identification numbers, and external wire and cable numbers.

3) Circuit names matching Circuit and Raceway Schedule.

10. Installation Details:

11. Include modifications or further details required to adequately define installation of I&C components.

B. Informational Submittals:

1. For I&C equipment, provide Manufacturer's Certificate of Proper Installation and readiness for operation.

2. Owner Training Plan.

3. Operation and Maintenance (O&M) Manual: Supply detailed O&M data on indexed and hyperlinked DVD to match City SCADA standard. Provide DVD and paper copies of drawings and operating narrative.in accordance with quantities identified in the project submittals section.

a. Content and Format:

1) DVD content hyperlinked from centralized index page.

2) Complete hardware information provided in pdf file format organized by manufacturer and item description.

3) Sufficient detail to allow operation, removal, installation, adjustment, calibration, maintenance and purchasing replacements for each I&C component.

4) Final versions of drawings reflecting installation As Built wiring.

5) Final version of operating narrative to include any additional requirements determined during performance acceptance testing.

b. Include hard copy and digital copy:

1) Shop Drawings per the following items:
Bill of Materials.
Field Instrument Data Sheets.
Panel Control Diagrams.
Panel Wiring Diagrams
Panel Plumbing Diagrams
Interconnecting Wiring Diagrams,
Application Software Operating Narrative

2) Device O&M manuals indexed on DVD for components, electrical devices, and mechanical devices include:
Operations procedures.
Installation requirements and procedures.
Maintenance requirements and procedures.
Troubleshooting procedures.
Calibration procedures.
Internal schematic and wiring diagrams.
Component Calibration Sheets from field quality control calibrations.

4. Acceptance Tests:

a. Test Procedure:

1) Calibration confirmation of field instrument signals per Field Instrument Data Sheet specification.

2) Paragraph by paragraph confirmation of project supplement attached control description.

3) Section paragraph confirmation of Operating Narrative.

b. Test Documentation: Copy of System Integrator signed off test procedures when tests are completed.

1.05 QUALITY ASSURANCE

A. Calibration Instruments: Each instrument used for calibrating I&C equipment shall bear the seal of a reputable laboratory certifying that instrument has been calibrated within the previous 12 months to a standard endorsed by the NIST.

B. Factory Calibration Records: Provide all factory instrument calibration record certifying instrument testing parameters. Instrument calibration from process measurement to local display and from local display to signal interface shall be demonstrated by either factory certified record or field testing and meet specified accuracy.

C. Coordination Meetings:

1. Location: City offices or jobsite by mutual agreement

2. Attended By: System Integrator, Electrical foreman, mechanical foreman, and General Contractor. Owner and/or Engineer may elect to attend meetings.

3. Notice: minimum five working day advance notice.

4. Meetings:

a. Pre-installation: within one week of delivery of equipment to jobsite to review installation requirements. Two to four hours are reserved for this purpose.

b. Pre-energization: System Integrator provides onsite review and approval of installed components and confirms wiring termination prior to energizing electrical circuits. Any devices not approved for energization are identified as exceptions to system integrator's installation certificate. Two to six hours are estimated for site review along with a one hour post review meeting.

c. Startup: System testing requirements are confirmed with General Contractor and electrical contractor. System Integrator will begin startup and acceptance testing following confirmation that all process equipment receive confirmation from the General Contractor that all process equipment is ready to begin

d. Minimum of one is required. Specific dates will be established in Progress Schedule.

1.06 DELIVERY, STORAGE, AND HANDLING

1. System Integrator will provide temperature controlled warehouse storage for I&C equipment at its facility until Contractor requested delivery date.

2. Prior to installation at project location, store items in dry indoor locations. Provide heating in storage areas for items subject to corrosion under damp conditions.

3. Schedule delivery of electrical control panels and adjustable frequency drive units after interior painting is complete. Cover panels and other elements that are exposed to dusty construction environments.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Standard Environmental Requirements: Unless otherwise noted, design equipment for continuous operation in these environments:

1. Freestanding Panel and Consoles:
    a. Inside, Air Conditioned: NEMA 1.
    b. Inside: NEMA 12.
2. Wall Mounted Panels and Assemblies
    a. Inside, Noncorrosive: NEMA 12.
    b. All Other Locations: NEMA 4X.
3. Field Elements:
    a. Inside, Nema 12
    b. Outside, Nema 4
    c. Corrosive, Nema 4X

B. Environmental Design Requirements: Following defines the types of environments referred to in the above.

1. Inside, Air Conditioned, Temperature:
    a. Normal: 60 to 80 degrees F.
    b. With Up to 4-Hour HVAC System Interruptions: 40 to 105 degrees F.
2. Relative Humidity:
    a. Normal: 10 percent (winter) to 70 percent (summer).
    b. Up to 4-Hour HVAC System Interruption: 10 to 95 percent non-condensing
3. Inside NEC Classification, nonhazardous.
    a. Temperature: 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent non-condensing.
    c. NEC Classification: Nonhazardous.
4. Inside, Corrosive:
    a. Temperature: Minus 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent non-condensing.
    c. Corrosive Environment per drawing indication.
    d. NEC Classification: Nonhazardous.
5. Outside:
    a. Temperature: Minus 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent noncondensing, rain, snow, freezing rain.

c. NEC Classification: Nonhazardous.

1.08 SEQUENCING AND SCHEDULING

1. Activity Completion: The following is a list of key activities and their completion criteria:

a. Action Submittals: Reviewed and accepted.

b. Factory Test Complete: Hardware and Software is factory tested, packaged, and ready for shipment.

c. Modifications to existing SCADA Master System Complete

d. Acceptance Test: Completed and required test documentation accepted.

2. I&C Substantial Completion: When Owner issues Certificate of Substantial Completion.

a. Prerequisites:

1) All I&C Submittals have been completed.

2) System Integrator has successfully completed acceptance testing.

3) Owner training plan is on schedule.

b. Finalization: When Engineer issues a written notice of Final Payment and Acceptance:

1) Certificate of Substantial Completion issued for I&C.

2) I&C Punch-list items completed.

3) Final revisions to O&M manuals accepted.

3. Prerequisite Activities and Lead Times: Do not start the following key Project activities until the prerequisite activities and lead times listed below have been completed and satisfied:

Activity	Prerequisites and Lead Times
Submittal reviews by Engineer	Engineer acceptance of Submittal breakdown and schedule.
Hardware purchasing, fabrication, and assembly	Associated Shop Drawing Submittals completed.
Shipment	Completion of I&C Shop Drawing Submittals and preliminary O&M manuals.
Owner Training	Owner training plan completed
Acceptance Testing	Startup, Owner training, and test procedures completed

1.09 GUARANTEE

A. The System Integrator shall repair or replace defective components, rectify malfunctions, correct faulty workmanship, all at no additional cost to the Owner during the warranty period.

B. To fulfill this obligation, the System Integrator shall utilize qualified technical service personnel. Services shall be performed within five calendar days after notification by the Owner's Representative.

1.10 MEASUREMENT AND PAYMENT

A. Payment for the work in this section shall be included as part of the lump-sum bid amount stated in the Proposal.

PART 2 -- MATERIALS

2.01 GENERAL

1. I&C functions as shown on Drawings and as required for each loop. Furnish equipment items as required and identified in this Section on the project drawings. Furnish all materials, equipment, and software, necessary to affect required system and loop performance.

2. Manufacturer: I&C design is based on Siemens equipment as preferred manufacturer for all automation and control equipment. Products have, therefore, been selected to be fully compatible and when possible, to match existing parts used throughout the Owner's control systems.

3. The instrumentation and control and telemetry system is designed to function as an integral part of the Owner's comprehensive water telemetry, control, and reporting system in place at other facilities. This system is designed to allow new facilities to be constructed or existing facilities to be modified and then to be fully integrated as part of this overall system. The master telemetry unit and graphical user interface shall be modified by the System Integrator to accommodate the new facilities specified and indicated on Drawings.

4. The System Integrator shall furnish MCC with VFDs, control panels, field instrumentation and sensors for installation by the Contractor.

   a. Motor Control Center provided under this Section. The System Integrator shall design, supply, startup and test the following:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
MCC-801	Motor Control Center 1	FreeStanding	1A	91x100x20	Electrical Room

Motor Control Center [MCC-1], 90"H x 100"W x 20"D, 600A MLO (Main Lug Only): Includes 1-400ATS, 1- 150HP VFDs {includes passive harmonic

filter, output reactor, Capacitor contactor, Profinet communication, pilot lights (Run and Fault), elapsed time (hour) meter, Intelligent operator Panel (IOP)}, power meter with Profinet communication, 200kaic SPD, 30kva transformer, 30ckt panelboard, 19-20Afeeder breaker, 4 – 20A/2 feeder breakers and 1 – 20A/3 feeder breaker and 50A breaker for 30kva xfrmr

b. Well 5 - Control Panel
The following I&C control panels are covered by this Section. The automation system shall consist of Siemens S7-1500 series / ET200SP platform PLC components and Unified Series touch panel as the HMI. The System Integrator shall design, supply, startup and test the following panels:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
RTU-801	Remote Telemetry Unit	Wall Mount	12	36x30x12	Electrical Room

c. Well 4 Reservoir – Remote I/O Panel
The following I&C control panels are covered by this Section. The automation system shall consist of Siemens S7-1500 series / ET200SP platform PLC remote I/O components. The System Integrator shall design, supply, startup and test the following panels:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
RIO-702	Remote I/O Unit	Wall Mount	12	30x24x12?	Mounted on pad near PSI transmitter vault

d. Well 5 - Instruments and field sensors per list below

Details regarding each instrument are provided in the 409100-Supplement immediately following this section.

Tag	Description	Instrument Type
FE/FIT-811	Station Discharge Flow	12” Magnetic Flowmeter with integral mount transmitter, profinet communication module
USH-801	Electrical Room Air Quality	Air Quality / Smoke Sensor
USH-811	Pump Room Air Quality	Air Quality / Smoke Sensor
LIT-811	Level Sensor, Submersible	Level Measurement
LSH-811	Pump Room Flood	Flood Swtich Level Detection
ZS-811	Pump Room Man Door Ajar	Limit Switch (NEMA 4 type)
ZS-812	Pump Room Double Door Ajar	Limit Switch (NEMA 4 type)
PE/PIT-811	Discharge Pressure Transmitter	Pressure Measurement
TIT-811	Pump Room Temperature Transmitter	Air Temperature Measurement

e. Well 4 Reservoir2 - Instruments and field sensors per list below

Details regarding each instrument are provided in the 409100-Supplement immediately following this section.

Tag	Description	Instrument Type
PE/PIT-702	Reservoir Level	Pressure Measurement
LSH-702	Reservoir Overflow	Flood Switch Level Detection
LSH-703	Pressure Transmitter Vault Flood	Flood Switch Level Detection

5. Integrator shall furnish application software for logic and graphic display units for the following sub-systems.

   a. Programmable Logic Controller (PLC) - application software for logic processing of automatic operation. Deliverable product in Siemens TIA Portal. Software loaded and factory tested in Siemens S7 PLC.

   b. Human Machine Interface (HMI) – application software for graphic depiction of process signals and setpoint entries. Deliverable will include screen development for operation of pumps, and valve control systems. Deployment will load to Siemens Comfort Series color touch screens using TIA Portal software.

   c. Supervisory Control and Data Acquisition (SCADA), screen additions for Well 5 to existing WinCC and Historian applications at the City of Valdez Sewer Treatment Plant (STP).

6. The System Integrator shall provide onsite services with support from electrical sub-contractor.

   a. Pre-installation review with electrical and mechanical trade foreman. Provide four hours.

   b. Pre-energization inspection and certificate of proper installation of I&C components. Provide one day.

   c. Startup and Commissioning of supplied equipment. Provide one contiguous five day block of time to startup both Well 5 adsn Well 4 Reservoir 2 additions.

   d. Acceptance Test and owner training. Provide six hours. (included in five day startup time frame).

2.02 SYSTEM DESCRIPTION

A. General:

1. The instrumentation, control, and telemetry system is designed to provide overall control for Well 5 using locally sensed Level, Flow, status conditions and feedback from remote sensors. The instrumentation, control and telemetry system provides local control for the station based on commands and parameters provided by the MTU.

2. The block diagrams illustrate electrical interconnection requirements between the I&C system and field equipment and sensors. The loop descriptions briefly describe each of the instrument loops and the major instrument components involved. The System Integrator shall be responsible for the design of the system and developing all software for the PLCs and GUI systems.

3. Any equipment or devices shown on Drawings as future are shown for information purposes. No future hardware shall be included as part of this Contract.

4. The System Integrator shall develop application software for the PLC units in the RTU Panel, City Master SCADA Telemetry Unit (MTU). At the RTU Panel, the PLC shall be programmed to provide local automatic as well as supervisory control of the station provided by the MTU PLC via the communications system. All alarm and control functions are monitored locally on the OIM as well as transmitted to the MTU. Fail-safe features shall be included for all operations.

5. At the MTU locations for Well 5, the System Integrator shall provide application software for the Master PLC and the Graphic User Interface (GUI) computers. The Master PLC software shall provide the remote control and monitor as shown on the Project Drawings. The GUI computer system monitors the station and provides instructions for the Master PLC to control the system. Software for this system addition shall be consistent with the System Integrator's and the Owner's comprehensive telemetry system.

2.03 EQUIPMENT DESCRIPTIONS

A. Control Panel Summary.

B. Instrument Supply Summary: As listed previously in this Section. Instruments and field equipment supplied under this Section are identified on the drawings.

C. Functional Requirements for Control Loops: Narrative by function in Section 409010 Control Strategies Description.

D. Shown on Block Diagram Drawings, in Panel Control Diagrams..

2.04 NAMEPLATES AND TAGS

A. Panel Nameplates: Enclosure identification located on the enclosure face.

1. Location and Inscription: As shown.

2. Materials: Laminated plastic attached to panel.

3. Letters: 3/16-inch white on black background, unless otherwise noted.

B. Component Nameplates—Back of Panel: Component identification located on or near component inside of enclosure.

1. Inscription: Component tag number.

2. Materials: Adhesive backed, laminated plastic.

3. Letters: 3/16-inch white on black background, unless otherwise noted.

C. Nametags: Component identification for field devices.

1. Inscription: Component tag number.

2. Materials: 16-gauge, Type 304 stainless steel, or adhesive backed laminated plastic.

3. Letters: 3/16-inch.

4. Mounting: Affix 304ss tags to component with 16- or 18-gauge stainless steel wire.

2.05 ELECTRICAL REQUIREMENTS

A. In accordance with Division 16, Electrical.

B. I&C and Electrical Components, Terminals, Wires, and Enclosures: UL recognized or UL listed.

C. Wires within Enclosures:

1. AC Circuits:

a. Type: 300-volt, Type MTW stranded copper.

b. Size: For current to be carried, but not less than 18 AWG.

2. Analog Signal Circuits:

a. Type: 300-volt stranded copper, twisted shielded pairs.

b. Size: 20 AWG, minimum.

3. Other dc Circuits.

a. Type: 300-volt, Type MTW stranded copper.

b. Size: For current carried, but not less than 18 AWG.

4. Special Signal Circuits: Use manufacturer's standard cables.

5. Wire Identification: Numbered and tagged at each termination.

    a. Wire Tags: Machine printed, heat shrink.

    b. Manufacturers: Brady PermaSleeve or Tyco Electronics.

D. Wires entering or leaving enclosures, terminate and identify as follows:

1. Analog and discrete signal, terminate at numbered terminal blocks.

2. Special signals, terminated using manufacturer's standard connectors.

3. Identify wiring in accordance with Section 26 05 05, Conductors.

E. Terminal Blocks for Enclosures:

1. Quantity:

    a. Accommodate present and spare indicated needs.

    b. Wire spare PLC I/O points to terminal blocks.

    c. One wire per terminal for field wires entering enclosures.

    d. Maximum of two wires per terminal for 18-WG wire for internal enclosure wiring.

    e. Spare Terminals: 20 percent of all connected terminals, but not less than 5 per terminal block.

2. General:

    a. Connection Type: Screw compression clamp.

    b. Compression Clamp:

        1) Complies with DIN-VDE 0611.

        2) Hardened steel clamp with transversal groves that penetrate wire strands providing a vibration-proof connection.

        3) Guides strands of wire into terminal.

        4) Screws: Hardened steel, captive and self-locking.

        5) Current Bar: Copper or treated brass.

        6) Insulation:
        Thermoplastic rated for minus 55 to plus 110 degree C.
        Two funneled shaped inputs to facilitate wire entry.

        7) Mounting:
        Standard DIN rail.
        Terminal block can be extracted from an assembly without displacing adjacent blocks.
        End Stops: Minimum of one at each end of rail.

8) Wire preparation: Stripping only permitted.

9) Jumpers:
Allow jumper installation without loss of space on terminal or rail.

10) Marking System:
Terminal number shown on both sides of terminal block
Allow use of preprinted and field marked tags.
Terminal strip numbers shown on end stops.
Mark terminal block and terminal strip numbers as shown on Panel Control Diagrams and Loop Diagrams.
Fuse Marking for Fused Terminal Blocks: Fuse voltage and amperage rating shown on top of terminal block.

3. Terminal Block, General-Purpose:

a. Rated Voltage: 600V ac.

b. Rated Current: 30 amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Beige body.

f. Spacing: 0.25 inch, maximum.

g. Test Sockets: One screw test socket 2.3 mm diameter.

h. Manufacturer and Product: Siemens; 8WA1011.

4. Terminal Block, Ground:

a. Wire Size: 22 AWG to 12 AWG.

b. Rated Wire Size: 12 AWG.

c. Color: Green and yellow body.

d. Spacing: 0.25 inch, maximum.

e. Grounding: Ground terminal blocks electrically grounded to the mounting rail.

f. Manufacturer and Product: Siemens; 8WA1011-1PH00.

5. Terminal Block, Fused, 24V dc:

a. Rated Voltage: 600V dc.

b. Rated Current: 16-amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Grey body.

f. Fuse: 0.25 inch by 1.25 inches.

g. Indication: LED diode 24V dc.

h. Spacing: 0.512 inch, maximum.

i. Manufacturer and Product: Siemens; 8WA1011-1SF31.

6. Terminal Block, Fused, 120V ac:

a. Rated Voltage: 600V ac.

b. Rated Current: 16-amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Grey body.

f. Fuse: 0.25 inch by 1.25 inches.

g. Indication: Neon Lamp 110V ac.

h. Leakage Current: 1.8 mA, maximum.

i. Spacing: 0.512 inch, maximum

j. Manufacturer and Product: Siemens; 8WA1011-1SF32.

F. Grounding of Enclosures:

1. Furnish isolated copper grounding bus for signal and shield ground connections.

2. Ground bus grounded at a common signal ground point in accordance with National Electrical Code requirements.

3. Single Point Ground for Each Analog Loop:

a. Locate at dc power supply for loop.

b. Use to ground wire shields for loop.

4. Ground terminal block rails to ground bus.

G. Power Distribution within Panels:

1. Feeder Circuits:

a. One or more 120V ac, 60-Hz feeder circuits as shown on Drawings.

b. Make provisions for feeder circuit conduit entry.

c. Furnish terminal board for termination of wires.

2. Power Panel: Furnish main circuit breaker and a circuit breaker on each individual branch circuit distributed from power panel.

a. Locate to provide clear view of and access to breakers when door is open.

b. Breaker sizes: Coordinate such that fault in branch circuit will blow only branch breaker but not trip the main breaker.

c. Branch Circuit Breaker: UL489 type breaker, 250V ac, DIN rail mounting.

d. Breaker Manufacturer and Product: Siemens; 5SJ4.

3. Circuit Wiring: P&IDs and Control Diagrams on Drawings show function only. Use following rules for actual circuit wiring:

a. Devices on Single Circuit: 20, maximum.

b. Multiple Units Performing Parallel Operations: To prevent failure of any single branch circuit from shutting down entire operation, do not group all units on same branch circuit.

c. Branch Circuit Loading: 12 amperes continuous, maximum.

d. Panel Lighting and Service Outlets: Put on separate 15-amp, 120V ac branch circuit.

e. Provide 120Vac plug mold for panel components with line cords.

H. Signal Distribution:

1. Within Panels: 4 to 20 mA dc signals may be distributed as 1 to 5V dc.

2. Outside Panels: Isolated 4 to 20 mA dc only.

3. All signal wiring twisted in shielded pairs.

I. Signal Switching:

1. Use dry circuit type relays or switches.

2. No interruption of 4 to 20 mA loops during switching.

3. Switching transients in associated signal circuit:

a. 4 to 20 mA dc Signals: 0.2 mA, maximum.

b. 1 to 5V dc Signals: 0.05V, maximum.

J. Relays:

1. General:

a. Relay Mounting: Plug-in type socket.

b. Relay Enclosure: Furnish dust cover.

c. Socket Type: Screw terminal interface with wiring.

d. Socket Mounting: Rail.

e. Provide holddown clips.

2. Signal Switching Relay:

a. Type: Dry circuit.
b. Contact Arrangement: 2 Form C contacts.
c. Contact Rating: 0 to 5 amps at 28V dc or 120V ac.
d. Contact Material: Gold or silver.
e. Coil Voltage: As noted or shown.
f. Coil Power: 0.9 watts (dc), 1.2VA (ac).
g. Expected Mechanical Life: 10,000,000 operations.
h. Expected Electrical Life at Rated Load: 100,000 operations.
i. Indication Type: Neon or LED indicator lamp.
j. Seal Type: Hermetically sealed case.
k. Manufacturer and Product: Siemens; 3TX7111.

3. Control Circuit Switching Relay, Nonlatching:

a. Type: Compact general-purpose plug-in.
b. Contact Arrangement: Form C contacts.
c. Contact Rating: 10A at 28V dc or 240V ac.
d. Contact Material: Silver cadmium oxide alloy.
e. Coil Voltage: As noted or shown.
f. Coil Power: 1.8 watts (dc), 2.7VA (ac).
g. Expected Mechanical Life: 10,000,000 operations.
h. Expected Electrical Life at Rated Load: 100,000 operations.
i. Indication Type: Neon or LED indicator lamp.
j. Push to test button.
k. Manufacturer and Product: Siemens; 3TX7111.

K. Power Supplies:

1. Furnish to power instruments requiring external dc power, including two-wire transmitters and dc relays.

2. Convert 120V ac, 60-Hz power to dc power of appropriate voltage(s) with sufficient voltage regulation and ripple control to assure that instruments being supplied can operate within their required tolerances.

3. Provide output over voltage and over current protective devices to:

4. Protect instruments from damage due to power supply failure.

5. Protect power supply from damage due to external failure.

6. Enclosures: NEMA 1 in accordance with NEMA 250.

7. Mount such that dissipated heat does not adversely affect other components.

8. Fuses: For each dc supply line to each individual two-wire transmitter.

a. Type: Indicating.

b. Mount so fuses can be easily seen and replaced.

L. Service Outlets for Freestanding Panels:

1. Type: Three-wire, 120-volt, 15-ampere, GFCI duplex receptacles.

2. Quantity:

a. For panels 4 feet wide and smaller: One.

b. For panels wider than 4 feet: One for every 4 feet of panel width, two minimum per panel.

2.06 SPARE PARTS

None required

2.07 FABRICATION

1. General:

a. Panels with external dimensions and instruments arrangement as shown on Drawings.

b. Panel Construction and Interior Wiring: In accordance with the National Electrical Code, state and local codes, NEMA, ANSI, UL, and ICECA.

c. Fabricate panels, install instruments, wire, and plumb, at the I&C factory.

d. Electrical Work: In accordance with Division 16, Electrical.

e. Factory Assembly: Assemble panels at the manufacturer's factory. No fabrication other than correction of minor defects or minor transit damage shall be done on panels at jobsite.

f. UL Listing Mark for Enclosures: Mark stating "Listed Enclosed Industrial Control Panel" per UL 508A.

2. Wiring Within I&C Panels:

a. Restrain by plastic ties or ducts or metal raceways.

b. Hinge Wiring: Secure at each end so that bending or twisting will be around longitudinal axis of wire. Protect bend area with sleeve.

c. Arrange wiring neatly, cut to proper length, and remove surplus wire.

d. Abrasion protection for wire bundles which pass through holes or across edges of sheet metal.

e. Connections to Screw Type Terminals:

1) Locking-fork-tongue or ring-tongue lugs.

2) Use manufacturer's recommended tool with required sized anvil to make crimp lug terminations.

3) Wires terminated in a crimp lug, maximum of one.

4) Lugs installed on a screw terminal, maximum of two.

f. Connections to Compression Clamp Type Terminals:

1) Strip, prepare, and install wires in accordance with terminal manufacturer's recommendations.

2) Wires installed in a compression screw and clamp, maximum of one for field wires entering enclosure, otherwise maximum of two.

g. Splicing and tapping of wires, allowed only at device terminals or terminal blocks.

h. Terminate 24V dc and analog signal circuits on separate terminal block from ac circuit terminal blocks.

i. Separate analog and dc circuits by at least 6 inches from ac power and control wiring, except at unavoidable crossover points and at device terminations.

j. Arrange wiring to allow access for testing, removal, and maintenance of circuits and components.

k. Plastic Wire Ducts Fill: Do not exceed manufacturer's recommendation.

3. Temperature Control:

a. Freestanding Panels:

1) Nonventilated Panels: Size to adequately dissipate heat from equipment mounted inside panel or on panel.

2) Ventilated Panels:

3) Furnish with louvers and forced ventilation as required to prevent temperature buildup from equipment mounted inside panel or on panel.

4) For panels with backs against wall, furnish louvers on top and bottom of panel sides.

5) For panels without backs against wall, furnish louvers on top and bottom of panel back.

6) Louver Construction: Stamped sheet metal.

7) Ventilation Fans:

8) Furnish where required to provide adequate cooling.

9) Create positive internal pressure within panel.

10) Fan Motor Power: 120V ac, 60-Hz, thermostatically controlled.

11) Air Filters: Washable aluminum, Hoffman Series A-FLT.

12) Refrigerated System: Furnish where heat dissipation cannot be adequately accomplished with natural convection or forced ventilation. Smaller Panels (that are not freestanding): Size to adequately dissipate heat from equipment mounted inside panel or in panel face.

4. Freestanding Panel Construction:

a. Materials: Sheet steel, unless otherwise shown on Drawings with minimum thickness of 10-gauge, unless otherwise noted.

b. Panel Fronts:

1) Fabricated from a single piece of sheet steel, unless otherwise shown on Drawings.

2) No seams or bolt heads visible when viewed from front.

3) Panel Cutouts: Smoothly finished with rounded edges.

4) Stiffeners: Steel angle or plate stiffeners or both on back of panel face to prevent panel deflection under instrument loading or operation.

c. Internal Framework:

1) Structural steel for instrument support and panel bracing.

2) Permit panel lifting without racking or distortion.

d. Lifting rings to allow simple, safe rigging and lifting of panel during installation.

e. Adjacent Panels: Securely bolted together so front faces are parallel.

f. Doors: Full height, fully gasketed access doors where shown on Drawings.

1) Latches: Three-point, Southco Type 44.

2) Handles: “D” ring, foldable type.

3) Hinges: Steel hinges with stainless steel pins.

4) Rear Access Doors: Extend no further than 24 inches beyond panel when opened to 90-degree position.

5) Front and Side Access Doors: As shown on Drawings.

5. Nonfreestanding Panel Construction:

a. Based on environmental design requirements required and referenced in Article Environmental Requirements, provide the following:

b. For panels listed as inside, air conditioned:

1) Enclosure Type: NEMA 12 in accordance with NEMA 250.

2) Materials: Steel.

c. For All Other Panels:

1) Enclosure Type: NEMA 4X in accordance with NEMA 250.

2) Materials: Plastic.

d. Metal Thickness: 14-gauge, minimum.

e. Doors:

1) Rubber-gasketed with continuous hinge.

2) Stainless steel lockable quick-release clamps.

6. Factory Finishing:

a. Enclosures:

1) Stainless Steel and Aluminum: Not painted.

2) Nonmetallic Panels: Not painted.

3) Steel Panels:
Sand panel and remove mill scale, rust, grease, and oil.
Fill imperfections and sand smooth.
Paint panel interior and exterior with one coat of epoxy coating metal primer, two finish coats of two-component type epoxy enamel.
Sand surfaces lightly between coats.
Dry Film Thickness: 3 mils, minimum.
Manufacturer's standard finish color, except where specific color is indicated. If manufacturer has no standard color, finish equipment with light gray color.

2.08 QUALITY CONTROL

A. Scope: Inspect and test entire I&C to ensure it is ready for shipment, installation, and operation.

B. Location: Manufacturer's factory or Owner approved staging Site.

C. Test: Exercise and test all functions.

PART 3 -- INSTRUMENTS AND FIELD SENSORS

3.01 INDUSTRIAL LIMIT SWITCHES

A. Provide a Form C contact position switch for industrial application use.

B. Switches shall be rated for use in temperatures ranging from 0^{O}F to 104^{O}F.

C. Switches located inside the reservoir shall be rated NEMA type 6P, switches located in vaults shall be rated NEMA type 6P, limit switches located in pump stations shall be rated NEMA type 4.

D. Limit switch shall have roller lever with snap action return. Actuation lever length shall be as required to accommodate installation but shall be no less than 3-inches.

E. Instruments Related to This Section:
   1. ZS-811 (NEMA 4 type)
   2. ZS-812 (NEMA 4 type)

3.02 FLOW ELEMENT AND TRANSMITTER, ELECTROMAGNETIC

A. General: Function: Measure, indicate, and transmit the flow of a conductive process liquid in a full pipe

B. Type: Electromagnetic flowmeter, with operation based on Faraday's Law, utilizing the pulsed dc type coil excitation principle with high impedance electrodes. Full bore meter with magnetic field traversing entire flow-tube cross section.

C. Components: Flow element, transmitter, mounting hardware.

D. Application: potable water flow, suitable for liquids with a minimum conductivity of 5 microS/cm

E. Area Classification: Class I Division I

F. Operating Process Flow Temperature: 32 to 100 degrees F, typical

G. Transmitter Operating Temperature: -13 to 140 degrees F

H. Accuracy: Plus or minus 0.5 percent of rate for pipe velocities of 1 to 30 feet per second.

I. Other features:
   1. No obstructions to flow.
   2. Very low pressure loss.
   3. Measures bi-directional flow.

B. Process Connection:
   1. Meter Size (diameter inches): As noted.
   2. Connection Type: 150-pound ANSI raised-face flanges;
   3. ANSI B16.5
   4. Flange Material: Carbon steel ASTM A 105 Corrosion-resistant coating of category C4

C. Power (Transmitter): 24Vdc, unless otherwise noted.

D. Element:
   1. Meter Tube Material: Type AISI 316Ti stainless steel, unless otherwise noted.
   2. Liner Material: Ebonite, potable water service NSF approval.
   3. Electrode Material: Type 316 stainless steel

4. Grounding: internal electrode

E. Transmitter:
   1. Mounting: integral to meter
   2. Material: Alu, Ex die cast aluminium enclosure, painted
   3. Digital LCD display, indicating flow rate and total.
   4. Bi-directional Flow Display: Required, unless otherwise noted.
      a. Forward and reverse flow rate.
      b. Forward, reverse and net totalization.
      c. Parameter Adjustments: By keypad or non-intrusive means.
      d. Enclosure: NEMA 4X, minimum, unless otherwise noted.
   5. Empty Pipe Detection: display and outputs to zero when empty pipe detected.
   6. Signal Interface: 4-20mA, totalizer pulse, fault contact closure.
   7. Built-in Diagnostic System:
      a. Field programmable electronics.
      b. Self-diagnostics with troubleshooting codes.
      c. Ability to program electronics with full scale flow, engineering units, meter size, zero flow cutoff, desired signal damping, totalizer unit digit value, etc.
   8. Initial flow tube calibration and subsequent calibration checks.
      a. Factory Calibration:
      b. Calibrated in an ISO 9001 and NIST certified factory.
      c. Factory flow calibration system must be certified by volume

F. Grounding Ring:
   1. Material: ANSI 316

G. Manufacturer Data:
   1. Siemens Industry, Process Division
      a. Sensor: FMS-500 7ME6530-5BJ02-1AA0 -Z +A05 +E81
      b. Transmitter: FMT-020 7ME6942-0AA00-0AA2-Z +E06 +F07
      c. Grounding Rings: NR
      d. Communication Module: Profinet (included in transmitter part number)

H. Instruments Related to This Section:
   1. FE/FIT-811

3.03 TEMPERATURE TRANSMITTERS

A. An RTD sensor shall measure outside temperature and transmit a 4-20mA DC output linearly proportional to a temperature span produced by the RTD. At minimum, the RTD temperature span shall measure -40°F to 140°F.

B. A ProSense model XTP25N-050-N40140F transducer and a ProSense M12 quick connect cable, model CD12L-0B-020-A0 shall be used for each device.

C. Instruments Related to This Section:

1. TIT-811

3.04 SUBMERSIBLE LEVEL TRANSDUCERS

A. The submersible level transducer shall be a two-wire type device and shall operate from a supply voltage of 9 to 30 VDC and produce a 4-20 mA signal in direct proportion to the measured level excursion over a pre-calibrated range. The sensor technology shall be based on the use of a highly reliable and stable piezo-resistive pressure element with a 0.25 percent full scale accuracy with compensation for nonlinearity, hysteresis and repeatability. The transducer element shall incorporate high over-pressure protection and be designed to withstand intermittent overpressures two times the full-scale range being sensed. The internal pressure of the lower transducer assembly shall be relieved to atmospheric pressure through a heavy-duty urethane jacketed hose/cable assembly and a slack PVC bellows mounted in a weatherproof, fiberglass upper assembly. The sealed breather system shall compensate for variations in barometric pressure and expansion and contraction of air due to temperature changes and altitude as well as prevent fouling from moisture and other corrosive elements. The transducer shall be suitable for continuous submergence and operation

B. Manufacturer shall be Keller Micro Level. Aneroid bellows and vent filter shall be supplied for installation in local junction box where the transducer cable is terminated.

C. Instruments Related to This Section:

1. LIT-811

3.05 VERTICAL STEM MOUNT FLOAT LEVEL SWITCHES

A. Float level switches shall consist of a snap action switch with a moving Buna-N float on a brass stem and 24” connecting cable. Action shall be magnetic field, rising sensor that can be inverted for reverse logic. As the level rises and falls the float lifts or falls causing switching actions with a minimum 0.25” deadband. The hermetically sealed Mercury free switches shall be SPST with a minimum rating of 20 VA. Mount to conduit end with a 1/4” NPT male thread fitting and set actuation limit by use of a conduit clamp. Unit shall be placed to actuate 6” above the floor for station flood.

B. Manufacturer shall be ProSense FLS-VL-300 (Buna-N), ProSense FLS-VL-400 (316SS) or equal

C. Instruments Related to This Section:

1. LSH-811
2. LSH-702
3. LSH-703

3.06 AIR QUALITY / SMOKE DETECTOR

A. The sensor is sensitive to both smoke and temperature. It shall be a 4-wire device. A red LED should flash four to six times per minute during normal operation. If the unit senses an alarm condition, the LED will illuminate and remain in the alarm state until reset by removing power. Any alarm condition sensed by this unit requires a reset action from the reset switch on the RTU which performs this action. Per the control system listing requirements of UL508, the control system is not listed as a life safety device, and is not connected to emergency dispatch personnel. Air quality problems detected are used to initiate mitigating control system responses only, such as disabling HVAC systems or alternating to a new pumping unit and notifying the master SCADA system of this condition.

B. Contacts:
   1. Form C
   2. Minim Rating: 0.5A @ 30VDC

C. Manufacturer shall be System Sensor 4WT-B, or approved equal

D. Instruments Related to This Section:
   1. USH-801
   2. USH-811

3.07 GAGE PRESSURE TRANSMITTER

A. General:

   1. Function: Indicate the rise or fall of a liquid in a reservoir, tank, or pipeline pressure

B. Type:

   1. Body: Die Cast Aluminum

   2. Diaphragm Fill Material: Silicone

   3. Process Connection: ½”

   4. Power: 24VDC 2-wire transmitter

   5. Display: Integral type, digital reading

   6. Manufacturers and Products:

      a. Siemens 7MF0300 series transmitters

C. Measuring:

   1. Accuracy: 0.06% minimum

2. Range: Field Programmable
3. Units: Field Programmable
4. Span: provide model with largest percentage of available span
5. Output: 4-20mA + HART

D. Protection:

1. Lighting Protection: Provide surge suppressor for lighting protection

E. Installation

1. See Installation Details on Drawings

2. Use ½" Process Connections unless otherwise noted

3. Provide with steel wall mounting bracket

4. Supply with 3' M12 quick connect connectors

F. Manufacturer Data

1. Siemens Industry, Process Division

a. Transmitter: 7MF0300-1QE01-5AM2-Z E01+E84
b. Remote Mounting kit: …Z + H01 (for all remote mount applications)
c. Block and Bleed Valves: 7MF90114FA

G. Instruments Related to This Section:
1. LIT-702
2. PIT-811

PART 4 -- EXECUTION

4.01 EXAMINATION

A. For equipment not provided by I&C, but that directly interfaces with the I&C, verify the following conditions. If any devices fail to meet interface requirements, provide written notification to Contractor.

1. Proper installation.

2. Calibration and adjustment of positioners and transducers.

3. Correct control action.

4. Switch settings and dead bands.

5. Opening and closing speeds and travel stops.

6. Input and output signals.

4.02 INSTALLATION

A. Material and Equipment Installation: Retain a copy of manufacturers' instructions at jobsite, available for review at all times.

B. Electrical Wiring: As specified in Division 16, Electrical.

C. Mechanical Systems:

1. Drawings for I&C Mechanical Systems are diagrammatic and not intended to specifically define element locations or piping and tubing run lengths. Base materials and installations on field measurements.

2. Plastic Tubing Supports: Except as shown on Drawings, provide continuous support in conduits or by aluminum tubing raceway system.

3. Install tubing conduit for plastic tubing and tubing raceways parallel with, or at right angles to, structural members of buildings. Make vertical runs straight and plumb.

4. Install conduits to I&C enclosures within areas permitted by manufacturer drawings. Top entry of conduits shall be avoided and if required, shall not be located in drip line of panel mounted equipment.

5. Enclosure Lifting Rings: Remove rings following installation and plug holes.

4.03 PROTECTION

A. Protect enclosures and other equipment containing electrical, instrumentation and control devices, including spare parts, from corrosion and moisture.

B. During jobsite construction, protect I&C enclosures from exterior damage using cardboard, foam and similar temporary construction materials. Protect internal components from exposure to metal shavings and other construction debris by use of plastic wrap and tape.

4.04 CLEANING/ADJUSTING

A. Repair affected surfaces to conform to type, quality, and finish of surrounding surface.

B. Cleaning:

1. Prior to startup of system using tubing, clear tubing of interior moisture and debris.

2. Upon completion of Work, remove materials, scraps, and debris from interior and exterior of equipment.

4.05 FIELD QUALITY CONTROL

A. Startup and Testing Team:

1. Thoroughly inspect installation, termination, and adjustment for components and systems.

2. Complete onsite tests.

3. Complete onsite training.

4. Provide startup assistance.

B. Operational Readiness Inspections and Calibrations: Prior to startup, inspect and test to ensure that entire I&C is ready for operation.

1. Loop/Component Inspections and Calibrations:

a. Check I&C for proper installation, calibration, and adjustment on a loop-by-loop and component-by-component basis.

b. Prepare component calibration sheet for each instrument.

1) Project name.

2) Loop number.

3) Component tag number.

4) Manufacturer for elements.

5) Model number/serial number.

6) Summary of functional requirements, for example:

7) Transmitters/converters, input and output ranges.

8) Calibrations, for example:
Analog Devices: Actual inputs and outputs at 0, 10, 50, and 100 percent of span, rising and falling.
Discrete Devices: Actual trip points and reset points.
Controllers: Mode settings (PID).

9) Space for comments.

C. Acceptance Tests: These are the activities performed by the Contractor and assisted by the System Integrator with respect to automatic control verification.

1. General:

a. Test all I&C elements to demonstrate that I&C satisfies all requirements.

b. Procedures, Forms, and Checklists:

1) Conduct tests in accordance with, and documented on, Engineer accepted procedures, forms, and checklists.

2) Sign-off after each test item after satisfactory completion.

c. Conducting Tests:

1) Provide special testing materials, equipment, and software.

2) Wherever possible, perform tests using actual process variables, equipment, and data.

3) If it is not practical to test with real process variables, equipment, and data, provide suitable means of simulation.

4) Define simulation techniques in test procedures.

d. Coordinate I&C testing with Owner and affected Subcontractors.

1) Excessive Test Witnessing: Refer to Supplementary Conditions.

2. Test Requirements:

a. Once facility has been started up and is operating, perform a witnessed Acceptance Test on complete I&C to demonstrate that it is operating as required. Demonstrate each required function on a paragraph-by-paragraph and loop-by-loop basis.

b. Perform local and manual tests for each loop before proceeding to remote and automatic modes. Where possible, verify test results using visual confirmation of process equipment and actual process variable. Unless otherwise directed, exercise and observe devices supplied by others, as needed to verify correct signals to and from such devices and to confirm overall system functionality.

c. Update operating narrative documentation as required to align with settings and conditions observed during Acceptance Testing.

d. Provide digital copy of startup/ acceptance testing manual and provide to Owner following each jobsite test period.

4.06 MANUFACTURER'S SERVICES

A. Specialty Equipment: Provide the services of a qualified manufacturer's representative during installation, startup, and demonstration testing and Owner training.

4.07 TRAINING

A. General:

1. Provide an integrated training program to meet specific needs of Owner's personnel.

2. Include training sessions, for operators and maintenance personnel.

3. Provide instruction on one working shift as needed to accommodate the Owner's personnel schedule.

4. Owner reserves the right to make and reuse video tapes of training sessions.

B. Operations and Maintenance Training:

1. Include a review of O&M manuals and survey of spares, expendables, and test equipment.

2. Use equipment similar to that provided or currently owned by Owner.

3. Provide training suitable for instrument technicians with at least a 2-year associate engineering or technical degree, or equivalent education and experience in electronics or instrumentation.

C. Operations Training:

1. Training Session Duration: 4-hour instructor day.

2. Number of Training Sessions: One.

3. Location: Jobsite.

4. Content: Conduct training on loop-by-loop basis.

a. Loop Functions: Understanding of loop functions, including interlocks for each loop.

b. Loop Operation: For example, adjusting process variable setpoints, AUTO/MANUAL control transfer, AUTO and MANUAL control, annunciator acknowledgement and resetting.

c. Interfaces with other control systems.

END OF SECTION

Title 36
Public Contracts

Wage and Hour Administration Pamphlet 400

Statutes
Regulations

January 2021

Alaska Department of Labor
and Workforce Development
Labor Standards and Safety Division

Jobs

ALASKA DEPARTMENT OF LABOR
& WORKFORCE DEVELOPMENT

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Alaska Department of Labor and Workforce Development
Wage and Hour Administration
1251 Muldoon Road, Suite 113
Anchorage, AK 99504
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Fax: (907) 269-4915
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Alaska Department of Labor and Workforce Development
Wage and Hour Administration
675 Seventh Avenue, Station J-1
Fairbanks, AK 99701
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Publications are also available online at http://labor.alaska.gov/lss/home.htm

The Alaska Department of Labor and Workforce Development is focused on putting Alaskans to work. An important part of that mission is to ensure that working conditions and wage payment practices are legal. This publication, *Pamphlet 400, Title 36, Public Contracts*, is designed to assist employers and employees by providing the applicable laws and regulations.

This pamphlet is set out in two sections. The first section contains the Alaska Statutes (pages 1-9), and the second section contains the Alaska Administrative Code or regulations (pages 10-23). The index of topics on page 24 should provide assistance in locating all of the places a particular topic is referenced.

When reviewing the subjects contained in this pamphlet, keep in mind that the statutes carry the greater weight. The regulations have been established to further clarify and interpret language used in the statutes.

Many wage and hour issues are complex. Please take advantage of the Wage and Hour Administration's cost-free counseling services to answer your questions regarding this pamphlet and Alaska's labor laws. You may call or come in to the nearest Wage and Hour Administration office, Monday through Friday, during regular business hours and a wage and hour investigator will be happy to assist you. Addresses and phone numbers for these offices are listed on the first page of this pamphlet.

For additional copies of this pamphlet, contact the nearest Wage and Hour Administration office in Anchorage, Juneau, or Fairbanks, or you may download and print this pamphlet from our internet site at: http://labor.alaska.gov/lss/forms/Pam400.pdf

TITLE 36. Public Contracts

Wage and Hour Administration

Pamphlet 400 - Statutes and Regulations

January 2021

State of Alaska

Alaska Department of Labor and Workforce Development

Labor Standards and Safety Division

Table of Contents

Disclaimer:

Note to Readers: The statutes and administrative regulations listed in this publication were taken from the official codes, as of the effective date of the publication. However, there may be errors or omissions that have not been identified and changes that occurred after the publication was printed. **This publication is intended as an informational guide only and is not intended to serve as a precise statement of the statutes and regulations of the State of Alaska. To be certain of the current laws and regulations, please refer to the official codes.**

ALASKA STATUTES
TITLE 36. PUBLIC CONTRACTS

CHAPTER 05. WAGES AND HOURS OF LABOR.

Section:

This chapter was modeled after the federal Davis-Bacon Act. 40 U.S.C. § 276a et seq. *Fowler v. City of Anchorage*, Sup. Ct. Op. No. 1699 (File No. 3586), 583 p.2d 817 (1978).

Sec. 36.05.005. Applicability.
This chapter applies only to a public construction contract that exceeds $25,000.
(§ 1 ch 28 SLA 2011)

Sec. 36.05.010. Wage rates on public construction.
A contractor or subcontractor who performs work on a public construction contract in the state shall pay not less than the current prevailing rate of wages for work of a similar nature in the region in which the work is done. The current prevailing rate of wages is that contained in the latest determination of prevailing rate of wages issued by the Department of Labor and Workforce Development at least 10 days before the final date for submission of bids for the contract. The rate shall remain in effect for the life of the contract or for 24 calendar months, whichever is shorter. At the end of the initial 24-month period, if new wage determinations have been issued by the department, the latest wage determination shall become effective for the next 24-month period or until the contract is completed whichever occurs first. This process shall be repeated until the contract is completed.
(§ 14-2-1 ACLA 1949; am § 1 ch 142 SLA 1972; am § 1 ch 89 SLA 1976; am § 1 ch 69 SLA 1993; am § 1 ch 28 SLA 2011)

Sec. 36.05.020. Basis for determining wage.
A subcontract that is performed on public construction may be reduced to a basis of day labor for the purpose of determining whether or not the subcontractor or contractors have paid at not less than the prevailing scale of wage.
(§ 14-2-2 ACLA 1949)

Sec. 36.05.030. Authority; investigations; hearings; regulations; enforcement.
(a) The Department of Labor and Workforce Development has the authority to determine the prevailing wage, and whether or not this chapter is being violated. The department may when necessary for the enforcement of this chapter
(1) conduct investigations and hold hearings concerning wages;
(2) compel the attendance of witnesses and the production of books, papers and documents;
(3) adopt regulations.
(b) If a person violates this chapter the attorney general shall, when requested by the Department of Labor and Workforce Development, enforce these provisions.
(§ 14-2-3 ACLA 1949; am § 2 ch 142 SLA 1972)

Sec. 36.05.035. Notification of contract awards.
Upon awarding a public construction contract, the state or a political subdivision of the state shall
(1) immediately notify the commissioner of labor and workforce development of the amount of the contract, the effective date of the contract, the identity of the contractor and all subcontractors, the site or sites of construction and provide a project description; and
(2) verify that the bonding requirements of AS 36.25 have been met and that the requirements of AS 08.18 have been met.
(§ 3 ch 142 SLA 1972)

Sec. 36.05.040. Filing schedule of employees, wages paid, and other information.
All contractors or subcontractors who perform work on a public construction contract for the state or for a political subdivision of the state shall, before the Friday of every second week, file with the Department of Labor and Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor and Workforce Development.
(§ 14-2-4 ACLA 1949; am § 4 ch 142 SLA 1972; am § 1 ch 111 SLA 2003)

Sec. 36.05.045. Notice of work and completion; withholding of payment.

(a) Before commencing work on a public construction contract, the person entering into the contract with a contracting agency shall designate a primary contractor for purposes of this section. Before work commences, the primary contractor shall file a notice of work with the Department of Labor and Workforce Development. The notice of work must list work to be performed under the public construction contract by each contractor who will perform any portion of work on the contract and the contract price being paid to each contractor. The primary contractor shall pay all filing fees for each contractor performing work on the contract, including a filing fee based on the contract price being paid for work performed by the primary contractor's employees. The filing fee payable shall be the sum of all fees calculated for each contractor. The filing fee shall be one percent of each contractor's contract price. The total filing fee payable by the primary contractor under this subsection may not exceed $5,000. In this subsection, "contractor" means an employer who is using employees to perform work on the public construction contract under the contract or a subcontract.

(b) Upon completion of all work on the public construction contract, the primary contractor shall file with the Department of Labor and Workforce Development a notice of completion together with payment of any additional filing fees owed due to increased contract amounts. Within 30 days after the department's receipt of the primary contractor's notice of completion, the department shall inform the contracting agency of the amount, if any, to be withheld from the final payment.

(c) A contracting agency

(1) may release final payment on a public construction contract to the extent that the agency has received verification from the Department of Labor and Workforce Development that

(A) the primary contractor has complied with (a) and (b) of this section;

(B) the Department of Labor and Workforce Development is not conducting an investigation under this title; and

(C) the Department of Labor and Workforce Development has not issued a notice of a violation of this chapter to the primary contractor or any other contractors working on the public construction contract; and

(2) shall withhold from the final payment an amount sufficient to pay the department's estimate of what may be needed to compensate the employees of any contractors under investigation on this construction contract, and any unpaid filing fees.

(d) The notice and filing fee required under (a) of this section may be filed after work has begun if

(1) the public construction contract is for work undertaken in immediate response to an emergency; and

(2) the notice and fees are filed not later than 14 days after the work has begun.

(e) A false statement made on a notice required by this section is punishable under AS 11.56.210.

(§ 2 ch 111 SLA 2003; am § 1 ch 28 SLA 2011)

Sec. 36.05.050. Hours to constitute day's work. *[Repealed by § 1 ch 3 SLA 1973.]*

Sec. 36.05.060. Penalty for violation of this chapter.

A contractor who violates this chapter is guilty of a misdemeanor, and upon conviction is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment for not less than 10 days nor more than 90 days, or by both. Each day a violation exists constitutes a separate offense.

(§ 14-2-6 ACLA 1949; am § 6 ch 142 SLA 1972)

Sec. 36.05.070. Wage rates in specifications and contracts for public works.

(a) The advertised specifications for a public construction contract that requires or involves the employment of mechanics, laborers, or field surveyors must contain a provision stating the minimum wages to be paid various classes of laborers, mechanics, or field surveyors and that the rate of wages shall be adjusted to the wage rate under AS 36.05.010.

(b) *Repealed by § 17 ch 142 SLA 1972.*

(c) A public construction contract under (a) of this section must contain provisions that

(1) the contractor or subcontractors of the contractor shall pay all employees unconditionally and not less than once a week;

(2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the contractor or subcontractors and laborers, mechanics, or field surveyors;

(3) the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;

(4) the state or a political subdivision shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the contractor or subcontractors the difference between

(A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and

(B) the rates of wages in fact received by laborers, mechanics or field surveyors.

(§ 1 ch 52 SLA 1959; am §§ 7, 8, 17 ch 142 SLA 1972; am § 2 ch 89 SLA 1976; am § 1 ch 28 SLA 2011)

Sec. 36.05.080. Failure to pay agreed wages.

Every contract within the scope of AS 36.05.070 shall contain a provision that if it is found that a laborer, mechanic, or field surveyor employed by the contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the state or its political subdivision may, by written notice to the contractor, terminate the contractor's right to

proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the contractor and the contractor's sureties are liable to the state or its political subdivision for excess costs for completing the work.
(§2 Ch 52 SLA 1959)

Sec. 36.05.090. Payment of wages from withheld payments and listing contractors who violate contracts.

(a) The state disbursing officer in the case of a state public construction contract and the local fiscal officer in the case of a political subdivision public construction contract shall pay directly to laborers, mechanics, or field surveyors from accrued payments withheld under the terms of the contract the wages due laborers, mechanics, or field surveyors under AS 36.05.070.

(b) The state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees. A person appearing on this list and a firm, corporation, partnership or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision of the state until three years after the date of publication of the list. If the accrued payments withheld under the contract are insufficient to reimburse all the laborers, mechanics, or field surveyors with respect to whom there has been a failure to pay the wages required under AS 36.05.070, the laborers, the mechanics or field surveyors have the right of action or intervention or both against the contractor and the contractor's sureties conferred by law upon persons furnishing labor or materials, and in the proceedings it is not a defense that the laborers, mechanics or field surveyors accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.
(§ 3 ch 52 SLA 1959; am § 9 ch 142 SLA 1972; am § 1 ch 28 SLA 2011)

Sec. 36.05.100. Effect of AS 36.05.070 - 36.05.110 on other laws.
AS 36.05.070 - 36.05.110 do not supersede or impair authority granted by state law to provide for the establishment of specific wage rates.
(§ 4 ch 52 SLA 1959; am § 10 ch 142 SLA 1972)

Sec. 36.05.110. Contracts entered into without advertising.
The fact that a public construction contract authorized by law is entered into upon a cost-plus-a-fixed-fee basis or otherwise, without advertising for proposals, does not make AS 36.05.070 - 36.05.110 inapplicable if those sections are otherwise applicable to the contract.
(§ 5 ch 52 SLA 1959; am § 1 ch 28 SLA 2011)

Sec. 36.05.120. Regulations governing contractors.
[Repealed by § 17 ch 142 SLA 1972.]

ARTICLE 2. GENERAL PROVISIONS

Section:
900. Definition

Sec. 36.05.900. Definition.
In this chapter, “contracting agency” means the state or a political subdivision of the state that has entered into a public construction contract with a contractor.
(§ 3 ch 111 SLA 2003)

CHAPTER 10. EMPLOYMENT PREFERENCE

Section:
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180. Projects subject to preference
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200. Criminal penalties
210. Civil penalties
900. Effect of judicial decisions
990. Definitions

Sec. 36.10.005. Legislative findings.

(a) The legislature finds that

(1) because of its unique climate and its distance from the contiguous states, the state has historically suffered from unique social, seasonal, geographic, and economic conditions that result in an unstable economy;

(2) the unstable economy is a hardship on the residents of the state and is aggravated by the large numbers of seasonal and transient nonresident workers;

(3) the rate of unemployment among residents of the state is one of the highest in the nation;

(4) the state has one of the highest ratios of nonresident to resident workers in the nation;

(5) the state has a compelling interest in reducing the level of unemployment among its residents;

(6) the construction industry in the state accounts for a substantial percentage of the available employment;

(7) construction workers receive a greater percentage of all unemployment benefits paid by the state than is typical of other states;

(8) historically, the rate of unemployment in the construction industry in the state is higher than the rate of unemployment in other industries in the state;

(9) it is appropriate for the state to consider the welfare of its residents when it funds construction activity;

(10) it is in the public interest for the state to allocate public funds for capital projects in order to reduce unemployment among its resident construction workers;

(11) the influx of nonresident construction workers contributes to or causes the high unemployment rate among resident construction workers because nonresident workers compete with residents for the limited number of available construction jobs;

(12) nonresident workers displace a substantial number of qualified, available, and unemployed Alaska workers on jobs on state funded public works projects;

(13) the state has a special interest in seeing that the benefits of state construction spending accrue to its residents;

(14) the natural resources of land owned by the state belong to the citizens of the state;

(15) Alaskans have chosen to use the majority of the royalties derived from the state's natural resources to fund state government;

(16) the vast majority of the state's revenue is derived from natural resource income rather than from other forms of taxation;

(17) because the state has no personal income tax or sales tax, nonresident workers use services provided by the state but do not contribute fairly to the costs of those services; and

(18) Alaskans, more than the residents of other states, suffer economically when nonresidents displace qualified residents since resident workers contribute local taxes as well as their share of the royalties from natural resources.

(b) The legislature further finds that

(1) the state and its political subdivisions, when acting as a market participant in funding public works projects, should give Alaska residents an employment preference to promote a more stable economy;

(2) the state and its political subdivisions have a duty of loyalty to their citizens and should fulfill this duty by giving residents preference for employment on public works projects they fund;

(3) there is a legitimate and compelling governmental interest and that the public health and welfare will suffer if state residents are not afforded employment preference in state funded construction related work.

(c) The legislature finds that the following factors are reasonable but not exclusive indicators of the ratio of nonresident to resident employees in the state:

(1) the ratio of applicants for unemployment insurance who list out-of-state residences to applicants who list residences in the state;

(2) the ratio of employees who are subject to unemployment insurance coverage and who did not apply for or were denied a permanent fund dividend to employees who were found eligible for a dividend.

(d) The legislature finds that

(1) the number of state residents who are unable to find work is considerably higher than is reflected by unemployment rates based on nationally accepted measures;

(2) many rural state residents who wish to work do not seek employment as frequently as necessary to meet federal definitions of unemployment because of continuing lack of employment opportunities in rural areas of the state.

(§ 1 ch 69 SLA 1985; am § 2 ch 33 SLA 1986)

Sec. 36.10.006. Statement of purpose.
[Repealed § 16 ch 20 SLA 2002.]

Sec. 36.10.007. State policy.
It is the policy of this state that, to fulfill the duty of loyalty owed to its citizens and to remedy social or economic problems, the state will grant an employment preference to residents when the state is acting as a market participant.
(§ 1 ch 69 SLA 1985)

Sec. 36.10.010. Employment preference.
[Repealed § 11 ch 33 SLA 1986.]

Sec. 36.10.020. Apprentices.
Apprentices must be properly registered apprentices in their particular craft.
(§ 1c ch 177 SLA 1960)

Sec. 36.10.030. Reduction of work force.
When a work force is reduced, resident workers, except supervisory personnel, shall be terminated last.
(§ 1d ch 177 SLA 1960)

Sec. 36.10.040. Application to contracts involving federal funds.
In a contract involving expenditure of federal aid funds, this chapter may not be enforced in a manner that conflicts with federal statutes giving preference to veterans or prohibiting other preferences or discriminations among United States citizens.
(§ 2 ch 177 SLA 1960)

Sec. 36.10.050. Employment of aliens.
[Repealed by § 17 ch 142 SLA 1972.]

Sec. 36.10.060. Employment of prisoners.
[Repealed by § 6 ch 53 SLA 1982.]

Sec. 36.10.070. Unavailability of preferred workers.

(a) An employer subject to hiring requirements under this chapter may request the Department of Labor and Workforce Development to assist in locating qualified, eligible employees. After receiving a request for assistance, the department shall refer qualified, eligible, available residents to the employer to fill the employer's hiring needs. The employer shall cooperate with the department.

(b) If the department is unable to refer a sufficient number of qualified, eligible, available residents able to perform the work, the commissioner of labor may approve the hiring of residents who are not eligible for preference and nonresidents for the balance of the request.

(§ 5 ch 177 SLA 1960; am § 2 ch 208 SLA 1972; am § 3 ch 33 SLA 1986)

Sec. 36.10.075. Regulations.

(a) The commissioner of labor and workforce development shall adopt regulations necessary to carry out the provisions of this chapter including but not limited to the method, time and content of reporting by employers covered by this chapter and reporting provisions permitting on-going supervision by the Department of Labor and Workforce Development on all public works projects covered by this chapter.

(b) The commissioner of labor and workforce development shall adopt regulations to encourage and require the hiring of residents to the maximum extent permitted by law.

(§ 3 ch 208 SLA 1972; am § 4 ch 33 SLA 1986)

Sec. 36.10.076. Notifications by state or political subdivision.

An agency or political subdivision of the state covered by the provisions of this chapter shall notify the Department of Labor and Workforce Development periodically regarding planned public works. Notification shall be in the form and manner prescribed by the Department of Labor and Workforce Development.

(§ 3 ch 208 SLA 1972)

Sec. 36.10.080. Chapter incorporated in contracts.

The provisions of this chapter are considered to be a part of every public works contract.

(§ 6 ch 177 SLA 1960; am § 16 ch 9 SLA 2014)

Sec. 36.10.090. Publication of list of violators.

(a) The commissioner of labor and workforce development shall distribute to all departments and agencies of the state government and to all political subdivisions of the state a list of the names of persons or firms convicted of a violation of this chapter. A person appearing on the list or a firm, corporation, partnership or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision until after three years from the date of publication of the list.

(b) A local government or school district covered by the provisions of this chapter that is found to be in violation of these provisions may be required to forfeit all or part of the state aid made available for the project in which the violation occurs and in addition may be denied up to 12 months of state community assistance or public school funding. A state department or agency head found to be in violation of this chapter may be required to forfeit the position of the department or agency head.

(c) A person or governmental entity covered by the provisions of (b) of this section who is not satisfied by a decision of the Department of Labor and Workforce Development may, as the final administrative process, appeal the decision to a committee consisting of the commissioners of transportation and public facilities, labor, and workforce development, and administration.

The commissioner of transportation and public facilities is the chairman of the committee. A quorum for conducting business is three members and any decision made must be supported by a majority of the committee members. The committee may, upon a showing of hardship, waive all or any part of the penalty provisions of this chapter.

(§ 7 ch 177 SLA 1960; am § 12 ch 142 SLA 1972; am § 4 ch 208 SLA 1972; am E.O. No. 39, § 11 (1977); am § 35 ch 83 SLA 1998; am § 13 ch 44 SLA 2016)

Sec. 36.10.100. Retainage and Penalty.

(a) A contractor who violates a provision of this chapter shall have deducted from amounts due to the contractor under the contract the prevailing wages that should have been paid to a displaced resident, and these amounts shall be retained by the contracting agency.

(b) A contractor or the agent of a contractor who violates a provision of this chapter is guilty of a misdemeanor, and upon conviction is punishable by a fine of not more than $500, or by imprisonment for not more than 90 days, or by both. (§ 8 ch 177 SLA 1960)

Sec. 36.10.110. Definitions.

[Repealed by § 17 ch 142 SLA 1972.]

Sec. 36.10.120. Investigations and hearings.

The Department of Labor and Workforce Development may, when necessary to enforce this chapter,

(1) conduct investigations and hold hearings relating to employment preference;

(2) compel the attendance of witnesses and the production of books, papers and documents;

(§ 13 ch 142 SLA 1972; am § 46 ch 53 SLA 1973)

Sec. 36.10.125. Enforcement.

(a) The attorney general shall, when requested by the Department of Labor and Workforce Development, enforce the provisions of this chapter. The attorney general may obtain a court order prohibiting a contractor or subcontractor violating this chapter from continuing to work on existing public construction contracts of the state or a political subdivision of the state. The state or political subdivision of the state may prosecute the work to

completion by contract or otherwise, and the contractor or subcontractor and the sureties of the contractor or subcontractor are liable for excess costs for completing the work.

(b) A private person is entitled to bring an action in the superior court to enforce the provisions of this chapter if that private person first gives at least 20 days notice to the commissioner of labor and workforce development. The notice must set out

(1) the intent of the private person to bring an action under this subsection;

(2) the specific violation complained of; and

(3) the name of the person accused of the violation.

(c) In an action brought under (b) of this section, the court may, in its discretion, order denial of state community assistance, revenue sharing, or public school funding, forfeiture of office or position, or injunctive or other relief. If the court finds for the plaintiff in an action brought under (b) of this section, it may award the plaintiff an amount equal to the actual costs and attorney fees incurred by the plaintiff.

(§ 13 ch 142 SLA 1972; am § 1 ch 183 SLA 1976; am § 36 ch 83 SLA 1998; am § 14 ch 44 SLA 2016)

Sec. 36.10.130. Resident hire report.

The attorney general and the commissioner of labor and workforce development shall report annually to the governor on the status of employment in the state, the effect of nonresident employment on the employment of residents in the state, and methods to increase resident hire. The report shall be submitted by January 31 of each year, and the governor shall notify the legislature that the report is available.

(§ 5 ch 33 SLA 1986; am § 55 ch 21 SLA 1995)

Sec. 36.10.140. Eligibility for preference; approval of job-training programs.

(a) A person is eligible for an employment preference under this chapter if the person certifies eligibility as required by the Department of Labor and Workforce Development, is a resident, and

(1) is receiving unemployment benefits under AS 23.20 or would be eligible to receive benefits but has exhausted them;

(2) is not working and has registered to find work with a public or private employment agency or a local hiring hall;

(3) is underemployed or marginally employed as defined by the department; or

(4) has completed a job-training program approved by the department and is either not employed or is engaged in employment that does not use the skills acquired in the job-training program.

(b) In approving job-training programs under (a) of this section, the department shall use information and findings from other state and federal agencies as much as possible.

(c) An employer subject to a resident hiring requirement under this chapter shall certify that persons employed as residents under the preference were eligible for the preference at the time of hiring.

(d) A labor organization that dispatches members for work on a public works project under a collective bargaining agreement shall certify that persons dispatched as residents to meet a preference were eligible for the preference at the time of dispatch.

(e) An employer or labor organization may request assistance from the Department of Labor and Workforce Development in verifying the eligibility of an applicant for a hiring preference under this chapter.

(§ 5 ch 33 SLA 1986)

Sec. 36.10.150. Determination of zone of underemployment.

(a) Immediately following a determination by the commissioner of labor and workforce development that a zone of underemployment exists, and for the next two fiscal years after the determination, qualified residents of the zone who are eligible under AS 36.10.140 shall be given preference in hiring for work on each project under AS 36.10.180 that is wholly or partially sited within the zone. The preference applies on a craft-by-craft or occupational basis.

(b) The commissioner of labor and workforce development shall determine the amount of work that must be performed under this section by qualified residents who are eligible for an employment preference under AS 36.10.140. In making this determination, the commissioner shall consider the nature of the work, the classification of workers, availability of eligible residents, and the willingness of eligible residents to perform the work.

(c) The commissioner shall determine that a zone of underemployment exists if the commissioner finds that

(1) the rate of unemployment within the zone is substantially higher than the national rate of unemployment;

(2) a substantial number of residents in the zone have experience or training in occupations that would be employed on a public works project;

(3) the lack of employment opportunities in the zone has substantially contributed to serious social or economic problems in the zone; and

(4) employment of workers who are not residents is a peculiar source of the unemployment of residents of the zone. (§ 5 ch 33 SLA 1986)

Sec. 36.10.180. Projects subject to preference.

(a) The preferences established in AS 36.10.150 - 36.10.175 apply to work performed

(1) under a contract for construction, repair, preliminary surveys, engineering studies, consulting, maintenance work, or any other retention of services necessary to complete a given project that is let by the state or any agency of the state, a department, office, state board, commission, public corporation, or other organizational unit of or created under the executive, legislative or judicial branch of state government,

including the University of Alaska and the Alaska Railroad Corporation, or by a political subdivision of the state including a regional school board with respect to an educational facility under AS 14.11.020;

(2) on a public works project under a grant to a municipality under AS 37.05.315 or AS 37.06.010;

(3) on a public works project under a grant to a named recipient under AS 37.05.316;

(4) on a public works project under a grant to an unincorporated community under AS 37.05.317 or AS 37.06.020; and

(5) on any other public works project or construction project that is funded in whole or in part by state money.

(b) If the governor has declared an area to be an area impacted by an economic disaster under AS 44.33.285, then the preference for residents of the area established under AS 44.33.285 - 44.33.310 supersedes the preference under AS 36.10.150 - 36.10.175 for contracts awarded by the state.

(c) The commissioner shall define the boundaries of a zone within which a preference applies.
(§ 5 ch 33 SLA 1986; am § 2 ch 80 SLA 1993)

Sec. 36.10.190. Reporting provisions.
An employer obligated to meet resident hire requirements under this chapter shall comply with the reporting provisions that the commissioner of labor and workforce development determines are reasonably necessary to carry out this chapter. Except for statistical data, all information regarding specific employees is confidential and may not be released by the Department of Labor and Workforce Development. However, confidential employee information may be shared between departments for purposes of this chapter.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.200. Criminal penalties.

(a) A person who makes a false sworn statement in connection with a certification of eligibility for an employment preference under this chapter is subject to criminal prosecution for perjury as provided in AS 11.56.200.

(b) A person who makes an unsworn falsification, with the intent to mislead a public servant in the performance of a duty, in connection with a certification of eligibility for an employment preference under this chapter, is subject to criminal prosecution as provided in AS 11.56.210.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.210. Civil penalties.

(a) In addition to any criminal penalties imposed, after a hearing the department may impose a civil penalty on a person who, in connection with certification of eligibility for an employment preference under this chapter,

(1) made a false sworn statement; or

(2) made an unsworn falsification with intent to mislead a public servant in the performance of a duty.

(b) The amount of the civil penalty under (a) of this section for a person who falsely certifies that the person is eligible for an employment preference under this chapter is not more than $400 for each false certification.

(c) The amount of the civil penalty under (a) of this section for an employer who falsely certifies that employees are residents eligible for a preference under this chapter is not more than $2,000 for each of the first five false certifications. The penalty for the sixth false certification made by an employer and for each false certification thereafter is at least $2,000 and not more than $4,000.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.900. Severability.
If a provision of this chapter, or the application of a provision to a person or circumstance, is held invalid, the remainder of this chapter and the application to other persons or circumstances shall not be affected by the holding. The remainder shall be enforced to the greatest extent constitutionally permissible under the constitutions of the United States and the State of Alaska.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.990. Definitions.
In this chapter

(1) "qualified" means possesses the requisite education, training, skills, or experience to perform the work;

(2) "zone" includes a census area in the state, an economic region of the state, and the state as a whole.
(§ 5 ch 33 SLA 1986)

CHAPTER 15. ALASKA PRODUCT PREFERENCES.

ARTICLE 1. FOREST PRODUCTS PREFERENCE

Section:

Sec. 36.15.010. Use of local forest products required in projects financed by public money.
In a project financed by state money in which the use of timber, lumber, and manufactured lumber products is required, only timber, lumber and manufactured lumber projects originating in this state from local forests shall be used wherever practicable. (§ 14-3-1 ACLA 1949)

Sec. 36.15.020. Insertion of clause in calls for bids and in contracts.
A clause containing the substance of AS 36.15.010 shall be inserted in all calls for bids and in all contracts awarded. (§ 14-3-2 ACLA 1949)

CHAPTER 25. CONTRACTORS' BONDS.

Section:

Sec. 36.25.010. Bonds of contractors for public buildings or works.

(a) Except as provided in AS 44.33.300, before a contract exceeding $100,000 for the construction, alteration, or repair of a public building or public work of the state or a political subdivision of the state is awarded to a general or specialty contractor, the contractor shall furnish to the state or a political subdivision of the state the following bonds, which become binding upon the award of the contract to that contractor:

(1) a performance bond with a corporate surety qualified to do business in the state, or at least two individual sureties who shall each justify in a sum equal to the amount of the bond; the amount of the performance bond shall be equivalent to the amount of the payment bond;

(2) a payment bond with a corporate surety qualified to do business in the state, or at least two individual sureties who shall each justify in a sum equal to the amount of the bond for the protection of all persons who supply labor and material in the prosecution of the work provided for in the contract; when the total amount payable by the terms of the contract is not more than $1,000,000, the payment bond shall be in a sum of one-half the total amount payable by the terms of the contract; when the total amount payable by the terms of the contract is more than $1,000,000 and not more than $5,000,000, the payment bond shall be in a sum of 40 percent of the total amount payable by the terms of the contract; when the total amount payable by the terms of the contract is more than $5,000,000, the payment bond shall be in sum of $2,500,000.

(b) This section does not limit the authority of the contracting officer to require a performance bond or other security in addition to those, or in cases other than the cases specified in (a) of this section.

(c) When no payment bond has been furnished, the contracting department may not approve final payments to the contractor until the contractor files a written certification that all persons who supplied labor or material in the prosecution of the work provided for in the contract have been paid.

(§ 1 ch 49 SLA 1953; am § 1 ch 77 SLA 1964; am § 14 ch 142 SLA 1972; am §§ 1, 2 ch 180 SLA 1976; am § 8 ch 277 SLA 1976; am 34 ch 108 SLA 1982)

Sec. 36.25.020. Rights of persons furnishing labor or material.

(a) A person who furnishes labor or material in the prosecution of the work provided for in the contract for which a payment bond is furnished under AS 36.25.010 and who is not paid in full before the expiration of 90 days after the last day on which the labor is performed or material is furnished for which the claim is made, may sue on the payment bond for the amount unpaid at the time of the suit.

(b) However, a person having direct contractual relationships with a subcontractor but no contractual relationship express or implied with the contractor furnishing the payment bond has a right of action on the payment bond upon giving written notice to the contractor within 90 days from the last date on which the person performed labor or furnished material for which the claim is made. The notice must state with substantial accuracy the amount claimed and the name of the person to whom the material was furnished or for whom the labor was performed. The notice shall be served by mailing it by registered mail, postage prepaid, in an envelope addressed to the contractor at any place where the contractor maintains an office or conducts business, or the contractor's residence, or in any manner in which a peace officer is authorized to serve summons.

(c) A suit brought under this section shall be brought in the name of the state or the political subdivision of the state for the use of the person suing in the court with jurisdiction. A suit under this section is subject to AS 08.18.151. A suit may not be started after the expiration of one year after the date of final settlement of the contract. The state or political subdivision of the state is not liable for costs or expenses of the suit.

(§ 2 ch 49 SLA 1953; am § 15 ch 142 SLA 1972 am §58 ch 14 SLA 1987)

Sec. 36.25.025. Optional municipal exemption.

A municipality, by ordinance adopted by its governing body, may exempt contractors from compliance with the provisions as AS 36.25.010(a) if the estimated cost of the project does not exceed $400,000, and

(1) the contractor is, and for two years immediately preceding the award of the contract has been, a licensed contractor having its principal office in the state;

(2) the contractor certifies that it has not defaulted on a contract awarded to the contractor during the period of three years preceding the award of a contract for which a bid is submitted;

(3) the contractor submits a financial statement, prepared within a period of nine months preceding the submission of a bid for the contract and certified by a public accountant or a certified public accountant licensed under AS 08.04, demonstrating that the contractor has a net worth of not less than 20 percent of the amount of the contract for which a bid is submitted; and

(4) the total amount of all contracts that the contractor anticipates performing during the term of performance of the contract for which a bid is submitted does not exceed the net worth of the contractor reported in the certified financial statement prepared and submitted under (3) of this section by more than seven times.

(§ 1 ch 81 SLA 1978)

CHAPTER 95. GENERAL PROVISIONS

Section:
10. Definitions

Sec. 36.95.010. Definitions.
In this title, unless the context requires otherwise,

(1) "contractor" means the contractor including subcontractors performing work necessary to facilitate public construction;

(2) "laborer, mechanic, or field surveyor" means a person who engages in work which is basically physical or unskilled in nature; or who engages in work, requiring the use of tools or machines, which basically consists of the shaping and working of materials into some type of structure, machine or other object; or who engages in outdoor tasks related to the operation of findings and delineating contour, dimensions, position, topography, as of any part of the earth's surface, by preparation of measured plan or description of any area or other portion of country or of road or line through any area or other portion of country;

(3) "public construction" or "public works" means the on-site field surveying, erection, rehabilitation, alteration, extension or repair, including painting or redecorating of buildings, highways or other improvements to real property under contract for the state, a political subdivision of the state, or a regional school board;

(4) "resident" means a person who establishes residency under AS 01.10.055;

(5) "retainage" means money withheld from a contractor until completion of a contract or satisfaction of other contingency as evidenced by approval of the applicable pay estimate;

(6) "state or a political subdivision of the state" means any state department, state agency, state university, borough, city, village, school district or other state subdivision;

(7) "wages" includes fringe benefits.

(§ 16 ch 142 SLA 1972; am § 3 ch 89 SLA 1976; am § 16 ch 147 SLA 1978; am § 2 ch 85 SLA 1982; am § 92 ch 6 SLA 1984; am §§ 6, 11 ch 33 SLA 1986)

ALASKA ADMINISTRATIVE CODE
TITLE 8. LABOR

PART 2. RESIDENT EMPLOYMENT

CHAPTER 30. PUBLIC CONTRACTS.

Article:

ARTICLE 1. WAGES AND HOURS.

Section:

8 AAC 30.010. Notification of Contract Awards.

(a) Within 20 days of awarding a public contract, the state or political subdivision of the state shall notify the commissioner in writing that the contract has been awarded. The writing shall conform to the requirements of AS 36.05.035.

(b) Verification of contractors bonding requirements shall be by certified statement furnished to the commissioner by the state or political subdivision of the state which awarded the contract.

(Eff. 7/8/73, Register 47)

Authority: AS 36.05.030 AS 36.05.035

8 AAC 30.020. Certified Payroll.

(a) Before Friday of every second week, each contractor, subcontractor, or owner/operator who performs work on a public construction contract for the state or political subdivision of the state shall file with the department a certified payroll (Form 07-6058) that covers the preceding reporting period.

(b) The certified payroll shall be submitted to the department's regional office in the judicial district in which the work is performed:

1st Judicial District - Department of Labor and Workforce Development, Juneau
3rd Judicial District - Department of Labor and Workforce Development, Anchorage
2nd and 4th Judicial Districts - Department of Labor and Workforce Development, Fairbanks

(c) Instead of submitting Form 07-6058, a contractor may submit the contractor's payroll form. However, the payroll form must contain the same information and statement of compliance required by Form 07-6058.

(d) Owner/operators who perform duties as laborers, mechanics, or field surveyors while working as contractors or subcontractors on a public work project shall be included on their certified payrolls in the same manner as any other laborer, mechanic or field surveyor. However, an owner/operator who performs duties as a laborer, mechanic, field surveyor is not required to pay themselves each reporting period, but shall report hours worked and actual payments received under the terms of the contract and the period covered by each payment. After deducting operating expenses, the actual payment received by an owner/operator performing duties as a laborer, mechanic, or field surveyor must meet or exceed the minimum prevailing rate of pay in the applicable classification for each hour worked on a public construction project.

(e) If a contractor is under contract to provide trucks on a public construction project and leases a truck to an individual truck driver or dispatches an owner/operator working on that same project, the contractor shall pay no less than the prevailing wage for each hour worked each certified payroll reporting period to that driver.

(Eff. 7/8/73, Register 47; am 7/30/82, Register 83; am 8/9/01; Register 159; am 3/2/2008, Register 185)

Authority: AS 36.05.030 AS 36.05.040
AS 36.10.075

Editor's Note:

As of Register 151 (October 1999), the regulations attorney made technical revisions under AS 44.62.125 (b)(6) to reflect the name change of the Department of Labor to the Department of Labor and Workforce Development made by ch. 58, SLA 1999 and the corresponding title change of the commissioner of labor.

Form 07-6058 (payroll form) required in 8 AAC 30.020 may be obtained from the Department of Labor and Workforce Development, Wage and Hour Administration, 1251 Muldoon Road, Suite 113, Anchorage, AK 99504; telephone: (907) 269-4900. The form is also available on the department's website at:
http://labor.alaska.gov/lss/lssforms.htm

8 AAC 30.025. Fringe Benefit Contributions.

(a) Employers must remit contributions to union trusts, approved private pension plans, or other approved fringe benefit plans by the 15th of the month following the accrual of the contribution. If the plan itself has a more stringent remittance deadline, the plan deadline shall prevail. A copy of the actual deposit or other satisfactory proof shall be provided the department upon request.

(b) A private pension plan or other fringe benefit plan as referenced in (a) of this section must meet the following conditions in order to be approved as an offset against the prevailing wage rate requirement for fringe benefits:

(1) plan contributions must be

(A) irrevocable;

(B) deposited on a regular basis, not less than monthly, to a trustee or third-party administrator;

(C) free of administrative expense charges to employees, except reasonable and customary administrative fees charged to the plan as a whole, subject to approval of the plan trustee;

(D) non-discretionary;

(E) factored across all work performed by an employee in public construction and non-public construction with the exception of an automatic vesting 401(k) plan;

(2) plan contributions may not be made on behalf of employees who are not eligible to participate in the plan;

(3) except for an automatic vesting 401(k) plan, plan contributions must not be funded solely through hours worked on public construction projects.

(c) Except for an automatic vesting 401(k) plan which allows the actual hourly amount contributed to the plan during the public construction project to be directly credited against fringe benefit payment requirements, to establish an hourly rate for credit against prevailing wage requirements, the amount paid by the employer for the benefit shall be divided by the hours worked by the employee under the plan during the interval under which payments are due to the plan administrator. To allow for seasonal variations, the plan costs may be calculated on an annual basis.

(d) If the hourly rate established under (c) of this section does not meet the prevailing fringe benefit rate, the remainder must be paid to the employee.

(e) If a pension plan meets the requirements under 29 U.S.C. 1001 – 1461 (Employee Retirement Income Security Act of 1974) and includes a minimum vesting requirement, any forfeited amounts must remain in the trust, subject to the authority of the trustee and may not revert to the employer.

(f) The department may disallow an employer from taking credit for fringe benefit contributions as an offset to prevailing wage requirements if the provisions of this section are not met. Upon request, the employer shall provide the following to the department:

(1) a copy of the plan;

(2) a copy of the plan adoption agreement;

(3) the name, address, and telephone number of the plan broker;

(4) the name, address, and telephone number of the plan administrator;

(5) the United States Internal Revenue Service approval letter;

(6) the calculations of the hourly cost equivalent for the plan.

(g) An apprentice shall receive 100 percent of the prevailing fringe benefit rate established in the applicable *Laborers' and Mechanics' Minimum Rates of Pay*, unless a bona fide fringe benefit plan is specified in the applicable Standards of Apprenticeship approved by the United States Department of Labor, Office of Apprenticeship.

(h) In this section, "automatic vesting 401(k) plan," means a 401(k) plan maintained in compliance with 29 U.S.C. 1001 – 1461 (Employee Retirement Income Security Act of 1974) that allows for immediate vesting in the plan to ensure that the employee will not be subject to any forfeiture of amounts contributed to the plan since it has no vesting requirements.

(Eff. 1/2/91, Register 116; am 3/2/2008, Register 185; am 8/12/2018, Register 227)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.070

8 AAC 30.027. Notice of violation requiring withholding.

When the department determines, under the authority of AS 36.05.030, that a violation has occurred, it shall notify the contracting agency as to the nature and estimated amount of the violation so that the contracting agency can fulfill its obligation to withhold funds under AS 36.05.070 (4). (Eff. 1/2/91, Register 116)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.070

8 AAC 30.030. Notification of withholding accrued payments.

(a) If the state or a political subdivision of the state withholds accrued payments under those provisions of its contracts required by AS 36.05.070(c)(4), the state or political subdivision shall notify the commissioner within three working days.

(b) Notification shall be in writing and contain the following information:

(1) name of state agency or political subdivision of the state that awarded the contract;

(2) name of state agency or political subdivision of the state that is withholding accrued payments;

(3) contractor's name and address;

(4) address of construction site;

(5) job classification being underpaid;

(6) wage rate required by contract; and

(7) wage rate actually being paid.

(Eff. 7/8/73, Register 47)

Authority: AS 36.05.030 AS 36.05.070

8 AAC 30.040. Notification of Termination of Contract.

(a) If the state or a political subdivision of the state terminates a contract under those provisions of its contract required under AS 36.05.080, the state or political subdivision of the state shall notify the department within three working days.

(b) Notification shall be in writing and contain the following information:

(1) name of state agency or political subdivision of the state that awarded the contract;

(2) name of state agency or political subdivision of the state that is terminating the contract;

(3) contractor's name and address;

(4) address of construction site;

(5) job classification being underpaid;

(6) wage rate required by contract;

(7) wage rate actually being paid; and

(8) proposed action to be taken to complete construction.

(Eff. 7/8/73, Register 47)

Authority AS 36.05.030 AS 36.05.080

ARTICLE 2. WAGE SCALE.

Section:

50. Wage Scale

8 AAC 30.050. Wage Scale.

(a) The department will determine the prevailing wage rate to be paid laborers, mechanics, and field surveyors. The department will publish this determination in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*. The department will periodically revise the prevailing wage rates, on a regional basis, to correspond with the prevailing wage rate for similar work.

(b) The prevailing wage will be determined on a regional basis for two geographic regions of the state, north of North 63 degrees latitude and south of North 63 degrees latitude. A region may be subdivided into zones if the commissioner determines that the prevailing wage rate has local variations within the region. In determining the prevailing wage rate for a region or zone, the department will consider the prevailing wage that represents majority penetration for each work classification. If there is no majority penetration the department may set the prevailing wage rate in the following manner:

(1) If less than a majority of the persons employed at a particular skill level in a particular job class receive the same wage, the prevailing wage rate will be determined by taking the arithmetic mean (average) of the wages in the survey for the job class being considered.

(2) Prior to calculating the arithmetic mean, the survey will be adjusted by eliminating five percent of the extreme wage rates.

(3) For example, in a survey consisting of 75 different pay rates the rates will be arrayed in order of size. Five percent at both ends of the scale, the four highest and four lowest, will be eliminated. The remaining 67 rates will be the final survey from which the arithmetic mean will be determined to be the prevailing rate of pay.

(4) In determining the prevailing wage rate for a region or zone, the department will consider the prevailing union wage, local practice, and any other standard considered by the department to be appropriate.

(c) Special prevailing wage rate determinations may be requested for special projects or special worker classifications, if the work to be performed does not conform to traditional public construction for which a prevailing wage rate has been established under (a) of this section. Requests for special wage rate determinations must be in writing and filed with the commissioner at least 30 days before the award of the contract. An applicant for a special wage rate determination shall have the responsibility to support the necessity for the special rate. An application for a special wage rate determination filed under this section must contain

(1) a specification of the contract or project on which the special rates will apply and a description of the work to be performed;

(2) a brief narrative explaining why special wage rates are necessary;

(3) the job class or classes involved;

(4) the special wage rates the applicant is requesting, including survey or other relevant wage data to support the requested rates;

(5) the approximate number of employees who will be affected; and

(6) any other information which might be helpful in determining if special wage rates are appropriate.

(d) The prevailing wage rate established in (a) of this section shall be considered the minimum wage rate that shall be paid to various classes of laborers, mechanics, and field surveyors.

(e) This section shall be made part of every contract that falls within the scope of AS 36.05.010 and 36.05.070(a).

(Eff. 7/8/73, Register 47; am 7/30/82, Register 83; am 8/9/2001, Register 159; am 3/2/2008, Register 185; am 11/25/2018, Register 228)

Authority: AS 36.05.010 AS 36.05.030 AS 36.05.070

Editor's note:

The pamphlet titled *Laborers' and Mechanics' Minimum Rates of Pay* may be obtained from the Department of Labor and Workforce Development, 1251 Muldoon Road, Suite 113, Anchorage, AK 99504; telephone: (907) 269-4900. The pamphlet is also available on the department's website at: http://labor.alaska.gov/lss/lssforms.htm.

8 AAC 30.051. Purpose.

The purpose of 8 AAC 30.052 – 8 AAC 30.056 is to ensure that wages paid to laborers, mechanics, and field surveyors do not fall below the prevailing rate of pay.

8 AAC 30.052. Board and lodging; remote sites.

(a) A contractor on a public construction project located 65 or more road miles from the international airport closest to the project area in either Fairbanks, Juneau, or Anchorage, or that is inaccessible by road in a two-wheel drive vehicle, shall provide adequate board and lodging to each laborer, mechanic, or field surveyor while the person is employed on the project. If commercial lodging facilities are not available, the contractor shall provide temporary lodging facilities. Lodging facilities must comply with all applicable state and federal laws. For a highway project, the location of the project is measured from the midpoint of the project.

(b) A contractor is not required to provide board and lodging:

(1) to a laborer, mechanic, or field surveyor who is a domiciled resident of the project area; or

(2) on a laborer, mechanic, or field surveyor's scheduled days off, when the person can reasonable travel between the project and the person's permanent residence; for the purposes of this paragraph, "scheduled day off" means a day in which a person does not perform work on-site, is not required to remain at or near the job location for the benefit of the contractor, and is informed of the day off at least seven days before the day off.

(c) Upon a contractor's written request, the commissioner may waive the requirements of (a) of this section where:

(1) the project is inaccessible by road in a two-wheel drive vehicle, but the laborer, mechanic, or field surveyor can reasonable travel between the project and the person's permanent residence within one hour; or

(2) a laborer, mechanic, or field surveyor is not a domiciled resident of the project area, but has established permanent residence, with the intent to remain indefinitely, within 65 road miles of the project, or for a highway project, the mid-point of the project.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.030
AS 36.10.075 AS 36.05.010

8 AAC 30.054. Per diem instead of board and lodging.

(a) A contractor may pay a laborer, mechanic, or field surveyor per diem instead of providing board and lodging, when the following conditions are met

(1) the department determines that per diem instead of board and lodging is an established practice for the work classification; the department shall publish and periodically revise its determinations in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*;

(2) the contractor pays each laborer, mechanic, or field surveyor the appropriate per diem rate as published and periodically revised in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*; and

(3) the contractor pays the per diem to each laborer, mechanic, or field surveyor on the same day that wages are paid.

(b) A contractor may not pay per diem instead of board and lodging on a highway project located

(1) west of Livengood on the Elliot Highway, AK-2;

(2) on the Dalton Highway, AK-11;

(3) north of milepost 20 on the Taylor Highway, AK-5;

(4) each of Chicken on the Top of the World Highway; or

(5) south of Tetlin Junction to the Alaska-Canada border on the Alaska Highway, AK-2.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.010 AS 36.10.075

8 AAC 30.056. Alternative arrangement.

Upon a contractor's written request, the commissioner may approve an alternative board and lodging or per diem arrangement, provided

(1) the arrangement does not reduce the laborer, mechanic, or field surveyor's wages below the prevailing wage rate; and

(2) the laborer, mechanic, or field surveyor voluntarily enters into and signs the written arrangement; a labor organization representing laborers, mechanics, or field surveyors may enter into the written agreement on their behalf.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.010
AS 36.05.030 AS 36.10.075

ARTICLE 3. Employment Preference.

Section:

8 AAC 30.060. Resident Hiring.
[Repealed 9/27/87]

8 AAC 30.061. Contracting agency reporting requirements.

(a) Within 20 days after awarding a contract or grant covered by AS 36.10.180, a state agency or political subdivision of the state shall file with the department a notice containing

(1) the name and address of the state agency or political subdivision awarding the contract or grant;

(2) the name of the head of the state agency or political subdivision awarding the contract or grant;

(3) the date of the contract or grant award;

(4) the total amount of the contract or grant;

(5) the location of the project; and

(6) the name and address of each contractor and subcontractor performing work on the project.

(b) A state agency or political subdivision of the state shall report immediately to the department any changes or additions regarding the notice required in (a) of this section which involve either

(1) a change in the identity of a contractor or subcontractor performing work on the project; or

(2) a change in the total amount of the contract if the change exceeds $10,000.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.076

8 AAC 30.062. Employer reporting requirements.

(a) Upon request by the department, an employer required to file a quarterly report of employment and wages under AS 23.20.105 - 23.20.535 shall include in its quarterly report the following information for each employee:

(1) either the occupational title or the four-digit standard occupational classification code for the last position held by the employee; and

(2) the two-digit geographic area code of the employee's primary work location.

(b) The department will provide each employer required to submit information under (a) of this section with a list of occupational codes and titles applicable to its industry and a map showing the boundaries and code for each geographic area of the state.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.190

8 AAC 30.064. Hiring preference for residents of zone of underemployment.

(a) For purposes of AS 36.10.150, the commissioner will determine that an area is a zone of underemployment if

(1) the rate of unemployment within the area is at least 10 percent greater than the average national unemployment rate for the most recent 12-month period for which unemployment insurance figures are available, or a longer period determined appropriate by the commissioner to take into account unemployment trends exceeding a one-year period; for example, if the national unemployment rate is seven percent, the rate of unemployment in the area must be at least 7.7 percent for the area to be a zone of underemployment;

(2) at least 10 percent of the jobs in a particular craft or occupation that would be used on a particular public-funded project could be filled by residents of the area who are trained or experienced in that craft or occupation; a determination under this paragraph will be based on data for the quarter of highest employment for the most recent calendar year for which data is available;

(3) the lack of employment opportunities has substantially contributed to serious social or economic problems in the area, as determined under 8 AAC 30.068; and

(4) the employment of nonresidents is a peculiar source of unemployment for residents of the area, as determined under 8 AAC 30.069.

(b) For a public-funded project, the percentage of positions which must be reserved under AS 36.10.150 for eligible residents, in a craft or occupation subject to a hiring preference, is the percentage that would result in a determination under (a) of this section that the area was not a zone of underemployment. The department will compute the percentage for an occupation or craft and announce it after the determination under (a) of this section is made.

(Eff. 9/27/87, Register 103; am 6/8/11, Register 198)
Authority AS 36.10.075 AS 36.10.150

8 AAC 30.065. Hiring Preference for Residents of Economically Distressed Zone.
[Repealed 8/9/2001]

8 AAC 30.066. Hiring Preference for Economically Disadvantaged Minority Residents.
[Repealed 8/9/2001]

8 AAC 30.067. Hiring Preference for Economically Disadvantaged Female Residents.
[Repealed 8/9/2001]

8 AAC 30.068. Determination that lack of employment opportunities has substantially contributed to serious social or economic problems.

For purposes of AS 36.10.150 - 36.10.175 and this chapter, the lack of employment opportunities has substantially contributed to serious social or economic problems if changes in indicators of social and economic problems are linked to changes in the number of people who want to work and are unable to obtain work. The commissioner will use correlation analysis, testimony, professional studies, or other evidence to establish the relationship between unemployment and social or economic problems.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.160
AS 36.10.175 AS 36.10.150
AS 36.10.170

8 AAC 30.069. Determination of peculiar source of unemployment.

For purposes of AS 36.10.150 - 36.10.175, and 8 AAC 30.064, the commissioner will determine that employment of nonresidents is a peculiar source of unemployment if more than 10 percent of the residents of an area who are trained or experienced in a craft or

occupation are unemployed and more than 10 percent of the total number of workers employed in that area in that craft or occupation are not residents of the area.
(Eff. 9/27/87, Register 103; am 08/9/01; Register 159)
Authority: AS 36.10.075 AS 36.10.160
AS 36.10.175 AS 36.10.150
AS 36.10.170

8 AAC 30.070. Annual Report by Agency or Political Subdivision of the State.
[Repealed 9/27/87.]

8 AAC 30.071. Determination of Past Economic Discrimination.
[Repealed.]
(Eff. 9/27/87, Register 103; repealed 08/9/01; Register 159)

8 AAC 30.072. Determining residency.
The department will consider the following information in determining whether a person is a resident:

(1) where the person, the person's spouse, and the person's dependent children maintain their principal place of abode;

(2) where the person's dependent children are enrolled in school;

(3) the person's address on driver's licenses;

(4) the person's address on motor vehicle registrations;

(5) where the person's bank, credit union, or other financial accounts are maintained;

(6) the person's address on hunting, fishing, trapping, or other licenses;

(7) where the person is registered to vote;

(8) the person's address as shown on Department of Revenue permanent fund dividend records; and

(9) any other relevant facts.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.14
AS 36.95.010(4)

8 AAC 30.073. Determination of resident hiring preferences.

(a) The commissioner will, at least biennially, determine whether an area is a zone of preference under AS 36.10 and this chapter if enough data is available to make that determination.

(b) The commissioner will include, in the annual resident hire report required under AS 36.10.130, all resident preference determinations made during the previous calendar year.

(c) When an area has been determined to be a resident hiring zone of preference, the department will notify all contractors of record who are or will be performing work on public-funded projects in the zone, and will notify all state agencies and political subdivisions that have public-funded projects in the zone.

(d) Upon notification under (c) of this section, the resident hiring preference requirements are effective immediately and apply to all public-funded projects in the zone.
(Eff. 9/27/87, Register 103; am 3/2/2008, Register 185)
Authority: AS 36.10.075

8 AAC 30.078. Resident hiring preferences in overlapping or multiple zones.

(a) If two areas are determined to be zones of preference under AS 36.10 and this chapter for the same resident hiring preference, and one of the zones is located entirely within the other, the preference requirements will apply to the larger zone.

(b) As provided in AS 36.10.150 - 36.10.175, if a public-funded project is located in more than one zone, the entire project is subject to the resident hiring preferences in effect in those zones.
(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075

8 AAC 30.080.
[Repealed 12/4/76]

8 AAC 30.081. Compliance with preference requirements.

(a) To comply with AS 36.10.150 - 36.10.175, an employer subject to a resident hiring reference shall meet the relevant resident hire percentage, prescribed under this chapter, for each separate workweek. If an area has been determined to be a zone of preference for more than one type of resident hiring preference, the requirements of each preference apply. An employer may count the hire of an eligible resident toward satisfaction of each preference for which the resident qualifies.

(b) An employer subject to a resident hiring preference shall certify that each person hired as a resident under the preference was eligible for the preference at the time of hiring. The employer's certification must be provided on the weekly certified payroll form filed with the department (Form 07-6058); must include the name and residence address of each employee on the project, including supervisory employees; and must include a statement of compliance with all resident hiring preferences in effect.

(c) A labor organization that dispatches members for work on a public-funded project subject to a resident hiring preference shall certify to the employer at the time of dispatch that each person dispatched as a resident to meet a preference was eligible for the preference at the time of dispatch. The labor organization's certification must be in writing and must include the name and residence address of each person dispatched to the project.

(d) An employer subject to a resident hiring preference who is unable to find enough eligible residents may request from the department a waiver to hire an ineligible person for a specific job. The waiver request must be submitted to the department at least seven calendar days before the waiver is required to be considered for approval. Within three working days, the

department shall determine whether the contractor's proposed minimum qualifications for the position covered by the waiver request are acceptable. The employer must place an advertisement using at least one public form of statewide advertising, such as a newspaper with statewide circulation, and must request that the Alaska Employment Service post a statewide facilitated recruitment job order through the Alaska Job Center Network. The advertisement and the job order must run for at least three calendar days, and both must

(1) state that the purpose of the request is to satisfy employment preference requirements of this state under AS 36.10 and that applicants must be residents of this state;

(2) list the job title and minimum qualifications as accepted by the department;

(3) identify the rate of pay including fringe benefits and other compensation, such as travel or room and board;

(4) identify the job location, expected duration of the job, and the number of expected daily and weekly work hours; and

(5) specify that all job seekers apply through the Alaska Job Center Network.

(e) An employer subject to a resident hiring preference who is unable to find enough eligible residents from either private sources or from the applicants referred by the state employment center under (d) of this section may request from the department a waiver to hire an ineligible person for a specific job. A request for a waiver under this subsection must contain

(1) a description of the job for which a waiver is requested, to include the wages, benefits, expected start date, work schedule, and job duration;

(2) the required qualifications for the job for which a waiver is requested;

(3) the qualifications of the person for whom the waiver is requested;

(4) the name and residence address of the person for whom the waiver is requested;

(5) a description of the employer's efforts to obtain an eligible resident from private sources for the job for which a waiver is requested;

(6) a copy of the recruitment report from the Alaska Job Center Network containing the following information and documentation;

(A) a copy of the job order, a listing of all applicants from the job order and other private recruitment efforts, and the listing of the applicants referred to the employer;

(B) the recruitment result report to show the number of individuals interviewed, hired or not hired;

(C) and, a statement from the Alaska Job Center Network that the employer did or did not comply with the recruitment requirements;

(7) the name and location of the project for which the waiver is requested; and

(8) an explanation of why each applicant referred was not hired.

(f) The department will grant a waiver to employ an ineligible person if the employer establishes, to the department's satisfaction, that there are no qualified eligible residents for a specific job. A waiver granted by the department expires six months from the approval date, at the completion of the specific job for which the ineligible person was hired, or at the time the ineligible person terminates, whichever occurs first. The department will either grant or deny the waiver within 20 working days after receiving the request for a waiver and the supporting evidence required under (e) of this section.

(g) A waiver granted under this section will be determined invalid unless the same benefits provided to the ineligible nonresident, such as housing and transportation to the work site, are also offered and provided to eligible resident applicants.

(Eff. 9/27/87, Register 103; am 3/2/2008, Register 185)

Authority: AS 36.10.070 AS 36.10.140 AS 36.180
AS 36.10.190 AS 36.10.075

8 AAC 30.082. Department determination of eligibility for preference.

(a) Following a determination under this chapter that an area is a zone of preference, the department's assistance may be requested in determining a person's eligibility for a resident hiring preference in a craft or occupation on a public-funded project. Application for an eligibility determination must be made on a form available from the division or from any state employment center. An applicant may mail or deliver the completed application to the division or to any state employment center.

(b) A person will be determined to be eligible for a resident hiring preference if the person establishes, to the department's satisfaction, that he or she meets the eligibility criteria in AS 36.10.140 and 36.10.150 - 36.10.175. An applicant will be notified of the department's determination.

(c) The department will, in its discretion, request that an applicant provide additional information to the department. The additional information will be made a part of the application, and will, in the department's discretion, be used in determining the applicant's eligibility.

(d) If a person is determined under this section to be ineligible, a new application may be submitted if there are new or previously undisclosed facts bearing upon eligibility. The applicant shall note that the application is not an initial application and shall set out the new or previously undisclosed facts.

(e) An employer may rely on the department's determination of eligibility under this section in meeting the requirements of AS 36.10.140(c) and 36.10.150 - 36.10.175.

(Eff. 9/27/87, Register 103)

Authority: AS 36.10.070 AS 36.10.075
AS 36.10.140

8 AAC 30.084. Appeals of eligibility determinations.

(a) A determination by the department under 8 AAC 30.082 that a person is not eligible for a resident hiring preference is final unless the applicant, or the applicant's representative, files a written appeal with the department within 20 days after receipt of the determination.

(b) An appeal must contain the name and mailing address of the applicant, the reasons for the appeal, and any arguments or information in support of the appeal.

(c) The department will, in its discretion, consider any relevant evidence in deciding an appeal even if the evidence is not admissible under Alaska rules of evidence. The department will, in its discretion, request additional information from the applicant. The applicant must respond in writing to a request for additional information within 10 days after receipt of the request. The department will, in its discretion, grant an extension of time to an applicant for good cause shown.

(d) Any notices or other documents in connection with an appeal will be mailed to the last address furnished by the applicant.

(e) The department will issue a written decision on the appeal within 30 days after receipt of the appeal or within 30 days after the submission of additional information requested under (c) of this section. The decision will include findings of fact and conclusions of law, and will be served on all parties to the appeal. The decision under this subsection is the final decision of the department.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.140

8 AAC 30.086. Approval of job training programs.

(a) For the purposes of AS 36.10.140(a)(4), the following types of job training programs are approved:

(1) a program approved by the Alaska Commission on Postsecondary Education, or by an equivalent agency in another state if the program is located in another state; or

(2) a program approved by the United States Department of Labor, Office of Apprenticeship.

(b) For the purposes of AS 36.10.140(a)(4), the following types of training programs will, in the department's discretion, be approved:

(1) a program sponsored or conducted by an employer or union; or

(2) a program approved under the Workforce Innovation and Opportunity Act (WIOA) 2014, Pub. L. No 113-138).

(Eff. 9/27/87, Register 103; am 8/12/2018, Register 227)
Authority: AS 36.10.140

8 AAC 30.088. Computations regarding hiring preference requirements.

Computing the number of workers or positions for resident employment preference under AS 36.10 and this chapter might result in a number that contains a fraction. In such cases, the fraction is to be dropped. For example, a result of 4.8 workers should be shown as 4 workers.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075

ARTICLE 4. INVESTIGATIONS AND HEARINGS.

Section:

8 AAC 30.090. Investigations, conference, and persuasion.

(a) The division will investigate potential violations of AS 36 (Public Contracts), on its own motion or on the complaint of any person.

(b) If, after preliminary investigation, the division finds that probably cause exists to believe that a violation of AS 36.05 or AS 36.10 has occurred, the division will provide the respondent believed to have violated AS 36.05 or AS 36.10 a copy of the complaint or a description of the alleged violation by personal service or certified mail to the last known address of the respondent and to the respondent's registered agent, if any. If respondent is a subcontractor, the division will also provide the prime contractor with a copy of the complaint or a description of the alleged violation by personal service or certified mail to the prime contractor's registered agent.

(c) The division will attempt to eliminate the alleged violation through conference and persuasion by providing the respondent and prime contractor an opportunity for an information conference to discuss the matter and attempt to eliminate the alleged violations.

(d) If an alleged violation is not rectified by the informal conference, or if the respondent or prime contractor fails to attend the conference without good cause, the division will notify the respondent and the prime contractor in writing of the failure of the informal conference. The division will include in its notification a summary of the division's investigative findings.

(e) The respondent or the prime contractor may request a hearing by sending the division a written request postmarked not later than 30 days of the date of the division's notification of the failure of the informal conference under (d) of this section. The hearing request must identify any investigative findings in dispute and the basis for the dispute, including any affirmative defenses. Upon receipt of a request for a hearing, the division will refer the case for hearing. Hearings under this section will be conducted in accordance with 8 AAC 30.100.

(f) If no timely request for hearing is received, the division's investigative findings will be final.

(Eff. 12/4/76, Register 60; am 7/30/82, Register 83; am 1/2/91, Register 116; am 8/9/01, Register 159; am 3/2/2008, Register 185; am 8/12/2018, Register 227)
Authority: AS 23.05.060 AS 36.10.075
AS 36.10.120 AS 36.05.030

8 AAC 30.100. Hearings.

(a) Both respondent and complainant may be represented by counsel. If counsel for a party notifies the division, in writing, that counsel is appearing in the matter on behalf of the party, service of notices, memoranda, recommendations, or other papers will be considered sufficient if made on counsel.

(b) The division will give notice to the respondent and to the complainant, if any, of the time and place of the hearing on an alleged violation of AS 36.05 or AS 36.10 by certified mail, or by personal service at least 15 days before the hearing. Mailing to the last known address or the address listed with the division of occupational licensing for construction contractors shall be considered valid service. The notice will contain a copy of the complaint and a description of the alleged violation which will be considered at the hearing.

(c) The location of the hearing will be designated by the division with due regard for the convenience of all persons involved. All hearings are public.

(d) The director will appoint a wage and hour investigator or contract with an attorney licensed in this state to serve as hearing officer, to preside over the hearing, and to make findings of fact and conclusions of law to be used as a basis for the director's decision. An investigator who has investigated the alleged violations or taken part in the informal conference under 8 AAC 30.090 will not be appointed hearing officer.

(e) The hearing officer has full authority to control the procedure of the hearing and to rule on all motions and objections.

(f) The hearing officer may admit any relevant evidence, regardless of the existence of any common law or statutory or court rule which might make improper the admission of such evidence over objection in civil actions, if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs. Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but will not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions.

(g) Oral evidence must be given under oath or affirmation. A record of the proceedings will be kept.

(h) The hearing officer, respondent, and complainant may

(1) call and examine witnesses;

(2) cross-examine opposing witnesses on any matter relevant to the issue at hand even though that matter was not covered in direct examination; and

(3) introduce exhibits.

(i) If the respondent or complainant does not testify in that person’s own behalf, that person may be called and examined as if under cross-examination.

(j) The hearing officer may, for good cause shown, continue a hearing from day to day or recess it to a later date or to a different place by announcement at the hearing or by notice.

(Eff. 12/4/76, Register 60; am 1/2/91, Register 116; am 8/9/01; Register 159)

Authority: AS 23.05.060 AS 36.10.075
AS 36.10.120 AS 36.05.030

8 AAC 30.110. Decisions.

(a) The hearing officer will prepare a written recommendation to the director containing findings of fact and conclusions of law. A copy of the recommendations will be mailed or otherwise delivered to the respondent and to the complainant, if any. The director will act upon the hearing officer's recommendation and render a final decision within 30 days.

(b) Upon making a decision, the director will serve it upon the respondent and complainant, if any, by personal service or certified mail, return receipt requested. If the director determines that the respondent has violated AS 36.05 or AS 36.10, the decision may contain such cease and desist orders and other orders and relief, including a recommendation that the respondent be placed on a list of violators who are barred from performing public contracts as provided under AS 36.05.090 and AS 36.10.090, as the director considers appropriate to correct the unlawful conduct. If, after the director's decision finding the respondent in violation of AS 36.05 or AS 36.10 is served on the respondent, the director determines that the respondent has not ceased or has failed to correct the unlawful conduct, the director will refer the matter to the attorney general for enforcement.

(Eff. 12/4/76, Register 60; am 8/9/01, Register 159)

Authority: AS 23.05.060 AS 36.10.075
AS 36.10.125 AS 36.05.030
AS 36.10.120

ARTICLE 5. DEBARMENT.

Section:

8 AAC 30.200. Review and Recommendations.

(a) Contractors or subcontractors who have disregarded their obligations to employees as defined in 8 AAC 30.900 may be subject to debarment for three years.

(b) Debarment will be considered in those cases in which a contractor or subcontractor has committed willful, aggravated or repeated violations of the provisions of AS 36.05.

(c) The standards to be considered in determining if the contractor's or subcontractor's violations merit recommendation for debarment are

(1) falsification or concealment of records;

(2) refusal to pay prevailing wages;

(3) failure to pay prevailing wages;

(4) extent and seriousness of the violations; or

(5) three or more violations on the same or separate contracts within a five-year period.

(d) A prime contractor may be considered for debarment in cases where the violations are committed by its subcontractors. Criteria considered in determining whether a prime should be debarred are:

(1) a history of subcontractors violating under that prime;

(2) failure of the prime contractor to notify its subcontractors of the requirements of AS 36.05; and

(3) informing subcontractors how not to comply, or assisting a subcontractor in not complying with AS 36.05.

(e) At the completion of an enforcement action against a contractor or subcontractor for a violation of AS 36.05, the investigator will review the file to determine if a recommendation for debarment is warranted in accordance with (c) or (d) of this section. If it is determined that a recommendation for debarment is proper, the investigator will forward the recommendation citing specific statutes through his or her supervisor to the director. The director will review the recommendation of the investigator and determine if the case will be referred for hearing.

(f) When, as a result of an investigation conducted by the department, the director finds reasonable cause to believe that a contractor or subcontractor has committed willful or aggravated violations of AS 36.05 which constitute a disregard of its obligations to employees under that chapter, the director shall notify by personal service or certified mail to the last known address, the contractor or subcontractor and its responsible officers, of the finding. The director shall afford the contractor or subcontractor and any other parties notified an opportunity for a hearing as to whether debarment action should be taken under AS 36.05.090. The director will furnish to those notified a summary of the investigative findings. If the contractor or subcontractor or any other parties notified request a hearing, the request must be made by letter postmarked within 30 days of the date of the letter from the director. The request must set forth any findings which are in dispute and the reasons therefore, including any affirmative defenses to be raised. Upon receipt of a request for a hearing, the director shall refer the case for hearing to determine the facts in dispute.

(g) Hearings under this section shall be conducted in accordance with 8 AAC 30.210. If no hearing is requested within 30 days of the date of the director's letter, the director's findings shall be final.

(Eff. 1/2/91, Register 116)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.210. Hearings.

(a) The respondent may be represented by counsel. If counsel for a party notifies the division, in writing, that counsel is appearing in the matter on behalf of the party, service of notices, memoranda, recommendations, or other papers will be considered sufficient if made on counsel.

(b) The division will give notice to the respondent of the time and place of the hearing on an alleged violation of AS 36.05 by certified mail or by personal service at least 15 days before the hearing. The notice will contain a summary of investigative findings that will be considered at the hearing. Service on the address a contractor or subcontractor has provided to the division of occupational licensing for the purpose of obtaining a contractor's license, or the last known address furnished by the contractor or subcontractor, shall be considered valid service.

(c) The location of the hearing will be designated by the division with due regard for the convenience of all persons involved. All hearings are public.

(d) The director will appoint a wage and hour investigator or contract with an attorney licensed in this state to serve as hearing officer to preside over the hearing and to make findings of fact and conclusions of law to be used as a basis for the director's decision. An investigator who has investigated the alleged violations or taken part in the informal conference under 8 AAC 30.090 will not be appointed hearing officer.

(e) The hearing officer has full authority to control the procedure of the hearing and to rule on all motions and objections.

(f) The hearing officer may admit any relevant evidence, regardless of the existence of any common law or statutory or court rule that might make improper the admission of such evidence over objection in civil actions, if the evidence is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs. Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but is not sufficient in itself to support a finding unless the hearsay evidence would be admissible over objection in civil actions. The hearing officer may issue subpoenas at the request of either party or on the hearing officer’s own motion.

(g) Oral evidence must be given under oath or affirmation. A record of the proceedings will be kept.

(h) The hearing officer, respondent, and complainant may

(1) call and examine witnesses;

(2) cross-examine opposing witnesses on any matter relevant to the issue at hand even though that matter was not covered in direct examination; and

(3) introduce exhibits.

(i) If the respondent does not testify in the respondent’s own behalf, that person may be called and examined as if under cross-examination.

(j) The hearing officer may, for good cause shown, continue a hearing from day to day or recess it to a later date or to a different place by announcement at the hearing or by notice.

(k) The department has the burden of proving that the alleged violations have occurred. The standard of proof required is by a preponderance of the evidence.

(Eff. 1/2/91, Register 116; am 8/9/01, Register 159)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.220. Decisions.

(a) Within 90 days of concluding a hearing, the hearing officer will prepare a written recommendation to the director containing findings of fact and conclusions of law. A copy of the recommendations will be mailed or otherwise delivered to the respondent and to the complainant, if any. The director may accept the recommendations, in part or in whole, or may remand the matter for further hearing. The director must act upon the hearing officer's recommendation and render a decision within 30 days.

(b) Upon making a decision, the director will serve it upon the respondent by personal service or certified mail. If the director determines that the respondent has disregarded its obligations to employees under AS 36.05, the decision will order that the respondent be placed on a list of violators who are barred from performing public contracts as provided under AS 36.05.090.

(c) In the absence of or in addition to action of a state disbursing officer or local fiscal officer, the department will distribute a list reflecting the names of debarred contractors and the effective period of the debarment.

(Eff. 1/2/91, Register 116; am 3/2/2008, Register 185)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.230. Appeals.

The director's decision is final. Appeals must be filed in superior court in accordance with Alaska court Rules of Appellate Procedure.

(Eff. 1/2/91, Register 116)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.240. Request for Removal.

Any person or firm debarred under AS 36.05.090 and 8 AAC 30.220 may, in writing, request removal from the debarment list after six months from the date the debarment took effect. All requests should be directed to the director of labor standards and safety and must contain a full explanation of the reasons why such person or firm should be removed from the debarred list. In cases where the contractor or subcontractor failed to make full restitution of wages and fringe benefit contributions to all underpaid employees, a request for removal will not be considered until all underpayments, including appropriate interest, are made. In other cases, the director will examine the facts and circumstances surrounding the violative practices which caused the debarment and issue a decision as to whether or not the person or firm has demonstrated a current responsibility to comply with AS 36.05 and therefore should be removed from the ineligible list.

(Eff. 1/2/91, Register 116)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

ARTICLE 6. GENERAL PROVISIONS.

Section:

8 AAC 30.900. General Definitions.

In this chapter and in AS 36

(1) "commissioner" means the commissioner of labor and workforce development;

(2) "crafts" and "occupations" mean the occupations identified in the *Standard Occupational Classification Manual* (2018 edition);

(3) "debar" or "debarment" means being placed on a list of persons who are barred from performing public contracts under AS 36.05.090;

(4) "department" means the Alaska Department of Labor and Workforce Development;

(5) "director" means the director of the labor standards and safety division of the department;

(6) "disregarded their obligations to employees" (or a grammatical variant) as used in AS 36.05.090 and this chapter includes any of the following:

(A) failure or refusal to pay basic prevailing wages;

(B) failure or refusal to pay fringe benefits into the appropriate union trust, approved private pension plan, or other approved fringe benefit plan within applicable time limits;

(C) failure to pay at least once a week;

(D) failure to pay unconditionally; or

(E) failure to report wage payments to employees accurately and timely as required by AS 36.05.040;

(7) "division" means the labor standards and safety division of the department;

(8) "eligible resident" means a person who meets the requirements of AS 36.10.140(a) and AS 01.10.055 and who, under 8 AAC 30.072, would be determined to be a resident of an area that has been determined by the department under this chapter to be a resident hiring zone of preference;

(9) "hire" and its derivatives mean engaging an individual to work on a public-funded project, and includes the transfer of an existing employee from one location to another or from one craft or occupation to another;

(10) "interest" as used in AS 36.05.090 means more than five percent investment in a partnership or association, more than ten percent share in stock in a corporation, or holding any elected or appointed office in the business entity;

(11) "majority penetration" means that the majority of qualified laborers, mechanics, and field surveyors working at a particular skill level in a particular job class, as indicated by response to a department survey, receive a particular wage;

(12) "marginally employed" means that a person is employed for fewer than 30 hours a week and the person wishes to work 30 hours or more a week;

(13) "owner/operator" as used in 8 AAC 30.020(d) means those independent contractors who by virtue of the duties they perform, or the manner in which they perform them, cannot be considered employees of the person or entity who has contracted for their services; in this paragraph, “independent contractor” means a person who

(A) has an express contract to perform the services;

(B) is free from direction and control over the means and manner of providing services, subject only to the right of the individual for whom, or entity for which, the services are provided to specify the desired results, completion schedule, or range of work hours, or to monitor the work for compliance with contract plans and specifications, or federal, state, or municipal law;

(C) incurs most of the expenses for tools, labor, and other operational costs necessary to perform the services;

(D) has the opportunity for profit and loss as a result of the services performed for the other individual or entity; and

(E) is free to hire and fire employees to help perform the services for the contracted work;

(14) [repealed 8/9/2001;]

(15) "person" and "persons" as used in AS 36.05.090 means a person as that term is defined in AS 01.10.060 (8);

(16) "prevailing wage rate" means the total of the basic hourly rate, health and welfare, pension, legal service, apprentice training payments and other fringe benefits which inure to the benefit of the worker, as published by the department;

(17) "public-funded project" means a project described in AS 36.10.180 and AS 36.95.010 (3);

(18) "qualified" means having the education, training and experience necessary to perform the duties and satisfy the terms and conditions which are usual for the industry or profession or having the status specified in AS 36.95.010 (4);

(19) "state agency" means a state agency described in AS 36.10.180 (a)(1);

(20) "state employment centers" means those offices maintained by the department whose functions are to aid the unemployed in finding employment;

(21) "underemployed" means employed in a job that requires less skill or training than a job for which the employee is trained and qualified.

(22) “domiciled resident” means a person living within 65 road miles of a public construction project, or in the case of a highway project, the mid-point of the project, for at least 12 consecutive months prior to the award of the public construction project;

(23) “employed on the project” means the time period from the date the laborer, mechanic, or field surveyor first reports on-site to the project through the final date the person reports on-site to the project.

(Eff. 7/8/73, Register 47; am 12/4/76, Register 60; am 7/30/82, Register 83; am 9/27/87, Register 103; am 1/2/91, Register 116; am 8/9/01, Register 159; am 8/12/2018, Register 227; am 11/25/2018, Register 228; am 1/10/2021, Register 273)

Authority: AS 23.05.060 AS 36.10.075
AS 36.95.010 AS 36.05.030
AS 36.10.140

Editor's note:

Copies of the Standard Occupational Classification Manual adopted by reference in 8 AAC 30.900(2) are available for review at the Anchorage, Fairbanks, and Juneau offices of the department.

As of Register 151 (October 1999), the regulations attorney made technical revisions under AS 44.62.125 (b)(6) to reflect the name change of the Department of Labor to the Department of Labor and Workforce Development made by ch. 58, SLA 1999 and the corresponding title change of the commissioner of labor.

8 AAC 30.910. Definition of "on-site."

(a) In AS 36.95.010(3), "on-site" means at the physical place where the construction called for in a contract will remain when work on it has been completed and at other property used by the contractor or subcontractor in the construction which can reasonably be said to be included in the site because of proximity. The scope of “on-site”

(1) has the following exceptions:

(A) for a truck driver employee or truck driver owner/operator working for a contractor or subcontractor on the project, “on-site” encompasses all round-trip truck driving activity associated with delivering or hauling away materials, equipment, or supplies for the purposes of completing a public construction contract;

(B) for a truck driver employee or truck driver owner/operator who is working for a contractor or subcontractor on the project, and who, for the purposes of completing a public construction contract, hauls materials, equipment, or supplies away from a public construction project footprint, but does not return to the public construction project, “on-site” encompasses the haul-away activities until the truck is offloaded;

(C) a truck driver performing delivery as an employee of a bona fide material supplier or common carrier is not “on-site” when delivering materials from a location that is not “on-site,” including that material supplier’s home yard or warehouse, if that location is not dedicated exclusively or nearly so to performance of one or more public construction projects;

(2) is extensive for larger projects, including airports, dams and roads, and includes the whole area in which the contract construction activity will take place; work areas separate from the physical footprint of the construction activity, including fabrication plants, mobile factories, batch plants, borrow pits, rock quarries, job headquarters, tool yards, and similar work areas, are “on-

site" if they are in close proximity and are dedicated exclusively or nearly so to performance of one or more public construction projects during the period of contract construction activity;

(3) for smaller projects, normally includes no more than the building itself and its grounds and other land or structures that are "down the block" or "across the street" that the contractor or subcontractor uses in performance of a particular public construction project.

(b) Laborers, mechanics, or field surveyors who perform duties within the limits of "on-site" are subject to the department's wage decision for all hours spent working "on-site." Workers who, under this subsection, are subject to the department's wage decision include

(1) flaggers;

(2) barricade suppliers who set up or move barricades or other traffic control devices;

(3) employees of bona fide material suppliers or common carriers who perform work "on-site," other than mere delivery, including drivers or delivery workers assisting in specific placement of asphalt or concrete during construction operations, stocking materials in rooms or on floors, or otherwise performing work in construction;

(4) workers who perform mobilization or demobilization activities;

(5) workers contracted or employed by material or equipment suppliers who erect, clean, repair, construct, or perform operational checks, other than contractually obligated warranty work, on equipment or material located "on-site"; and

(6) laborers, mechanics, or field surveyors who are engaged by a person or business that is hired or contracted by a prime construction contractor or subcontractor to provide services that are integral and necessary to the construction project; workers who are subject to this paragraph

(A) shall be considered to be "on-site" in the performance of those duties that the contractor or subcontractor was required to perform;

(B) include a trucking firm other than a common carrier whose services are engaged by a construction contractor or subcontractor on a public works job to pick up materials from a supplier's delivery point and transport them to the job site.

(c) Not included in "on-site" are permanent home offices, branch plants, fabrication plants, tool yards, and other establishments of a contractor or subcontractor whose locations and continuance are governed by its general business operations. This is so even though mechanics, laborers, and field surveyors working at these establishments may repair or maintain machinery used in contract performance or make doors, windows, frames, or forms called for by the contract while continuing normal commercial work. Regardless of the activities performed at these establishments, the department's wage decision does not apply, because they are not "on-site." However, if mechanics, laborers, or field surveyors are required to go to a place that is "on-site" to perform activities on the contract, the department's wage decision is applicable for the actual time so spent, not including travel.

(d) For purposes of this section, a location or work area, or the existence or continuing operation of an enterprise, is dedicated exclusively or nearly so to one or more public construction projects if

(1) the location, work area, or enterprise is established in conjunction with one or more public construction projects; and

(2) during the year before a public construction project and during the life of a public construction project, less than 10 percent of documented sales or other uses are attributed to non-public construction projects.

(e) For purposes of this section, a site is in proximity to a public construction project if it is nearby the public construction project footprint and used on a regular and recurring basis to complete the public construction contract. The department will determine whether a site is in proximity to a public construction project on a project-by-project basis, taking into account

(1) the type of project;

(2) whether the use of a nearby site is required for completion of the project;

(3) whether the area of contract operations is developed or undeveloped; and

(4) the geographical lay of the land.

(f) In this section,

(1) "bona fide material supplier"

(A) means a commercial enterprise that holds itself out to the public as offering to supply sand, gravel, ready-mixed concrete, hot asphalt, or other construction materials to multiple clients for both public and private jobs; does not include a commercial enterprise whose existence or continuing operation is dedicated exclusively or nearly so to one or more public construction projects;

(2) "common carrier"

(A) means a commercial enterprise that holds itself out to the public as offering to transport freight or passengers and delivers multiple types of materials to multiple clients for both public and private jobs on a recurrent basis over established routes; in this subparagraph, "freight"

(i) means materials, supplies, and equipment, other than materials described in (ii) of this subparagraph;

(ii) does not include dirt, sand, gravel, rock, or other naturally occurring earth materials;

(B) does not include a commercial enterprise whose existence or continuing operation is dedicated exclusively or nearly so to one or more public construction projects.

(Eff. 7/30/82, Register 83; am 1/2/91, Register 116; am 8/9/2001, Register 159; am 3/24/2011, Register 197)

Authority: AS 23.05.060 AS 36.05.030
AS 36.10.075

8 AAC 30.920. Definition of "Economic Region."
In AS 36.10, "economic region" means a geographic area of the state sharing similar economic or demographic characteristics.
(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.990

Editor's note:
Forms and any other assistance needed for compliance with 8 AAC 30 may be obtained by contacting any state employment center or the Department of Labor and Workforce Development, Wage and Hour Administration, 1251 Muldoon Road, Suite 113, Anchorage, Alaska 99504.

PAMPHLET NO. 400 - INDEX
TITLE 36 - PUBLIC CONTRACTS

MINIMUM RATES OF PAY
For Laborers and Mechanics

Effective Sept. 1, 2025 Issue 51

PAMPHLET No. 600

Title 36. Public Contracts
AS 36.05

DEPARTMENT OF LABOR
AND WORKFORCE DEVELOPMENT
Wage and Hour

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Labor and Workforce Development

Office of the Commissioner

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Juneau, Alaska 99811
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September 1, 2025

TO ALL CONTRACTING AGENCIES:

At the Alaska Department of Labor and Workforce Development our goal is putting Alaskans to work. This pamphlet is designed to help contractors awarded public construction contracts understand the most significant laws of the State of Alaska pertaining to prevailing wages.

This pamphlet identifies current prevailing wage rates for public construction contracts (any construction projects awarded for the State of Alaska or its political subdivisions, such as local governments and certain non-profit organizations). Because these rates may change in a subsequent determination, please be sure you are using the appropriate rates. The rates published in this edition become effective September 1, 2025.

The prevailing wage rates contained in this pamphlet are applicable to public construction projects with a final bid date of September 11, 2025, or later. As the law now provides, these rates will remain stable during the life of a contract or for 24 calendar months, whichever is shorter. **On the date the prime contract is awarded, the 24-month period begins.** Upon expiration of this period, the latest wage rates issued by the department shall become effective for a subsequent 24-month period or until the original contract is completed, whichever occurs first. This process shall be repeated until the original contract is completed.

The term "original contract" means the signed contract that resulted from the original bid and any amendments, including changes of work scope, additions, extensions, change orders, and other instruments agreed to by the parties that have not been subject to subsequent open bid procedures. If a higher federal rate is required due to partial federal funding or other federal participation, the higher rate must be paid.

Effective July 1, 2025, Alaska Statutes 23.10.066–23.10.069 (Alaska's Paid Sick Leave Requirements) take effect. Accordingly, for all projects bid after this date, contractors must comply with the paid sick leave provisions. When calculating the regular rate for sick time, contractors are required to include prevailing wages, specifically the base hourly rate (BHR), for all hours worked on site in accordance with the applicable pamphlet.

For additional copies of this pamphlet go to: http://labor.state.ak.us/lss/pamp600.htm and for questions regarding prevailing wage or employment preference requirements, please contact the nearest Wage and Hour office. These offices are listed on Page x.

Sincerely,

Catherine Muñoz
Commissioner

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Table of Contents

On the cover: Travis Jones fixes a tug luggage tractor, photo by Kim Unzicker

Note to Readers: The statutes and administrative regulations listed in this publication were taken from the official codes, as of the effective date of the publication. However, there may be errors or omissions that have not been identified and changes that occurred after the publication was printed. This publication is intended as an informational guide only and is not intended to serve as a precise statement of the statutes and regulations of the State of Alaska. To be certain of current laws and regulations, please refer to the official codes.

EXCERPTS FROM ALASKA LAW

Sec. 36.05.005. Applicability.
This chapter applies only to a public construction contract that exceeds $25,000.

Sec. 36.05.010. Wage rates on public construction.
A contractor or subcontractor who performs work on a public construction contract in the state shall pay not less than the current prevailing rate of wages for work of a similar nature in the region in which the work is done. The current prevailing rate of wages is that contained in the latest determination of prevailing rate of wages issued by the Department of Labor and Workforce Development at least 10 days before the final date for submission of bids for the contract. The rate shall remain in effect for the life of the contract or for 24 calendar months, whichever is shorter. At the end of the initial 24-month period, if new wage determinations have been issued by the department, the latest wage determination shall become effective for the next 24-month period or until the contract is completed, whichever occurs first. This process shall be repeated until the contract is completed.

Sec. 36.05.040. Filing schedule of employees, wages paid, and other information.
All contractors or subcontractors who perform work on a public construction contract for the state or for a political subdivision of the state shall, before the Friday of every second week, file with the Department of Labor and Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor and Workforce Development.

Sec. 36.05.045. Notice of work and completion; withholding of payment.

(a) Before commencing work on a public construction contract, the person entering into the contract with a contracting agency shall designate a primary contractor for purposes of this section. Before work commences, the primary contractor shall file a notice of work with the Department of Labor and Workforce Development. The notice of work must list work to be performed under the public construction contract by each contractor who will perform any portion of work on the contract and the contract price being paid to each contractor. The primary contractor shall pay all filing fees for each contractor performing work on the contract, including a filing fee based on the contract price being paid for work performed by the primary contractor's employees. The filing fee payable shall be the sum of all fees calculated for each contractor. The filing fee shall be one percent of each contractor's contract price. The total filing fee payable by the primary contractor under this subsection may not exceed $5,000. In this subsection, "contractor" means an employer who is using employees to perform work on the public construction contract under the contract or a subcontract.

(b) Upon completion of all work on the public construction contract, the primary contractor shall file with the Department of Labor and Workforce Development a notice of completion together with payment of any additional filing fees owed due to increased contract amounts. Within 30 days after the department's receipt of the primary contractor's notice of completion, the department shall inform the contracting agency of the amount, if any, to be withheld from the final payment.

(c) A contracting agency

(1) may release final payment of a public construction contract to the extent that the agency has received verification from the Department of Labor and Workforce Development that

(A) the primary contractor has complied with (a) and (b) of this section;

(B) the Department of Labor and Workforce Development is not conducting an investigation under this title; and

(C) the Department of Labor and Workforce Development has not issued a notice of a violation of this chapter to the primary contractor or any other contractors working on the public construction contract; and

(2) shall withhold from the final payment an amount sufficient to pay the department's estimate of what may be needed to compensate the employees of any contractors under investigation on this construction contract, and any unpaid filing fees.

(d) The notice and filing fee required under (a) of this section may be filed after work has begun if
   (1) The public construction contract is for work undertaken in immediate response to an emergency; and
   (2) The notice and fees are filed not later than 14 days after the work has begun.

(e) A false statement made on a notice required by this section is punishable under AS 11.56.210.

Sec. 36.05.060. Penalty for violation of this chapter.

A contractor who violates this chapter is guilty of a misdemeanor and upon conviction is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment for not less than 10 days nor more than 90 days, or by both. Each day a violation exists constitutes a separate offense.

Sec. 36.05.070. Wage rates in specifications and contracts for public works.

(a) The advertised specifications for a public construction contract that requires or involves the employment of mechanics, laborers, or field surveyors must contain a provision stating the minimum wages to be paid various classes of laborers, mechanics, or field surveyors and that the rate of wages shall be adjusted to the wage rate under AS 36.05.010.

(b) Repealed by §17 ch 142 SLA 1972.

(c) A public construction contract under (a) of this section must contain provisions that
   (1) the contractor or subcontractors of the contractor shall pay all employees unconditionally and not less than once a week;
   (2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the contractor or subcontractors and laborers, mechanics, or field surveyors;
   (3) the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;
   (4) the state or a political subdivision shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the contractor or subcontractors the difference between
      (A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and
      (B) the rates of wages in fact received by laborers, mechanics, or field surveyors.

Sec. 36.05.080. Failure to pay agreed wages.

Every contract within the scope of AS 36.05.070 shall contain a provision that if it is found that a laborer, mechanic, or field surveyor employed by the contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the state or its political subdivision may, by written notice to the contractor, terminate the contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the contractor and the contractor's sureties are liable to the state or its political subdivision for excess costs for completing the work.

Sec. 36.05.090. Payment of wages from withheld payments and listing contractors who violate contracts.

(a) The state disbursing officer in the case of a state public construction contract and the local fiscal officer in the case of a political subdivision public construction contract shall pay directly to laborers, mechanics, or field surveyors from accrued payments withheld under the terms of the contract the wages due laborers, mechanics, or field surveyors under AS 36.05.070.

(b) The state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees. A person appearing on this list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or

subcontractor on a public construction contract for the state or a political subdivision of the state until three years after the date of publication of the list. If the accrued payments withheld under the contract are insufficient to reimburse all the laborers, mechanics, or field surveyors with respect to whom there has been a failure to pay the wages required under AS 36.05.070, the laborers, mechanics, or field surveyors have the right of action or intervention or both against the contractor and the contractor's sureties conferred by law upon persons furnishing labor or materials, and in the proceedings it is not a defense that the laborers, mechanics, or field surveyors accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.

Sec. 36.05.900. Definition.
In this chapter, "contracting agency" means the state or a political subdivision of the state that has entered into a public construction contract with a contractor.

EXCERPTS FROM ALASKA ADMINISTRATIVE CODE

Notice:** Regulations relating to board and lodging and per diem went into effect on November 25, 2018. The new regulations are excerpted here

8 AAC 30.051. Purpose. The purpose of 8 AAC 30.052 – 8 AAC 30.056 is to ensure that wages paid to laborers, mechanics, and field surveyors do not fall below the prevailing rate of pay.

8 AAC 30.052. Board and lodging; remote sites. (a) A contractor on a public construction project located 65 or more road miles from the international airport closest to the project area in either Fairbanks, Juneau, or Anchorage, or that is inaccessible by road in a two-wheel drive vehicle, shall provide adequate board and lodging to each laborer, mechanic, or field surveyor while the person is employed on the project. If commercial lodging facilities are not available, the contractor shall provide temporary lodging facilities. Lodging facilities must comply with all applicable state and federal laws. For a highway project, the location of the project is measured from the midpoint of the project.

(b) A contractor is not required to provide board and lodging:
(1) to a laborer, mechanic, or field surveyor who is a domiciled resident of the project area; or
(2) on a laborer, mechanic, or field surveyor's scheduled days off, when the person can reasonably travel between the project and the person's permanent residence; for the purposes of this paragraph, "scheduled day off" means a day in which a person does not perform work on-site, is not required to remain at or near the job location for the benefit of the contractor, and is informed of the day off at least seven days before the day off.
(c) Upon a contractor's written request, the commissioner may waive the requirements of (a) of this section where:
(1) the project is inaccessible by road in a two-wheel drive vehicle, but the laborer, mechanic, or field surveyor can reasonably travel between the project and the person's permanent residence within one hour; or
(2) a laborer, mechanic, or field surveyor is not a domiciled resident of the project area, but has established permanent residence, with the intent to remain indefinitely, within 65 road miles of the project, or for a highway project, the mid-point of the project.

8 AAC 30.054. Per diem instead of board and lodging. (a) A contractor may pay a laborer, mechanic, or field surveyor per diem instead of providing board and lodging, when the following conditions are met:
(1) the department determines that per diem instead of board and lodging is an established practice for the work classification; the department shall publish and periodically revise its determinations in the pamphlet *Laborers and Mechanics Minimum Rates of Pay*;
(2) the contractor pays each laborer, mechanic, or field surveyor the appropriate per diem rate as published and periodically revised in the pamphlet *Laborers and Mechanics Minimum Rates of Pay*; and

(3) the contractor pays the per diem to each laborer, mechanic, or field surveyor on the same day that wages are paid.

(b) A contractor may not pay per diem instead of board and lodging on a highway project located

(1) west of Livengood on the Elliot Highway, AK-2;

(2) on the Dalton Highway, AK-11;

(3) north of milepost 20 on the Taylor Highway, AK-5;

(4) east of Chicken on the Top of the World Highway; or

(5) south of Tetlin Junction to the Alaska-Canada border on the Alaska Highway, AK-2.

8 AAC 30.056. Alternative arrangement. Upon a contractor's written request, the commissioner may approve an alternative board and lodging or per diem arrangement, provided

(1) the arrangement does not reduce the laborer, mechanic, or field surveyor's wages below the prevailing wage rate; and

(2) the laborer, mechanic, or field surveyor voluntarily enters into and signs the written arrangement; a labor organization representing laborers, mechanics, or field surveyors may enter into the written agreement on their behalf.

8 AAC 30.900. General definitions (selected excerpts only):

In this chapter and in AS 36

(22) "domiciled resident" means a person living within 65 road miles of a public construction project, or in the case of a highway project, the mid-point of the project, for at least 12 consecutive months prior to the award of the public construction project;

(23) "employed on the project" means the time period from the date the laborer, mechanic, or field surveyor first reports on-site to the project through the final date the person reports on-site to the project.

ADDITIONAL INFORMATION

PER DIEM

Notice: New regulations relating to board and lodging and per diem went into effect on November 25, 2018. The regulations provide a comprehensive set of requirements for the provision of board and lodging or per diem for workers on remote projects. Please refer to Alaska Administrative Code 8 AAC Chapter 30 and read the chapter carefully.

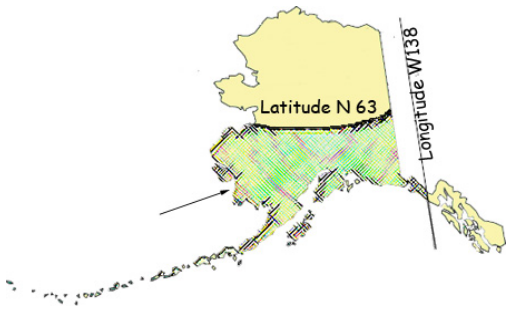
The Alaska Department of Labor and Workforce Development has determined that per diem is an established work practice for certain work classifications. These classifications are indicated throughout the Pamphlet by an asterisk (*) under the classification title. If all of the conditions of 8 AAC 30.054 are met, an employer may pay workers in these classifications per diem instead of providing board and lodging on a remote project.

Per Diem Rate: As of May 1, 2019, the minimum per diem rate is $100.00 per day, or part thereof, the worker is employed on the project. In the event that a contractor provides lodging facilities, but no meals, the department will accept a payment of $48 per day for meals to meet the per diem requirements.

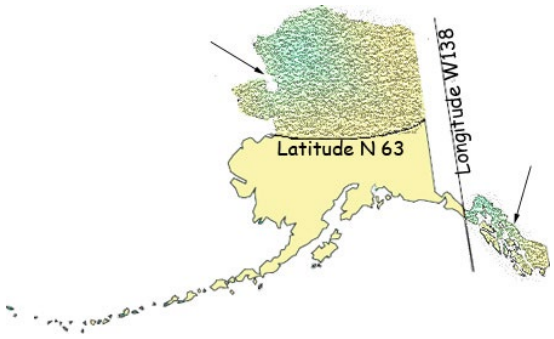
LABORER CLASSIFICATION CLARIFICATION

The laborer rates categorized in class code S1201-S1206 apply in one area of Alaska; the area that is south of N63 latitude and west of W138 Longitude. The laborer rates categorized in class code N1201-N1206 apply in two areas of Alaska; the Alaska areas north of N63 latitude and east of W138 longitude. The following graphic representations should assist with clarifying the applicable wage rate categories:

S1201-
S1206



N1201-
N1206



APPRENTICE RATES

Apprentice rates at less than the minimum prevailing rates may be paid to apprentices according to an apprentice program which has been registered and approved by the Commissioner of the Alaska Department of Labor and Workforce Development in writing or according to a bona fide apprenticeship program registered with the U.S. Department of Labor, Office of Apprenticeship Training. **Any employee listed on a payroll at an apprentice wage rate who is not registered as above shall be paid the journeyman prevailing minimum wage in that work classification.** Wage rates are based on prevailing crew makeup practices in Alaska and apply to work performed regardless of either the quality of the work performed by the employee or the titles or classifications which may be assigned to individual employees.

FRINGE BENEFIT PLANS

Contractors/subcontractors may compensate fringe benefits to their employees in any one of three methods. The fringe benefits may be paid into a union trust fund, into an approved benefit plan, or paid directly on the paycheck as gross wages.

Where fringe benefits are paid into approved plans, funds, or programs including union trust funds, the payments must be contributed at least monthly. If contractors submit their own payroll forms and are paying fringe benefits into approved plans, funds, or programs, the employer's certification must include, in addition to those requirements of 8 AAC 30.020(c), a statement that fringe benefit payments have been or will be paid at least monthly. Contractors who pay fringe benefits to a plan must ensure the plan is one approved by the Internal Revenue Service and that the plan meets the requirements of 8 AAC 30.025 (eff. 3/2/08) in order for payments to be credited toward the prevailing wage obligation.

PAID SICK LEAVE

Effective July 1, 2025, the provisions of Alaska Statutes 23.10.066–23.10.069, relating to paid sick leave, shall apply. For all projects bid after July 1, 2025, contractors are required to comply with these statutory provisions. The regular rate of pay for sick leave must be calculated to include prevailing wages, defined as the base hourly rate (BHR), for all hours worked on site in accordance with the applicable pamphlet.

SPECIAL PREVAILING WAGE RATE DETERMINATION

Special prevailing wage rate determinations may be requested for special projects or a special worker classification if the work to be performed does not conform to traditional public construction for which a prevailing wage rate has been established under 8 AAC 30.050(a) of this section. Requests for special wage rate determinations must be in writing and filed with the Commissioner at least 30 days before the award of the contract. An applicant for a special wage rate determination shall have the responsibility to support the necessity for the special rate. An application for a special wage rate determination filed under this section must contain:

(1) a specification of the contract or project on which the special rates will apply and a description of the work to be performed;
(2) a brief narrative explaining why special wage rates are necessary;
(3) the job class or classes involved;
(4) the special wage rates the applicant is requesting, including survey or other relevant wage data to support the requested rates;
(5) the approximate number of employees who would be affected; and
(6) any other information which might be helpful in determining if special wage rates are appropriate.

Requests made pursuant to the above should be addressed to:

Director
Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour
P.O. Box 111149
Juneau, AK 99811-1149
-or-
Email: statewide.wagehour@alaska.gov

EMPLOYMENT PREFERENCE INFORMATION

In October 2019, the Alaska Attorney General issued a formal opinion stating that the Alaska Statutes 36.10.150 of the State's 90% Employment Preference law, also known as the Alaska Resident Hire law, violates both the U.S. and Alaska Constitutions. As a result, the state has stopped all enforcement activity.
A copy of the Attorney General opinion is found here:

http://law.alaska.gov/pdf/opinions/opinions_2019/19-005_AK-hire.pdf

Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour
Web site: http://labor.state.ak.us/lss/pamp600.htm

Anchorage	Juneau	Fairbanks
1251 Muldoon Road, Suite 113 Anchorage, Alaska 99504-2098 Phone: (907) 269-4900 Email: statewide.wagehour@alaska.gov	PO Box 111149 Juneau, Alaska 99811 Phone: (907) 465-4842 Email: statewide.wagehour@alaska.gov	Regional State Office Building 675 7th Ave., Station J-1 Fairbanks, Alaska 99701-4593 Phone: (907) 451-2886 Email: statewide.wagehour@alaska.gov

LABOR STANDARDS AND SAFETY NOTICE REQUESTS

If you would like to receive Wage and Hour or Mechanical Inspection **regulation notices** or **publications information**, they are available via electronic mail, by signing up in the GovDelivery System, https://public.govdelivery.com/accounts/AKDOL/subscriber/new and selecting topics *LSS – Wage and Hour – Forms and Publications*, *LSS – Mechanical Inspection Regulations*, or *LSS – Wage and Hour Regulations*.

Publications are also available online at http://labor.alaska.gov/lss/home.htm

DEBARMENT LIST

AS 36.05.090(b) states that "the state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees."

A person appearing on the following debarment list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision of the state for three years from the date of debarment.

Company Name	Debarment Expires

No companies are currently debarred.

Laborers' & Mechanics' Minimum Rates of Pay

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Boilermakers	*See per diem note on last page							
						VAC	**SAF**	
A0101	Boilermaker (journeyman)	54.08	8.57	18.72	2.50	4.25	0.34	88.46
Bricklayers & Allied Craftworkers	*See per diem note on last page							
						L&M	**ANU**	
A0201	Blocklayer, including:	52.77		9.91	0.66	0.20	2.45	65.99
	Bricklayer Marble Mason Refractory Worker (Firebrick, Plastic, Castable, and Gunite Refractory Applications) Stone Mason Terrazzo Worker Tile Setter							
						L&M	**ANU**	
A0202	Pointer/Caulker/Cleaner (PCC)	52.77		9.91	0.66	0.20	2.45	65.99
	Caulker Cleaner Tuck Pointer							
						L&M	**ANU**	
A0203	Finisher	40.91		10.03	0.54	0.20	2.45	54.13
	Marble Finisher Terrazzo Finisher Tile Finisher							
						L&M	**ANU**	
A0204	Torginal Applicator	40.91		10.03	0.54	0.20	2.45	54.13
Carpenters, Region I (North of 63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
N0301	Carpenter (journeyman)	50.79	8.75	16.80	0.77	0.10		77.21
	Lather/Drywall/Acoustical							
Carpenters, Region II (South of N63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
S0301	Carpenter (journeyman)	50.79	8.75	17.34	0.77	0.10		77.75

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Carpenters, Region II (South of N63 latitude) *See per diem note on last page								
						L&M	**SAF**	
S0301	Carpenter (journeyman)	50.79	8.75	17.34	0.77	0.10		77.75
	Lather/Drywall/Acoustical							
Cement Masons *See per diem note on last page								
						L&M		
A0401	Group I, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Application of Sealing Compound							
	Application of Underlayment							
	Building, General							
	Cement Finisher							
	Cement Mason (journeyman)							
	Concrete							
	Concrete Paving							
	Concrete Polishing							
	Concrete Repair							
	Curb & Gutter, Sidewalk							
	Curing of All Concrete							
	General Concrete Pour Tender							
	Grouting & Caulking of Tilt-Up Panels							
	Grouting of All Plates							
	Patching Concrete							
	Screed Pin Setter							
	Screeder or Rodder							
	Spackling/Skim Coating							
						L&M		
A0402	Group II, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Form Setter							
						L&M		
A0403	Group III, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Concrete Saw Cutter Operator (All Control Joints and Self-powered)							
	Curb & Gutter Machine							
	Floor Grinder							
	Pneumatic Power Tools							
	Power Chipping & Bushing							
	Sand Blasting Architectural Finish							
	Screed & Rodding Machine Operator							
	Troweling Machine Operator (all concrete surfaces)							
						L&M		
A0404	Group IV, including:	49.28	8.80	11.80	1.68	0.10		71.66

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Cement Masons							
	*See per diem note on last page						
						L&M	
A0404	Group IV, including:	49.28	8.80	11.80	1.68	0.10	71.66
	Acoustical or Imitation Acoustical Finish						
	Application of All Composition Mastic						
	Application of All Epoxy Finishes on Concrete Surfaces						
	Application of All Plastic Material						
	Finish Colored Concrete						
	Gunite Nozzleman						
	Hand Powered Grinder						
	Preparing, scratching and browsing of all ceilings and walls, finished with terrazo or tile						
	Tunnel Worker						
						L&M	
A0405	Group V, including:	49.28	8.80	11.80	1.68	0.10	71.66
	Casting and finishing						
	EIFS Systems						
	Finishing of all interior and exterior plastering						
	Fireproofing (Pryocrete, Cafco, Albi-Clad, sprayed fiberglass)						
	Gypsum, Portland Cement						
	Kindred material and products						
	Operation and control of all types of plastering machines, including power tools and floats, used by the industry						
	Overcoating and maintenance of interior/exterior plaster surfaces						
	Plasterer						
	Support and control of all concrete 3D printing operations (Excluding Paint)						
	Use of 3D structural and architectural printing and finishes						
	Use of sustainable materials and equipment practices						
	Veneer plastering process (Rapid Plaster, U.S.G. "Imperial Systems", and Pabcoat Systems")						
	Venetian plaster and color-integrated Italian/Middle-Eastern line plaster						
Culinary Workers							
						LEG	
A0501	Baker/Cook	32.15	6.77	9.23			48.15
						LEG	
A0503	General Helper	28.23	6.77	9.23			44.23
	Housekeeper						
	Janitor						
	Kitchen Helper						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Culinary Workers								
A0504	Head Cook	32.15	6.77	9.23		**LEG**		48.15
A0505	Head Housekeeper	28.23	6.77	9.23		**LEG**		44.23
	Head Kitchen Help							
Dredgemen	*See per diem note on last page							
A0601	Assistant Engineer	52.32	12.10	16.25	1.05	**L&M** 0.10		81.82
	Craneman Electrical Generator Operator (primary pump/power barge/dredge) Engineer Welder							
A0602	Assistant Mate (deckhand)	50.93	12.10	16.25	1.05	**L&M** 0.10		80.43
A0603	Fireman	51.46	12.10	16.25	1.05	**L&M** 0.10		80.96
A0605	Leverman Clamshell	55.33	12.10	16.25	1.05	**L&M** 0.10		84.83
A0606	Leverman Hydraulic	53.23	12.10	16.25	1.05	**L&M** 0.10		82.73
A0607	Mate & Boatman	52.32	12.10	16.25	1.05	**L&M** 0.10		81.82
A0608	Oiler (dredge)	51.46	12.10	16.25	1.05	**L&M** 0.10		80.96
Electricians	*See per diem note on last page							
A0701	Inside Cable Splicer	55.44	14.83	14.49	0.95	**L&M** 0.25	**LEG** 0.15	86.11
A0702	Inside Journeyman Wireman, including:	55.44	14.83	14.49	0.95	**L&M** 0.25	**LEG** 0.15	86.11
	Technicians (including use of drones in electrical construction)							
A0703	Power Cable Splicer	74.34	14.83	19.92	0.95	**L&M** 0.25	**LEG** 0.15	110.44
A0704	Tele Com Cable Splicer	55.28	14.83	18.56	0.95	**L&M** 0.25	**LEG** 0.15	90.02

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Electricians								
	*See per diem note on last page							
						L&M	**LEG**	
A0705	Power Journeyman Lineman, including:	72.59	14.83	19.87	0.95	0.25	0.15	108.64
	Power Equipment Operator Technician (including use of drones in electrical construction)							
						L&M	**LEG**	
A0706	Tele Com Journeyman Lineman, including:	53.53	14.83	18.51	0.95	0.25	0.15	88.22
	Technician (including use of drones in telecommunications construction) Tele Com Equipment Operator							
						L&M	**LEG**	
A0707	Straight Line Installer - Repairman	53.53	14.83	18.51	0.95	0.25	0.15	88.22
						L&M	**LEG**	
A0708	Powderman	70.59	14.83	19.81	0.95	0.25	0.15	106.58
						L&M	**LEG**	
A0710	Material Handler	29.57	15.34	5.89	0.15	0.15	0.15	51.25
						L&M	**LEG**	
A0712	Tree Trimmer Groundman	32.97	14.83	14.84	0.15	0.15	0.15	63.09
						L&M	**LEG**	
A0713	Journeyman Tree Trimmer	42.23	14.83	15.12	0.15	0.15	0.15	72.63
						L&M	**LEG**	
A0714	Vegetation Control Sprayer	45.91	14.83	15.23	0.15	0.15	0.15	76.42
						L&M	**LEG**	
A0715	Inside Journeyman Communications CO/PBX	55.44	14.83	14.49	0.95	0.25	0.15	86.11
Elevator Workers								
	*See per diem note on last page							
						L&M	**VAC**	
A0802	Elevator Constructor	50.01	16.28	21.36	0.80	1.60	5.55	95.60
						L&M	**VAC**	
A0803	Elevator Constructor Mechanic	71.44	16.28	21.36	0.80	1.60	7.93	119.41
Heat & Frost Insulators/Asbestos Workers (North of 63rd Parallel)								
	*See per diem note on last page							
						IAF	**LML**	
N0902	Asbestos Abatement-Mechanical Systems	46.35	9.24	11.13	1.50	0.18	0.05	68.45
						IAF	**LML**	
N0904	Insulator, Group II	46.35	9.24	11.13	1.50	0.18	0.05	68.45
						IAF	**LML**	
N0905	Fire Stop	46.35	9.24	11.13	1.50	0.18	0.05	68.45

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Heat & Frost Insulators/Asbestos Workers (South of 63rd Parallel) *See per diem note on last page								
						IAF	**LML**	
S0902	Asbestos Abatement-Mechanical Systems	45.85	9.24	11.13	1.50	0.18	0.05	67.95
						IAF	**LML**	
S0904	Insulator, Group II	45.85	9.24	11.13	1.50	0.18	0.05	67.95
						IAF	**LML**	
S0905	Fire Stop	45.85	9.24	11.13	1.50	0.18	0.05	67.95
IronWorkers *See per diem note on last page								
						L&M	**IAF**	
A1101	Ironworkers, including:	48.48	10.41	26.45	1.12	0.20		86.66
	Bender Operators Bridge & Structural Hangar Doors Hollow Metal Doors Industrial Doors Machinery Mover Mass Timber Construction (Cross Laminate Timber) Ornamental Reinforcing Rigger Sheeter Signalman Stage Rigger Toxic Haz-Mat Work Welder							
						L&M	**IAF**	
A1102	Helicopter	49.48	10.41	26.45	1.12	0.20		87.66
	Helicopter (used for rigging and setting) Tower (energy producing windmill type towers to include nacelle and blades)							
						L&M	**IAF**	
A1103	Fence/Barrier Installer	44.98	10.41	26.45	1.12	0.20		83.16
						L&M	**IAF**	
A1104	Guard Rail Layout Man	45.72	10.41	26.45	1.12	0.20		83.90
						L&M	**IAF**	
A1105	Guard Rail Installer	45.98	10.41	26.45	1.12	0.20		84.16
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	LEG	THR

Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)

*See per diem note on last page

							L&M	LEG	
N1201	Group I, including:	40.25	10.55	21.51	2.00		0.35	0.20	74.86

Asphalt Worker (shovelman, plant crew)
Brush Cutter
Camp Maintenance Laborer
Carpenter Tender or Helper
Choke Setter, Hook Tender, Rigger, Signalman
Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding)
Crusher Plant Laborer
Demolition Laborer
Ditch Digger
Dumpman
Environmental Laborer (hazard/toxic waste, oil spill)
Fence Installer
Fire Watch Laborer
Flagman
Form Stripper
General Laborer
Guardrail Laborer, Bridge Rail Installer
Hydro Seeder Nozzleman
Laborer, Building
Landscaper or Planter
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)
Material Handler
Pneumatic or Power Tools
Portable or Chemical Toilet Serviceman
Pump Man or Mixer Man
Railroad Track Laborer
Sandblast, Pot Tender
Saw Tender
Slurry Work
Steam Cleaner Operator
Steam Point or Water Jet Operator
Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)
Tank Cleaning
Utiliwalk & Utilidor Laborer
Watchman (construction projects)
Window Cleaner

							L&M	LEG	
N1202	Group II, including:	41.25	10.55	21.51	2.00		0.35	0.20	75.86

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	LEG	THR

Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)

*See per diem note on last page

						L&M	LEG	
N1202	Group II, including:	41.25	10.55	21.51	2.00	0.35	0.20	75.86

Burning & Cutting Torch
Cement or Lime Dumper or Handler (sack or bulk)
Certified Erosion Sediment Control Lead (CESCL Laborer)
Choker Splicer
Chucktender (wagon, air-track & hydraulic drills)
Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)
Culvert Pipe Laborer
Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator
Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

						L&M	LEG	
N1203	Group III, including:	42.15	10.55	21.51	2.00	0.35	0.20	76.76

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N1203	Group III, including:	42.15	10.55	21.51	2.00	0.35	0.20	76.76
	Plastic Welding Slurry Seal Squeegee Man Traffic Control Supervisor Welding Certified (in connection with laborer's work)							
						L&M	LEG	
N1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayers Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
N1205	Group IV	29.82	10.55	21.51	2.00	0.35	0.20	64.43
	Final Building Cleanup Permanent Yard Worker							
						L&M	LEG	
N1206	Group IIIB	54.01	5.50	21.51	1.60	0.35	0.20	83.17
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S1201	Group I, including:	40.25	10.55	21.51	2.00	0.35	0.20	74.86
	Asphalt Worker (shovelman, plant crew) Brush Cutter Camp Maintenance Laborer Carpenter Tender or Helper Choke Setter, Hook Tender, Rigger, Signalman Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding)							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	LEG	THR

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

S1201	Group I, including:	40.25	10.55	21.51	2.00		0.35	0.20	74.86

Crusher Plant Laborer
Demolition Laborer
Ditch Digger
Dumpman
Environmental Laborer (hazard/toxic waste, oil spill)
Fence Installer
Fire Watch Laborer
Flagman
Form Stripper
General Laborer
Guardrail Laborer, Bridge Rail Installer
Hydro Seeder Nozzleman
Laborer, Building
Landscaper or Planter
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)
Material Handler
Pneumatic or Power Tools
Portable or Chemical Toilet Serviceman
Pump Man or Mixer Man
Railroad Track Laborer
Sandblast, Pot Tender
Saw Tender
Slurry Work
Steam Cleaner Operator
Steam Point or Water Jet Operator
Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)
Tank Cleaning
Utiliwalk & Utilidor Laborer
Watchman (construction projects)
Window Cleaner

S1202	Group II, including:	41.25	10.55	21.51	2.00		0.35	0.20	75.86

Burning & Cutting Torch
Cement or Lime Dumper or Handler (sack or bulk)
Certified Erosion Sediment Control Lead (CESCL Laborer)
Choker Splicer
Chucktender (wagon, air-track & hydraulic drills)
Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

S1202	Group II, including:	41.25	10.55	21.51	2.00	0.35	0.20	75.86

Culvert Pipe Laborer
Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator
Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

S1203	Group III, including:	42.15	10.55	21.51	2.00	0.35	0.20	76.76

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate
Plastic Welding
Slurry Seal Squeegee Man
Traffic Control Supervisor
Welding Certified (in connection with laborer's work)

S1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
S1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayers Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
S1205	Group IV	29.82	10.55	21.51	2.00	0.35	0.20	64.43
	Final Building Cleanup Permanent Yard Worker							
						L&M	LEG	
S1206	Group IIIB	54.01	5.50	21.51	1.60	0.35	0.20	83.17
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Millwrights *See per diem note on last page								
						L&M		
A1251	Millwright (journeyman)	62.50	9.50	11.41	1.17	0.15	0.25	84.98
						L&M		
A1252	Millwright Welder	63.50	9.50	11.41	1.17	0.15	0.25	85.98
Painters, Region I (North of N63 latitude) *See per diem note on last page								
						L&M		
N1301	Group I, including:	43.05	10.15	15.20	1.10	0.10		69.60
	Brush General Painter Hand Taping Hazardous Material Handler Lead-Based Paint Abatement							

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region I (North of N63 latitude) *See per diem note on last page							
						L&M	
N1301	Group I, including:	43.05	10.15	15.20	1.10	0.10	69.60
	Roll						
						L&M	
N1302	Group II, including:	43.57	10.15	15.20	1.10	0.10	70.12
	Bridge Painter						
	Epoxy Applicator						
	General Drywall Finisher						
	Hand/Spray Texturing						
	Industrial Coatings Specialist						
	Machine/Automatic Taping						
	Pot Tender						
	Sandblasting						
	Specialty Painter						
	Spray						
	Structural Steel Painter						
	Wallpaper/Vinyl Hanger						
N1304	Group IV, including:	46.76	10.15	19.21	1.10	0.10	77.32
	Glazier						
	Storefront/Automatic Door Mechanic						
N1305	Group V, including:	39.48	10.15	5.00	1.10	0.10	55.83
	Carpet Installer						
	Floor Coverer						
	Heat Weld/Cove Base						
	Linoleum/Soft Tile Installer						
N1306	Group VI, including:	69.78	11.21	10.49	1.00	0.10	92.58
	Traffic Control Striper						
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1301	Group I, including :	37.29	10.15	18.95	1.10	0.10	67.59
	Brush						
	General Painter						
	Hand Taping						
	Hazardous Material Handler						
	Lead-Based Paint Abatement						
	Roll						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1301	Group I, including :	37.29	10.15	18.95	1.10	0.10	67.59
	Spray						
						L&M	
S1302	Group II, including :	38.54	10.15	18.95	1.10	0.10	68.84
	General Drywall Finisher Hand/Spray Texturing Machine/Automatic Taping Wallpaper/Vinyl Hanger						
						L&M	
S1303	Group III, including :	38.64	10.15	18.95	1.10	0.10	68.94
	Bridge Painter Epoxy Applicator Industrial Coatings Specialist Pot Tender Sandblasting Specialty Painter Structural Steel Painter						
						L&M	
S1304	Group IV, including:	47.42	10.15	17.85	1.10	0.10	76.62
	Glazier Storefront/Automatic Door Mechanic						
						L&M	
S1305	Group V, including:	39.48	10.15	5.00	1.10	0.10	55.83
	Carpet Installer Floor Coverer Heat Weld/Cove Base Linoleum/Soft Tile Installer						
S1306	Group VI, including:	69.78	11.21	10.49	1.00	0.10	92.58
	Traffic Control Striper						
Piledrivers *See per diem note on last page							
						L&M	**IAF**
A1401	Piledriver	50.79	8.75	16.80	0.77	0.10	77.21
	Assistant Dive Tender Carpenter/Piledriver Rigger Sheet Stabber						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Piledrivers								
	*See per diem note on last page							
						L&M	**IAF**	
A1401	Piledriver	50.79	8.75	16.80	0.77	0.10		77.21
	Skiff Operator							
						L&M	**IAF**	
A1402	Piledriver-Welder/Toxic Worker	51.79	8.75	16.80	0.77	0.10		78.21
						L&M	**IAF**	
A1403	Remotely Operated Vehicle Pilot/Technician	55.10	8.75	16.80	0.77	0.10		81.52
	Single Atmosphere Suit, Bell or Submersible Pilot							
						L&M	**IAF**	
A1404	Diver (working) **See note on last page	94.90	8.75	16.80	0.77	0.10		121.32
						L&M	**IAF**	
A1405	Diver (standby) **See note on last page	55.10	8.75	16.80	0.77	0.10		81.52
						L&M	**IAF**	
A1406	Dive Tender **See note on last page	54.10	8.75	16.80	0.77	0.10		80.52
						L&M	**IAF**	
A1407	Welder (American Welding Society, Certified Welding Inspector)	56.35	8.75	16.80	0.77	0.10		82.77
Plumbers, Region I (North of N63 latitude)								
	*See per diem note on last page							
						L&M	**S&L**	
N1501	Journeyman Pipefitter	55.66	12.95	20.20	1.75	1.20		91.76
	Plumber							
	Welder							
Plumbers, Region II (South of N63 latitude)								
	*See per diem note on last page							
						L&M		
S1501	Journeyman Pipefitter	50.00	14.28	16.52	2.40	0.20		83.40
	Plumber							
	Welder							
Plumbers, Region IIA (1st Judicial District)								
	*See per diem note on last page							
						L&M		
X1501	Journeyman Pipefitter	53.00	16.17	12.50	3.10	0.24		85.01
	Plumber							
	Welder							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
						L&M	
A1601	Group I, including:	53.23	12.10	16.25	1.05	0.10	82.73

Asphalt Roller: Breakdown, Intermediate, and Finish
Back Filler
Barrier Machine (Zipper)
Beltcrete with Power Pack & similar conveyors
Bending Machine
Boat Coxswain
Bulldozer
Cableways, Highlines & Cablecars
Cleaning Machine
Coating Machine
Concrete Hydro Blaster
Cranes (45 tons & under or 150 feet of boom & under (including jib & attachments))
(a) Hydralifts or Transporters, (all track or truck type)
(b) Derricks
(c) Overhead
Crushers
Deck Winches, Double Drum
Ditching or Trenching Machine (16 inch or over)
Drag Scraper, Yarder, and similar types
Drilling Machines, Core, Cable, Rotary and Exploration
Finishing Machine Operator, Concrete Paving, Laser Screed, Sidewalk, Curb & Gutter Machine
Grade Checker and/or Line and Grade including Drone
Helicopters
Hover Craft, Flex Craft, Loadmaster, Air Cushion, All-Terrain Vehicle, Rollagon, Bargecable, Nodwell, & Snow Cat
Hydro Ax, Feller Buncher & similar
Hydro Excavation (Vac-Truck and Similar)
Loaders (2 1/2 yards through 5 yards, including all attachments):
(a) Forklifts (with telescopic boom & swing attachment)
(b) Front End & Overhead, (2-1/2 yards through 5 yards)
(c) Loaders, (with forks or pipe clamp)
(d) Loaders, (elevating belt type, Euclid & similar types)
Material Transfer Vehicle (Elevating Grader, Pickup Machine, and similar types)
Mechanic, Welder, Bodyman, Electrical, Camp & Maintenance Engineer
Micro Tunneling Machine
Mixers: Mobile type with hoist combination
Motor Patrol Grader
Mucking Machine: Mole, Tunnel Drill, Horizontal/Directional Drill Operator and/or Shield

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
						L&M	
A1601	Group I, including:	53.23	12.10	16.25	1.05	0.10	82.73
	Off-Road Hauler (including Articulating and Haul Trucks)						
	Operator on Dredges						
	Piledriver Engineer, L.B. Foster, Puller or similar paving breaker						
	Plant Operator (Asphalt & Concrete)						
	Power Plant, Turbine Operator 200 k.w & over (power plants or combination of power units over 300 k.w.)						
	Remote Controlled Equipment						
	Scraper (through 40 yards)						
	Service Oiler/Service Engineer						
	Shot Blast Machine						
	Shovels, Backhoes, Excavators with all attachments, and Gradealls (3 yards & under)						
	Sideboom (under 45 tons)						
	Sub Grader (Gurries & similar types)						
	Tack Tractor						
	Truck Mounted Concrete Pump, Conveyor/Tele-belt, & Creter						
	Wate Kote Machine						
						L&M	
A1602	Group IA, including:	55.33	12.10	16.25	1.05	0.10	84.83
	Camera/Tool/Video Operator (Slipline)						
	Certified Welder, Electrical Mechanic, Camp Maintenance Engineer, Mechanic (over 10,000 hours)						
	Cranes (over 45 tons or 150 feet including jib & attachments)						
	(a) Clamshells & Draglines (over 3 yards)						
	(b) Tower Cranes						
	Licensed Water/Waste Water Treatment Operator						
	Loaders (over 5 yards)						
	Motor Patrol Grader, Dozer, Grade Tractor (finish: when finishing to final grade and/or to hubs, or for asphalt)						
	Power Plants (1000 k.w. & over)						
	Profiler, Reclaimer, and Roto-Mill						
	Quad						
	Scrapers (over 40 yards)						
	Screed						
	Shovels, Backhoes, Excavators with all attachments (over 3 yards)						
	Sidebooms (over 45 tons)						
	Slip Form Paver, C.M.I. & similar types						
	Topside (Asphalt Paver, Slurry machine, Spreaders, and similar types)						
						L&M	
A1603	Group II, including:	52.32	12.10	16.25	1.05	0.10	81.82
	Boiler - Fireman						

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
A1603	Group II, including:	52.32	12.10	16.25	1.05	L&M 0.10	81.82
	Cement Hogs & Concrete Pump Operator Conveyors (except those listed in Group I) Hoists on Steel Erection, Towermobiles & Air Tuggers Horizontal/Directional Drill Locator Locomotives, Rod & Geared Engines Mixers Screening, Washing Plant Sideboom (cradling rock drill, regardless of size) Skidder Trenching Machines (under 16 inches) Water/Waste Water Treatment Operator						
A1604	Group III, including:	51.46	12.10	16.25	1.05	L&M 0.10	80.96
	"A" Frame Trucks, Deck Winches Bombardier (tack or tow rig) Boring Machine Brooms, Power (sweeper, elevator, vacuum, or similar) Bump Cutter Compressor Farm Tractor Forklift, Industrial Type Gin Truck or Winch Truck (with poles when used for hoisting) Hoists, Air Tuggers, Elevators Loaders: (a) Elevating-Athey, Barber Greene & similar types (b) Forklifts or Lumber Carrier (on construction job sites) (c) Forklifts, (with tower) (d) Overhead & Front End, (under 2-l/2 yards) Locomotives: Dinkey (air, steam, gas & electric) Speeders Mechanics, Light Duty Oil, Blower Distribution Posthole Digger, Mechanical Pot Fireman (power agitated) Power Plant, Turbine Operator, (under 200 k.w.) Pumps, Water Roller (other than Asphalt) Saws, Concrete Skid Hustler Skid Steer (with all attachments) Stake Hopper						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Power Equipment Operators								
	*See per diem note on last page							
A1604	Group III, including:	51.46	12.10	16.25	1.05	L&M 0.10		80.96
	Straightening Machine							
	Tow Tractor							
A1605	Group IV, including:	44.06	12.10	16.25	1.05	L&M 0.10		73.56
	Crane Assistant Engineer/Rig Oiler							
	Drill Helper							
	Parts & Equipment Coordinator							
	Spotter							
	Steam Cleaner							
	Swamper (on trenching machines or shovel type equipment)							
Roofers								
	*See per diem note on last page							
A1701	Roofer & Waterproofer	52.07	13.90	4.01	0.81	L&M 0.10	0.09	70.98
A1702	Roofer Material Handler	38.68	13.90	4.01	0.81	L&M 0.10	0.09	57.59
Sheet Metal Workers, Region I (North of N63 latitude)								
	*See per diem note on last page							
N1801	Sheet Metal Journeyman	58.73	13.45	15.94	0.17	L&M 0.12		88.41
	Brazing, soldering or welding of metals							
	Demolition of sheet metal HVAC & HVAC-R systems							
	Fabrication and installation of heating, ventilation and air conditioning ducts and equipment							
	Fabrication and installation of interior and exterior wall sheathing, siding, metal roofing, flashing, gutters, decking and architectural sheet metal work							
	Fabrication and installation of louvers and hoods							
	Fabrication and installation of sheet metal lagging							
	Fabrication and installation of stainless steel commercial or industrial food service equipment & wall sheathing							
	HVAC & HVAC-R Service Mechanic, servicing and maintaining and making operable HVAC & HVAC-R Systems							
	HVAC & HVAC-R systems controls and programming							
	Installation, inspection, testing, servicing, and maintenance of fire dampers, smoke control systems, smoke evacuation systems, and fire/smoke dampers							

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Sheet Metal Workers, Region I (North of N63 latitude) *See per diem note on last page							
						L&M	
N1801	Sheet Metal Journeyman	58.73	13.45	15.94	0.17	0.12	88.41

Installation, servicing, and maintenance of commercial laundry systems and associated equipment

Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work

Metal lavatory partitions

Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work

Sheet Metal shelving, lockers

Sheet Metal venting, chimneys and breaching

Skylight installation

Testing, Adjusting and Balancing (TAB) of all HVAC & HVAC-R mechanical systems as well as the cleaning of those systems

Sheet Metal Workers, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1801	Sheet Metal Journeyman	52.08	13.45	15.30	2.08	0.43	83.34

Brazing, soldering or welding of metals

Demolition of sheet metal HVAC & HVAC-R systems

Fabrication and installation of heating, ventilation and air conditioning ducts and equipment

Fabrication and installation of interior and exterior wall sheathing, siding, metal roofing, flashing, decking and architectural sheet metal work

Fabrication and installation of louvers and hoods

Fabrication and installation of sheet metal lagging

Fabrication and installation of stainless steel commercial or industrial food service equipment & wall sheathing

HVAC & HVAC-R Service Mechanic, servicing and maintaining and making operable HVAC & HVAC-R Systems

HVAC & HVAC-R systems controls and programming

Installation, inspection, testing, servicing, and maintenance of fire dampers, smoke control systems, smoke evacuation systems, and fire/smoke dampers

Installation, servicing, and maintenance of commercial laundry systems and associated equipment

Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work

Metal lavatory partitions

Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work

Sheet Metal shelving, lockers

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Sheet Metal Workers, Region II (South of N63 latitude) *See per diem note on last page							
S1801	Sheet Metal Journeyman	52.08	13.45	15.30	2.08	L&M 0.43	83.34
	Sheet Metal venting, chimneys and breaching Skylight installation Testing, Adjusting and Balancing (TAB) of all HVAC & HVAC-R mechanical systems as well as the cleaning of those systems						
Sprinkler Fitters *See per diem note on last page							
A1901	Sprinkler Fitter	60.67	12.40	18.45	0.54	L&M 0.25	92.31
Surveyors *See per diem note on last page							
A2001	Chief of Parties	59.93	13.48	14.64	1.30	L&M 0.10	89.45
A2002	Party Chief	55.78	13.48	14.64	1.30	L&M 0.10	85.30
A2003	Line & Grade Technician/Office Technician/GPS, Drones	52.77	13.48	14.64	1.30	L&M 0.10	82.29
A2004	Associate Party Chief (including Instrument Person & Head Chain Person)/Stake Hop/Grademan	50.31	13.48	14.64	1.30	L&M 0.10	79.83
A2006	Chain Person (for crews with more than 2 people)	45.29	13.48	14.64	1.30	L&M 0.10	74.81
Truck Drivers *See per diem note on last page							
A2101	Group I, including:	51.58	13.48	14.64	1.30	L&M 0.10	81.10
	Air/Sea Traffic Controllers Ambulance/Fire Truck Driver (EMT certified) Boat Coxswain Captains & Pilots (air & water) Deltas, Commanders, Rollagons, & similar equipment (when pulling sleds, trailers or similar equipment) Dump Trucks (including articulating end dumps, rockbuggy, side dump, belly dump, & trucks with pups) over 40 yards up to & including 60 yards Fueler Helicopter Transporter						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers							
	*See per diem note on last page						
						L&M	
A2101	Group I, including:	51.58	13.48	14.64	1.30	0.10	81.10
	Liquid Vac Truck/Super Vac Truck						
	Material Coordinator or Purchasing Agent						
	Oil Distributor Truck						
	Ready-mix (over 12 yards up to & including 15 yards) (over 15 yards to be negotiated)						
	Semi with Double Box Mixer						
	Tireman, Medium Duty (Truck Tires up to 1200-24")						
	Water Wagon (250 Bbls and above)						
						L&M	
A2102	Group 1A including:	53.05	13.48	14.64	1.30	0.10	82.57
	Dump Trucks (including rockbuggy, side dump, belly dump & trucks with pups) over 60 yards up to & including 100 yards (over 100 yards to be negotiated)						
	Jeeps (driver under load)						
	Lowboys, including tractor attached trailers & jeeps, up to & including 12 axles (over 12 axles or 150 tons to be negotiated)						
	Tireman Heavy Duty (earthmover tires, i.e., loader, scraper, haul truck)						
						L&M	
A2103	Group II, including:	50.12	13.48	14.64	1.30	0.10	79.64
	All Deltas, Commanders, Rollagons, & similar equipment						
	Batch Trucks (8 yards & up)						
	Batch Trucks (up to & including 7 yards)						
	Boom Truck/Knuckle Truck (over 5 tons)						
	Cacasco Truck/Heat Stress Truck						
	Construction and Material Safety Technician						
	Dump Trucks (including articulating end dump, rockbuggy, side dump, belly dump, & trucks with pups) over 20 yards up to & including 40 yards						
	Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating over 5 tons)						
	Mechanics						
	Partsman						
	Ready-mix (up to & including 12 yards)						
	Stringing Truck						
	Turn-O-Wagon or DW-10 (not self loading)						
						L&M	
A2104	Group III, including:	49.17	13.48	14.64	1.30	0.10	78.69
	Boom Truck/Knuckle Truck (up to & including 5 tons)						
	Dump Trucks (including articulating end dump, rockbuggy, side dump, belly dump, & trucks with pups) over 10 yards up to & including 20 yards						
	Expeditor (electrical & pipefitting materials)						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers	*See per diem note on last page						
						L&M	
A2104	Group III, including:	49.17	13.48	14.64	1.30	0.10	78.69
	Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating 5 tons & under)						
	Greaser - Shop						
	Semi or Truck & Trailer						
	Thermal Plastic Layout Technician						
	Traffic Control Technician						
	Trucks/Jeeps (push or pull)						
						L&M	
A2105	Group IV, including:	48.50	13.48	14.64	1.30	0.10	78.02
	Air Cushion or similar type vehicle						
	All Terrain Vehicle						
	Buggymobile						
	Bull Lift & Fork Lift, Fork Lift with Power Boom & Swing Attachment (over 5 tons)						
	Bus Operator (over 30 passengers)						
	Cement Spreader, Dry						
	Combination Truck-Fuel & Grease						
	Compactor (when pulled by rubber tired equipment)						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) up to & including 10 yards						
	Dumpster						
	Expeditor (general)						
	Fire Truck/Ambulance Driver						
	Flat Beds, Dual Rear Axle						
	Foam Distributor Truck Dual Axle						
	Front End Loader with Fork						
	Grease Truck						
	Hydro Seeder, Dual Axle						
	Hyster Operators (handling bulk aggregate)						
	Loadmaster (air & water operations)						
	Lumber Carrier						
	Ready-mix, (up to & including 7 yards)						
	Rigger (air/water/oilfield)						
	Tireman, Light Duty						
	Track Truck Equipment						
	Truck Vacuum Sweeper						
	Warehouseperson						
	Water Truck (Below 250 Bbls)						
	Water Truck (straight)						
	Water Wagon, Semi						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers							
	*See per diem note on last page						
						L&M	
A2106	Group V, including:	47.62	13.48	14.64	1.30	0.10	77.14
	Buffer Truck						
	Bull Lifts & Fork Lifts, Fork Lifts with Power Boom & Swing Attachments (up to & including 5 tons)						
	Bus Operator (up to 30 passengers)						
	Farm Type Rubber Tired Tractor (when material handling or pulling wagons on a construction project)						
	Flat Beds, Single Rear Axle						
	Foam Distributor Truck Single Axle						
	Fuel Handler (station/bulk attendant)						
	Gear/Supply Truck						
	Gravel Spreader Box Operator on Truck						
	Hydro Seeder, Single Axle						
	Pickups (pilot cars & all light-duty vehicles)						
	Rigger						
	Swamper						
	Tack Truck (welders/gear)						
	Team Drivers (horses, mules, & similar equipment)						
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)							
	*See per diem note on last page						
						L&M	**LEG**
N2201	Group I, including:	44.28	10.55	21.51	2.00	0.35	0.20	78.89
	Brakeman						
	Mucker						
	Nipper						
	Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)						
	Topman & Bull Gang						
	Tunnel Track Laborer						
						L&M	**LEG**
N2202	Group II, including:	45.38	10.55	21.51	2.00	0.35	0.20	79.99
	Burning & Cutting Torch						
	Certified Erosion Sediment Control Lead (CESCL Laborer)						
	Concrete Laborer						
	Floor Preparation, Core Drilling						
	Jackhammer/Chipping Gun or Pavement Breaker						
	Laser Instrument Operator						
	Nozzlemen, Pumpcrete or Shotcrete						
	Pipelayer Helper						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N2203	Group III, including: Miner Retimberman	46.37	10.55	21.51	2.00	0.35	0.20	80.98
						L&M	LEG	
N2204	Group IIIA, including: Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayer Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified	51.18	10.55	21.51	2.00	0.35	0.20	85.79
						L&M	LEG	
N2206	Group IIIB, including: Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper	59.41	5.50	21.51	1.60	0.35	0.20	88.57
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S2201	Group I, including: Brakeman Mucker Nipper Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer) Topman & Bull Gang Tunnel Track Laborer	44.28	10.55	21.51	2.00	0.35	0.20	78.89
						L&M	LEG	
S2202	Group II, including: Burning & Cutting Torch Certified Erosion Sediment Control Lead (CESCL Laborer) Concrete Laborer Floor Preparation, Core Drilling	45.38	10.55	21.51	2.00	0.35	0.20	79.99

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S2202	Group II, including:	45.38	10.55	21.51	2.00	0.35	0.20	79.99
	Jackhammer/Chipping Gun or Pavement Breaker Laser Instrument Operator Nozzlemen, Pumpcrete or Shotcrete Pipelayer Helper							
						L&M	LEG	
S2203	Group III, including:	46.37	10.55	21.51	2.00	0.35	0.20	80.98
	Miner Retimberman							
						L&M	LEG	
S2204	Group IIIA, including:	51.18	10.55	21.51	2.00	0.35	0.20	85.79
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayer Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
S2206	Group IIIB, including:	59.41	5.50	21.51	1.60	0.35	0.20	88.57
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Tunnel Workers, Power Equipment Operators *See per diem note on last page								
						L&M		
A2207	Group I	58.55	12.10	16.25	1.05	0.10		88.05
						L&M		
A2208	Group IA	60.86	12.10	16.25	1.05	0.10		90.36
						L&M		
A2209	Group II	57.55	12.10	16.25	1.05	0.10		87.05

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Tunnel Workers, Power Equipment Operators *See per diem note on last page							
A2210	Group III	56.60	12.10	16.25	1.05	**L&M** 0.10	86.10
A2211	Group IV	48.47	12.10	16.25	1.05	**L&M** 0.10	77.97

*** Per diem is an established practice for this classification. This means that per diem is an allowable alternative to board and lodging if all criteria are met. See 8 AAC 30.051-08 AAC 30.056, and the per diem information on page vii of this Pamphlet.**

**** Work in combination of classifications: Employees working in any combination of classifications within the diving crew (working diver, standby diver, and tender) in a shift are paid in the classification with the highest rate for a minimum of 8 hours per shift.**

REVISED NEW WELL 5 PUMPING STATION

CITY OF VALDEZ, ALASKA
PROJECT NO. 21-310-2538
CONSTRUCTION CONTRACT NO. 2227
JANUARY 2026

OWNER

CITY OF VALDEZ, ALASKA
OPPORTUNITIES IN EVERY SEASON

PO BOX 307
VALDEZ, AK 99686

ENGINEER

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING

PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090

CONSULTANTS

SURVEYING
WRANGELL MOUNTAIN TECHNICAL SERVICES
ALLEN MINISH, P.L.S., P.E.
PO BOX 118
CHITINA, ALASKA 99566
(907) 823-2280

ARCHITECT
WOLF ARCHITECTURE, INC.
GARY S. WOLF, AIA
625 SOUTH COBB STREET, STE. 200
PALMER, AK 99645
(907) 746-6670

STRUCTURAL
PND ENGINEERS
DAVID BENTTI, P.E., S.E.
625 SOUTH COBB STREET
PALMER, AK 99645
(907) 707-1081

ELECTRICAL & MECHANICAL
RSA MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
DAVIN BLUBAUGH, P.E.
BRIAN PEKAR, P.E.
670 WEST FIREWEED LANE, SUITE 200
ANCHORAGE, ALASKA 99503
(907) 276-0521

CONTROLS/INTEGRATION
STEAD AND ASSOCIATES
JAMES SWANSON
13200 S.E. 30TH ST.
BELLEVUE, WA 98005
(425) 644-1700

LOCATION MAP
VALDEZ, ALASKA

SHEET LIST

BASIS OF BEARINGS:
THE BASIS OF BEARING, COORDINATES, BEARINGS, DISTANCES ARE ALL BASED ON HIGH PRECISION GPS RTK, NAD83 ALASKA STATE PLANE ZONE 3 IN FEET.

BASIS OF ELEVATION:
THE BASIS OF ELEVATION IS BASED ON HIGH PRECISION GPS RTK, NAVD88 GEOID 12b.

C1
1 OF 8

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "ORANGE BOOK" – STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INCLUDING A BUILDING PERMIT, A DUST CONTROL PERMIT AND A STORMWATER POLLUTION PREVENTION PLAN, AS WELL AS BONDING FROM THE APPROPRIATE AGENCIES PRIOR TO CONSTRUCTION.
3. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT THE WORK PERFORMED UNDER THE CONTRACT SHALL RESULT IN A COMPLETE OPERATING SYSTEM IN SATISFACTORY WORKING CONDITION WITH RESPECT TO THE FUNCTIONAL PURPOSES OF THE INSTALLATION. IF THERE ARE ANY DISCREPANCIES REGARDING THE IMPLIED MEANING OF THESE PLANS, THE CONTRACTOR IS DIRECTED TO CONTACT THE CONSULTING ENGINEER IMMEDIATELY.

ENGINEER
DAY ENGINEERING
PO BOX 651
EUREKA, NEVADA 89316
(775) 293-1743
DEAN DAY

OWNER OF WATER UTILITIES
CITY OF VALDEZ
PO BOX 307
VALDEZ, AK 99686

4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH CONSTRUCTION.
5. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
6. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND NOTICE OF COMPLETION, CERTIFIED LEGIBLE AS–BUILT DRAWINGS MUST BE SUBMITTED TO CITY OF VALDEZ. AS–BUILT DRAWINGS MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS" AND CERTIFIED AS SUCH BY THE ENGINEER.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITION TO BE DETERMINED BY THE ENGINEER.
8. BEFORE ANY WORK IS STARTED IN THE ADOT RIGHT–OF–WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE AND MEET ALL REQUIREMENTS OF THE ADOT ENCROACHMENT PERMIT. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "ALASKA TRAFFIC MANUAL" – CURRENT EDITION, AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" – CURRENT EDITION, AND BE APPROVED BY THE ADOT ENGINEER BEFORE CONSTRUCTION BEGINS. A COPY OF THE ADOT PERMIT SHALL BE ON SITE AT ALL TIMES.
9. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE DESIGN ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING OVER OR NEAR EXISTING GAS MAINS AND UNDERGROUND POWER AND TELEPHONE LINES.
10. ALL EXCESS OR UNSUITABLE MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH CITY OF VALDEZ CODES.
11. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO ENGINEER'S SATISFACTION.
12. AT LEAST TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES THAT MAY HAVE FACILITIES IN THE AREA OF CONSTRUCTION.
13. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO CITY OF VALDEZ PUBLIC WORKS DESIGN STANDARDS. CONTRACTOR SHALL NOTIFY AFFECTED UTILITY 48 HOURS IN ADVANCE OF ANY WORK.
14. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO CITY OF VALDEZ'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
15. CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY DEPTHS, EXISTING MATERIALS AND LOCATION PRIOR TO EXCAVATION.
16. ALL DRAINAGES, ROADWAYS, CULVERTS, SLOPES, DITCHES, CURB & GUTTER & SIDEWALKS, FENCES, UTILITIES, AND STRUCTURES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION BY THE CONTRACTOR IN ACCORDANCE WITH CITY OF VALDEZ.
17. CONTRACTOR SHALL STABILIZE TRENCHING ACTIVITIES INCLUDING EXISTING WATER AND SEWER LINES, OVERHEAD POWER POLES, EXISTING STRUCTURES AND WHEREVER NECESSARY, SUCH AS AT CROSSINGS AND ADJACENT TO STORM DRAIN HEADWALLS TO MAINTAIN TRENCH STRUCTURAL INTEGRITY.

PUBLIC WORKS UTILITY NOTES

1. ALL WORK AUTHORIZED BY THIS PLAN SHALL CONFORM TO CITY OF VALDEZ DESIGN STANDARDS, LATEST REVISION AND THE SPECIAL PROVISIONS OF THE PROJECT.
2. NO OPEN TRENCH SHALL BE ALLOWED ACROSS ANY STREET OR WITHIN TEN FEET (10') OF ANY TRAVEL–WAY, EXCEPT WHEN WORK IS IN ACTUAL PROGRESS. AREAS COVERED BY ACCEPTABLE STEEL PLATES ARE NOT TO BE CONSTRUCTED AS A TRENCH. NO OPEN TRENCH PERMITTED IN EXCESS OF 500 FEET OR LENGTH NECESSARY TO ACCOMMODATE PIPE INSTALLATION IN A SINGLE DAY, WHICHEVER IS GREATER.
3. ALL PERMITS AND APPROVED PLANS FOR THIS WORK MUST BE ON THE JOB SITE AT ALL TIMES.
4. ALL TRENCH CROSSINGS AND BACKFILL SHALL MEET THE STANDARD SPECIFICATIONS UNLESS OTHERWISE STATED.
5. CONTRACTOR SHALL MAINTAIN AN ON–GOING PROCESS FOR REMOVAL OF ALL SPILLAGE OF EXCAVATED MATERIAL ON ALL PAVED STREETS.
6. INSPECTIONS ARE REQUIRED. THE CONTRACTOR SHALL NOTIFY ALL EFFECTED PUBLIC ENTITIES 48 HOURS MINIMUM PRIOR TO COMMENCEMENT OF WORK.
7. ANY SPECIAL INSPECTIONS SHALL BE AS REQUIRED PER SPECIFICATIONS.
8. COMPACTION TESTS ARE REQUIRED. SOIL TESTING SHALL COMPLY WITH THE STANDARD SPECIFICATIONS.

WATER NOTES

1. ALL PIPE FOR THIS PROJECT SHALL BE HDPE WHERE SHOWN.
2. ALL PIPE SHALL BE FLUSHED AND PRESSURE TESTED PER AWWA C600 (LATEST REVISION).
3. ALL PIPE SHALL BE DISINFECTED PER AWWA C651 (LATEST REVISION).
4. THE CONSTRUCTION OPERATION SEQUENCING FOR MAINTAINING WATER SUPPLY SHALL BE DEFINED BY THE CONTRACTOR AND APPROVED BY THE CITY OF VALDEZ PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ 48 HOURS IN ADVANCE OF ANY WATER MAIN SHUTDOWNS OR TIE–INS. THE TOTAL TIME OF ANY WATER SERVICE INTERRUPTION IS LIMITED TO 4 HOURS MAXIMUM. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES.
6. ALL WATER SERVICES 2 INCHES OR LESS SHALL BE IPS, PE PIPE; SERVICES 3 INCHES OR GREATER SHALL BE PVC C900 DR 18 OR AS SPECIFIED ON THE PLANS.
7. MAINTAIN 18 INCHES VERTICAL AND 5 FEET HORIZONTAL SEPARATION BETWEEN ALL UNDERGROUND UTILITY LINES AND WATER LINES. IF WATER LINE IS BELOW POWER LINE OR IS WITHIN 18 INCH VERTICAL SEPARATION OF POWER LINE, POWER/TELEPHONE LINE SHALL BE ENCASED 4 INCHES MINIMUM OF CONCRETE EXTENDING 5 FEET EACH SIDE OF THE CROSSING. CONCRETE ENCASEMENT OF WATER LINES IS NOT ALLOWED.
8. WATER VALVE MARKERS SHALL BE BLUE CARSONITE UTILITY MARKER (CUM–375), 5'–2" WITH WATER VALVE DECAL (WV–XXX) OR APPROVED EQUAL. PLACE MARKER NO MORE THAN FIVE (5) FEET FROM THE VALVE.
9. SATISFACTORY BACTERIOLOGICAL ANALYSIS MUST BE PROVIDED TO ADEC PRIOR TO PLACING A NEW WELL, WATER STORAGE TANK, OR DISTRIBUTION AND TRANSMISSION MAINS INTO SERVICE.
10. CONTRACTOR SHALL SEAL ALL OPENINGS OF UNFINISHED PIPE OR APPURTENANCES AT THE END OF EACH CONSTRUCTION DAY TO PREVENT THE INTRODUCTION OF CONTAMINATION.
11. CONTACT ADEC FOR COORDINATION PRIOR TO DISPOSAL OF HEAVILY CHLORINATED WATER.
12. ALL MATERIALS COMING INTO CONTACT WITH POTABLE WATER SHALL BE NSF 61 LISTED AND CERTIFIED AS LEAD–FREE.
13. THE HDPE PIPE MANUFACTURER WILL CERTIFY THAT THE RESIN CAN BE USED IN THE CITY OF VALDEZ CLIMATE.
14. THE HDPE PIPE MANUFACTURER'S WELDABILITY TESTING RECOMMENDATIONS WILL BE SUBMITTED FOR APPROVAL BY THE ENGINEER AND FOLLOWED BY THE CONTRACTOR.
15. BUTT FUSION OF HDPE JOINTS WILL PER THE MANUFACTURER'S RECOMMENDATIONS, AND A DATA LOGGER WILL RECORD THE FUSION EQUIPMENT TEMPERATURE, TIMES, AND PRESSURES. ALL WELDS SHALL BE ACCOMPLISHED IN THE PRESENCE OF A QUALIFIED INSPECTOR PROVIDED BY THE ENGINEER.
16. HDPE PIPE BUTT FUSION WELDERS SHALL BE CERTIFIED TO OPERATE FUSION EQUIPMENT.
17. HDPE PIPE FUSION SHALL USE CERTIFIED EQUIPMENT. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, AND FOLLOW, EQUIPMENT MANUFACTURER'S QA/QC, MAINTENANCE, AND CALIBRATION.
18. PARTS AND PIPE FOR THIS PROJECT IN CONTACT WITH POTABLE WATER SHALL NOT HAVE MORE THAN 0.25 PERCENT LEAD.
19. CONTRACTOR SHALL PROVIDE CERTIFICATION THAT ALL PARTS AND PIPE IN CONTACT WITH POTABLE WATER ARE NSF–61 CERTIFIED BY AN ANSI ACCREDITED ORGANIZATION.
20. FLUSHING AREA IS SHOWN ON THE PLANS (FROM FIRE HYDRANT). FLUSH WATER SHALL BE FLUSHED USING AN AIR GAP. CHLORINATED FLUSH WATER SHALL BE DECHLORINATED USING A DIFFUSER ON THE HYDRANT THAT CONTAINS SODIUM SULFITE TABLETS. THEN THE FLUSH WATER CAN BE PUT ON THE GROUND AND GRADED TO AVOID DAMAGE TO ADJACENT PROPERTY. FLUSHED WATER MUST MEET THE REQUIREMENTS OF 18 AAC 70.
21. THE WATER SAMPLE TAP FOR BACTERIOLOGICAL SAMPLES SHALL BE OUT OF THE FIRE HYDRANT. TWO SEPARATE SAMPLES TAKEN 24 HOURS APART MUST PASS AS NEGATIVE FOR COLIFORM BACTERIA BEFORE NEW WATER PIPING CAN BE CONNECTED AND PUT INTO SERVICE IN THE WATER SYSTEM.

ABBREVIATIONS

A	AREA
AC	ASPHALTIC CONCRETE
ACP	ABESTOS CEMENT PIPE
ADJ	ADJUST, ADJUSTABLE
AL	ARC LENGTH
AD	AREA DRAIN
BC	BEGINNING OF CURB / BACK OF CURB
BCR	BEGINNING OF CURB RETURN
BDRY	BOUNDARY
BEG	BEGIN
BM	BENCHMARK
BSW	BACK OF SIDEWALK
BVC	BEGINNING OF VERTICAL CURVE
CB	CATCH BASIN / DROP INLET
C&G	CURB AND GUTTER
CF	CURB FACE
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONST	CONSTRUCT, CONSTRUCTION
DC	DEPRESSED CURB
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DROP MANHOLE
E	EAST
EC	END OF CURVE
ECR	END OF CURB RETURN
EF	ELECTROFUSION
EG	EXISTING GROUND
EL	ELEVATION
EP, EOP	EDGE OF PAVING
EVC	EDGE OF VERTICAL CURVE
EXIST, EX	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FM	FORCEMAIN
G	GAS
GB	GRADE BREAK
GV	GAS VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HGT	HEIGHT
HORIZ.	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
L	LENGTH
LS	LANDSCAPE
LAT	LATERAL
LF	LINEAL FEET
LT	LEFT
LP	LOW POINT
MAX	MAXIMUM
MB	MAIL BOX
MH	MANHOLE
MIN	MINIMUM
N	NORTH
NO	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD POWER LINE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
POC	POINT OF CONNECTION
PRC	POINT OF REVERSE CURVE
PROP	PROPOSED
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
Q	RATE OF FLOW
RAD	RADIUS
RED	REDUCER
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
R/W, ROW	RIGHT OF WAY
S	SOUTH
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FOOT
SHP	STEEL HIGH PRESSURE
SHT	SHEET
STA	STATION
STD	STANDARD
STL	STEEL
SW	SIDEWALK
T	TANGENT DISTANCE
TBC	TOP BACK OF CURB
TC	TOP OF CURB
TEL	TELEPHONE
TFC	TOP FRONT OF CURB
TOC	TOP OF CONCRETE
TMH	TOP OF MANHOLE
TOW	TOP OF WALL
TRANS	TRANSITION
TSC	TRAFFIC SIGNAL CONDUIT
TSW	TOP OF SIDEWALK
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC LINE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VG	VALLEY GUTTER
W	WEST, WATER
WV	WATER VALVE

LEGEND

- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING TELEPHONE
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED AIR VALVE ASSEMBLY
- PROPOSED FIRE HYDRANT
- EXIST FIRE HYDRANT
- PROPOSED SINGLE METER
- PROPOSED DOUBLE METER
- EXISTING METER
- PROPOSED SSMH
- EXISTING SSMH
- FLOW ARROW
- SECTION/ PROPERTY LINE/ EASEMENT LINE
- CENTERLINE
- FENCE
- EDGE OF ROAD
- OVERHEAD POWER LINE
- LIGHT POLE
- TELEPHONE PEDESTAL
- POWER POLE

REVISION	BY	DATE	APPRVL REV

TITLE: **GENERAL NOTES, ABBREVIATIONS, AND LEGEND**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C2 OF 8 SHEETS

WHALEN DR.

PIONEER DR.

SEE SHEET C6
FOR WELL 5
TIE-IN TO WELL 4

EXIST 12" WATER MAIN

EXIST 8" WATER MAIN

EXIST
PROPERTY
LINE

EXIST
EASEMENT

EXIST 8" WATER
MAIN HDPE WATER

EXIST 12" WATER
MAIN HDPE WATER

TIE-IN TO EXIST 8" AND
12" WATER MAINS
SEE TIE-IN DETAIL
D1

N: 2606161.46
E: 1573719.74

N: 2606162.56
E: 1573731.00

N: 2606149.40
E: 1573727.63

INSTALL 90 LF
12" DIP

NEW 29'-6" x 40'-9" WELL BUILDING
FOR BUILDING PIPING PLAN SEE SHEET C5

N: 2606158.90
E: 1573735.45

N: 2606214.28
E: 1573799.30

N: 2606232.91
E: 1573776.40

N: 2606263.96
E: 1573801.66

N: 2606245.33
E: 1573824.56

NEW TRANSFORMER
REINFORCED CONCRETE
SLAB AND BOLLARDS
SEE ELECTRICAL SHEETS

NEW GENERATOR AND
LOAD BANK
INSTALL NEW
14'x4.5'x12"
REINFORCED CONCRETE
SLAB AND BOLLARDS
SEE DETAIL

SEE ELECTRICAL
SHEETS

30'

20'

10'

18'

INSTALL 25
LF 12" DIP

N: 2606136.07
E: 1573769.57

12" DI 45° MJ BEND
WITH THRUST BLOCK

EXIST 8" AND 12"
WATER MAINS
ABANDON IN PLACE

6'

10'

92'

INSTALL 90
LF 12" DIP

N: 2606225.56
E: 1573821.37

12" DI 45° MJ
BEND WITH
THRUST BLOCK

N: 2606203.03
E: 1573824.03

12" DI 45° MJ
BEND WITH
THRUST BLOCK

20'

EXIST TEST WELL
PROTECT IN PLACE

N: 2606139.15
E: 1573792.62

INSTALL 23 LF
12" DIP

N: 2606131.12
E: 1573770.24

12" DI 45° MJ
BEND WITH
THRUST
BLOCK

INSTALL NEW 8'x8'x6" REINFORCED
CONCRETE SLAB AND BOLLARDS
SEE WELL CROSS SECTION SHEET C8

NEW WELL
SEE SHEET C8

N: 2606124.84
E: 1573778.48

12" DIP DRAIN TO EXIST
DRAIN INLET
SEE PROFILE ON SHEET C7

TIE FLOOR DRAIN
TO EXIST DI
SEE SHEET C7

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

CALL 811 BEFORE YOU DIG
811
SAFE DIGGING PARTNER

REVISION	BY	DATE	APPRVL

TITLE: SITE PIPING PLAN

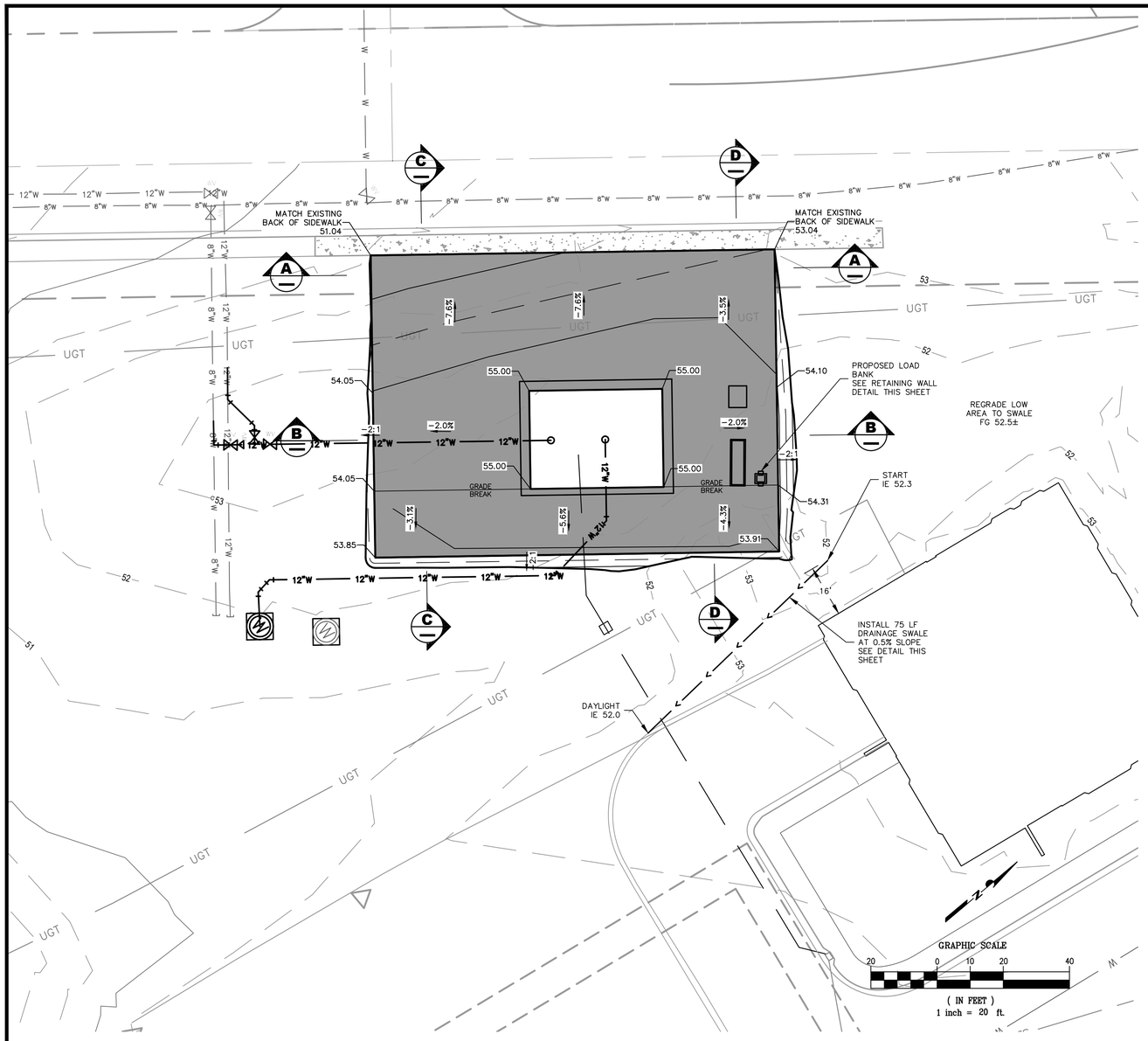
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

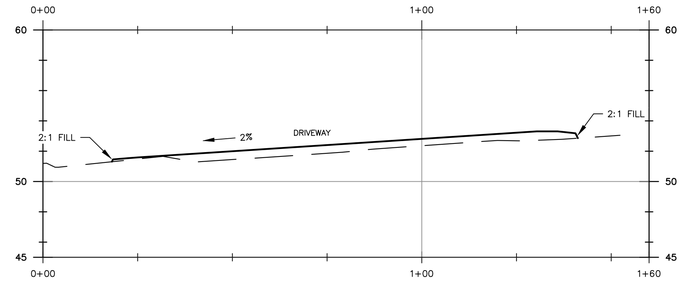
STATE OF ALASKA
49 TH
DEAN D DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

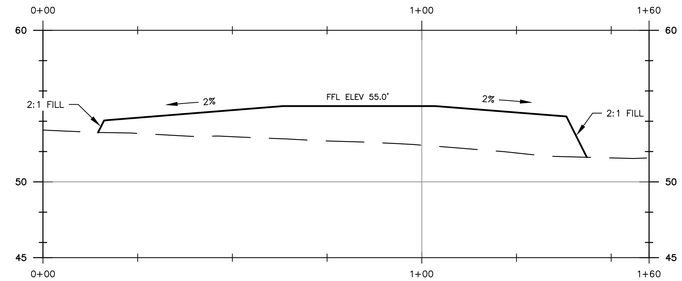
BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C3 OF 8 SHEETS

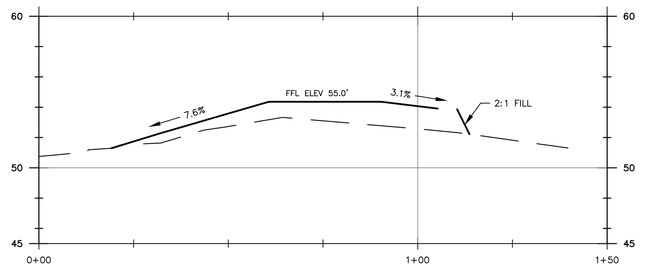




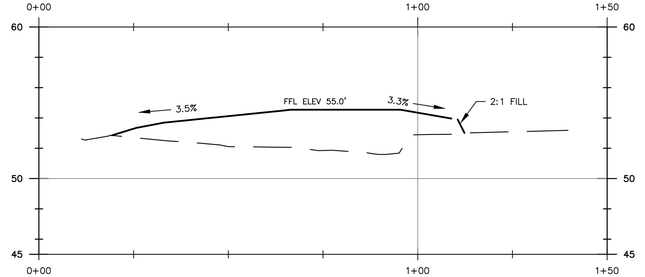
SECTION A
VER SCALE: 1"= 5' HOR SCALE 1"=20'



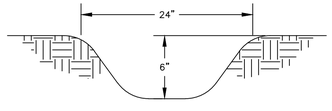
SECTION B
VER SCALE: 1"= 5' HOR SCALE 1"=20'



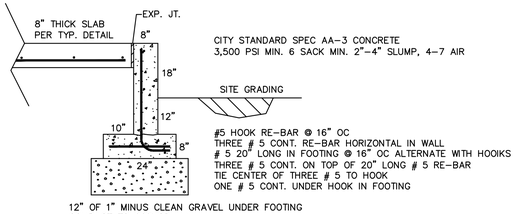
SECTION C
VER SCALE: 1"= 5' HOR SCALE 1"=20'



SECTION D
VER SCALE: 1"= 5' HOR SCALE 1"=20'



SWALE DETAIL 1
SCALE: N.T.S.



RETAINING WALL DETAIL 2
SCALE: N.T.S.

CALL 811 BEFORE YOU DIG
811
SAFE DIGGING PARTNER

REVISION	BY	DATE	APPRV	REV

TITLE: **SITE GRADING PLAN**

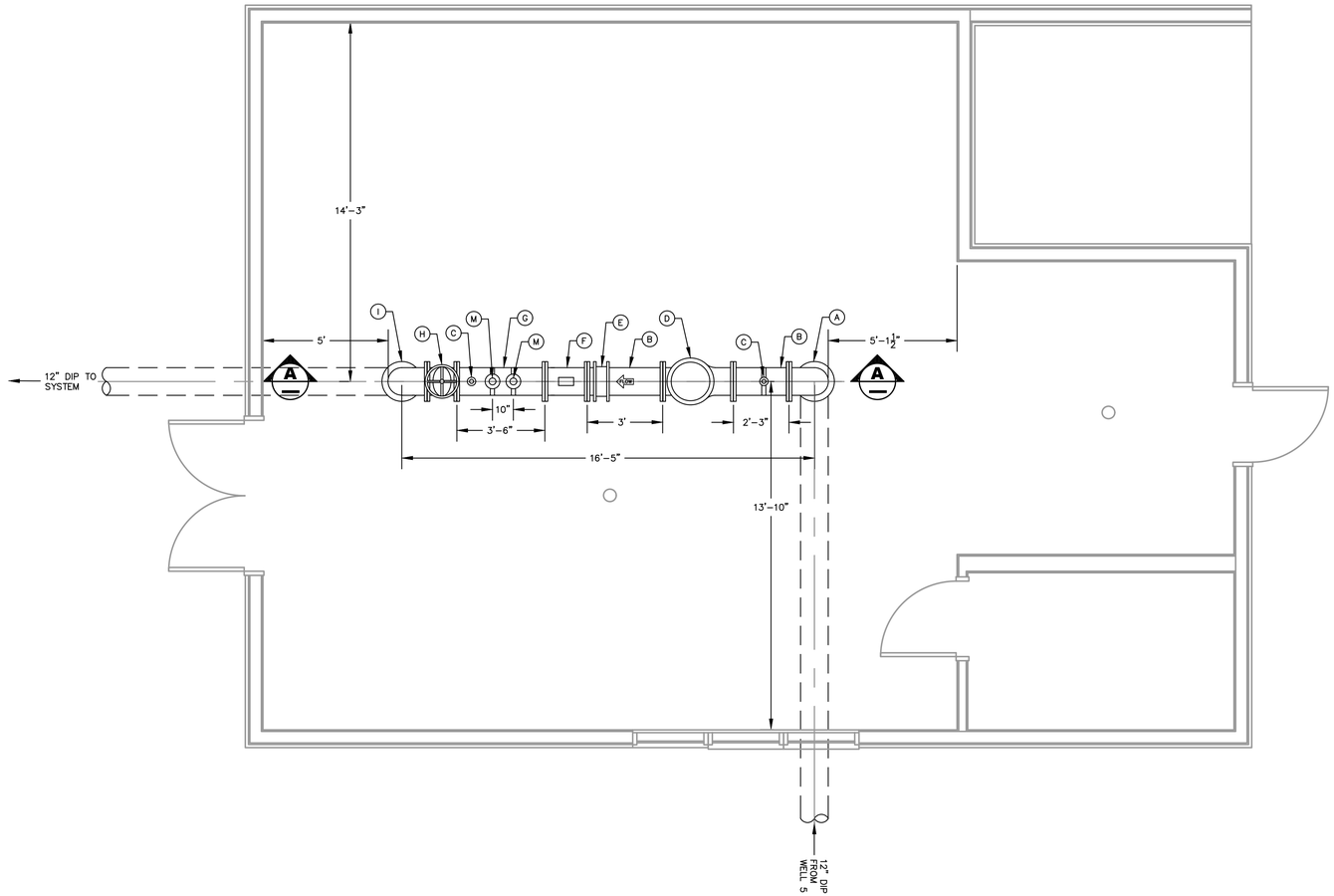
PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA 49TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

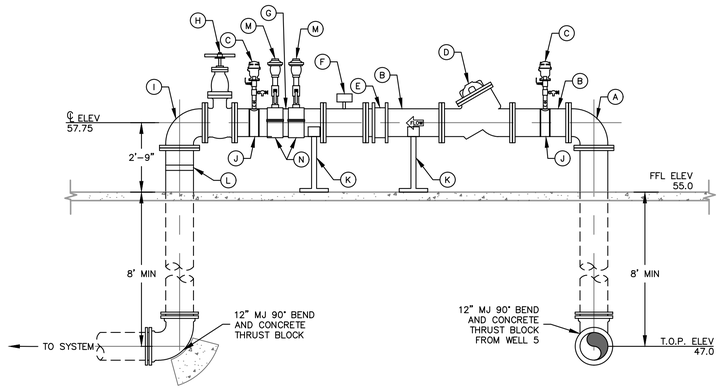
DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C4 OF 8 SHEETS



PIPING FLOOR PLAN
SCALE: 1"=3'



SECTION A
SCALE: 1"=3'

MATERIALS LIST		
ITEM	QTY	DESCRIPTION
A	1	12" DI FL 90
B	2	12" DI FLxPE SPOOL
C	2	2" COMBINATION AIR VALVE WITH SAMPLE TAP
D	1	12" CHECK & BOOSTER PUMP CONTROL VALVE (BERMAD 740 EN)
E	1	12" REST. FL ADAPT. (ROMAC RFCA)
F	1	12" MAG METER (BADGER M2000)
G	1	12" DI FLxFL SPOOL
H	1	12" OS&Y FL RES. WEDGE GATE VALVE (AFC 2500)
I	1	12" DI FL 90
J	2	2" DOUBLE STRAP TAPPING SLEEVE
K	1	PIPE SUPPORT
L	1	1 ½" SERVICE SADDLE
M	2	2" BERMAD PRESSURE RELIEF VALVES (SEE DETAIL SHEET 3/D1)
N	2	12"x2" STAINLESS SADDLES

NOTE:
1) SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SHEETS FOR BUILDING DETAILS.
2) FEDERAL SAFETY BLUE SHERWIN-WILLIAMS MACROPOXY EPOXY FOR POTABLE WATER OR EQUAL, 2 COATS AND 10 MILS MINIMUM ON ALL EXPOSED POTABLE WATER PIPING AND FITTINGS.

APPRVL	REV	DATE	BY	REVISION
	1	9/3/2025	MU	ITEM L MOVED TO OTHER SIDE OF CHECK VALVE AND CHANGED SIZE
	2	9/23/2025	MU	ADDED NOTE FOR PAINT
	3	10/31/2025	MU	ELEVATIONS ADDED

TITLE **BUILDING PIPING PLAN AND SECTION**

PROJECT **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C5 OF 8 SHEETS

EXIST WELL 4

EXIST WELL 4 TRANSMISSION MAIN TO WATER TANK

EXIST TANK TRANSMISSION MAIN TO DISTRIBUTION SYSTEM

TIE–IN NEW WELL 5 TRANSMISSION MAIN TO EXIST WELL 4 TRANSMISSION MAIN SEE DETAIL 2/D1

LIMIT OF IMPROVEMENTS

WEST EGAN DR.

WHALEN DR.

EXIST 12" WELL 5 TRANSMISSION MAIN

PIONEER DR.

NEW WELL 5 BUILDING

NEW WELL 5

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)

1 inch = 50 ft.

CALL 811 BEFORE YOU DIG

811

SAFE DIGGING PARTNER

APPRV'L	REV	DATE	BY	REVISION

TITLE: **WELL 5 TRANSMISSION MAIN**

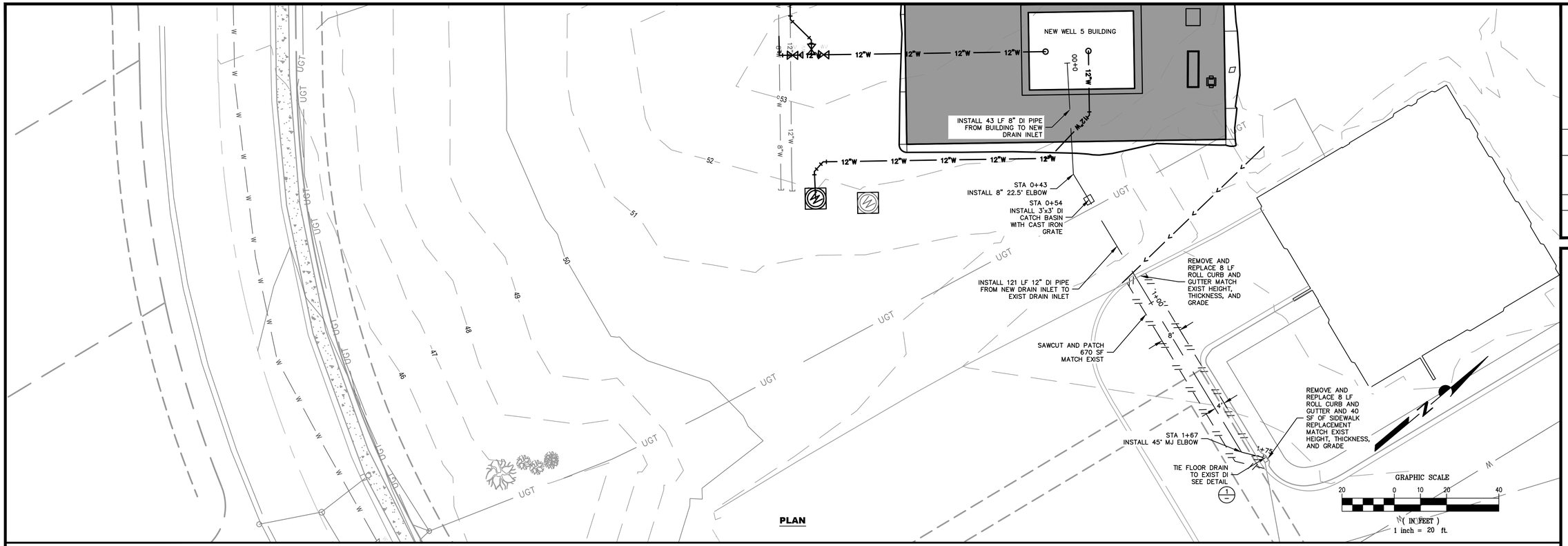
PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

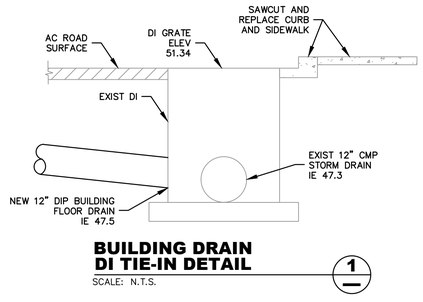
DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289–5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348–8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

SHEET C6 OF 8 SHEETS



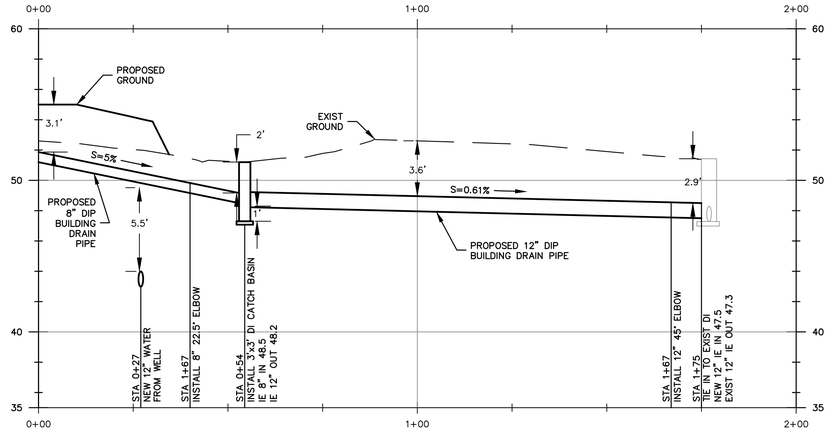
PLAN



BUILDING DRAIN DI TIE-IN DETAIL

SCALE: N.T.S.

1
—



PROFILE

HOR SCALE: 1"=20'
VER SCALE: 1"=5'

APPRV'L REV	DATE	BY	REVISION

TITLE **BUILDING DRAIN PLAN AND PROFILE**

PROJECT **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

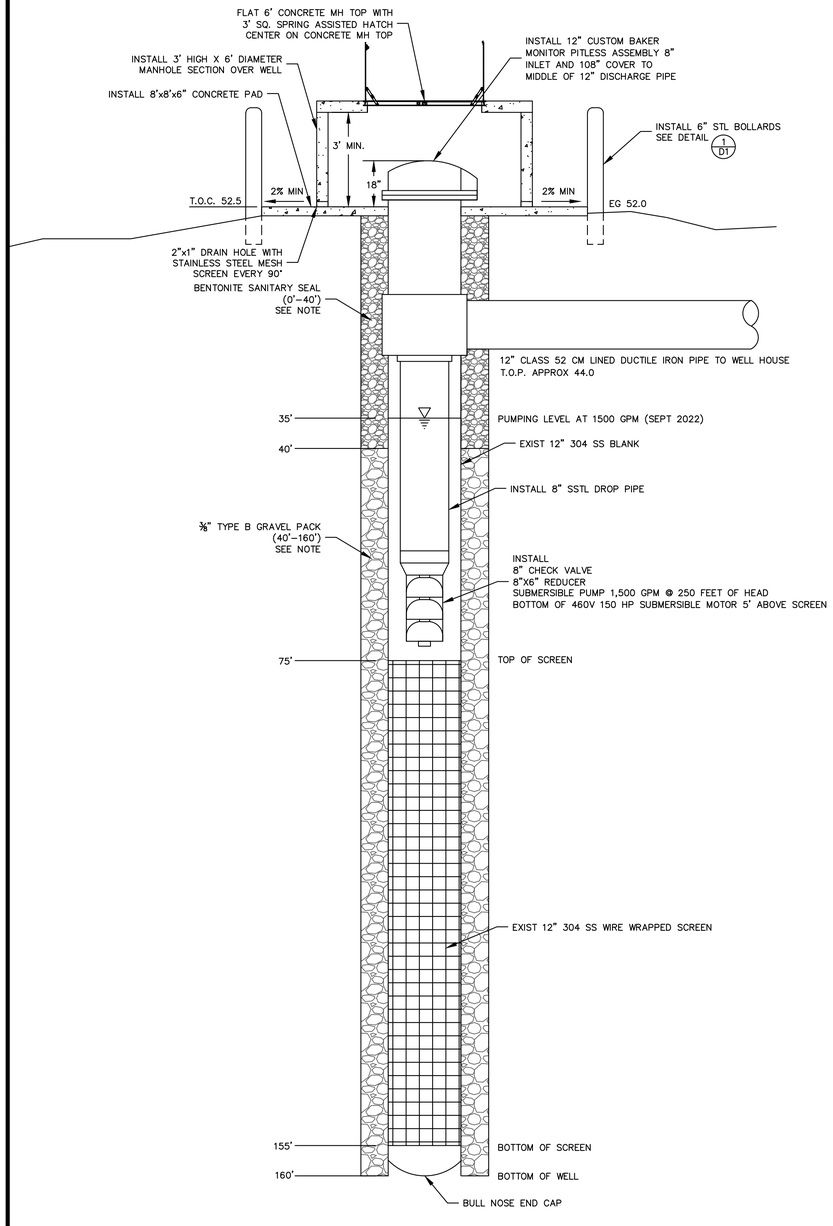
STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

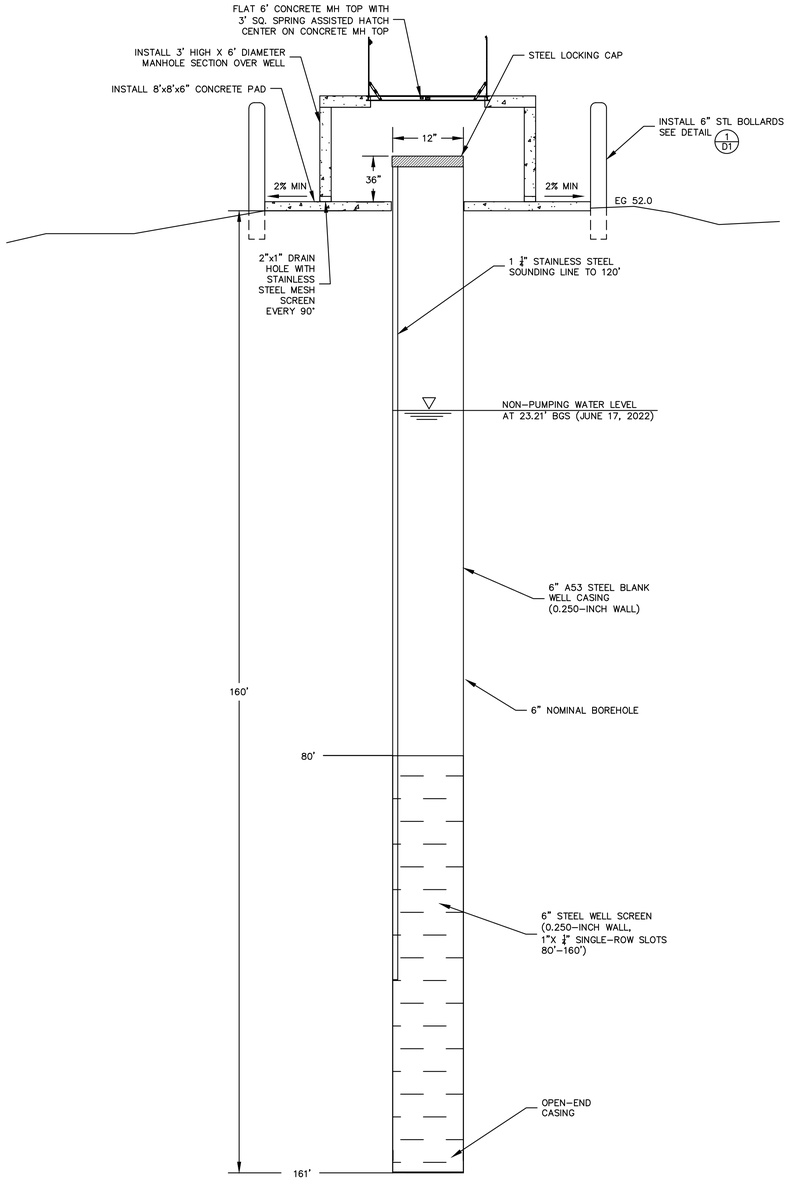
SHEET C7 OF 8 SHEETS

CALL 811 BEFORE YOU DIG 811 SAFE DIGGING PARTNER

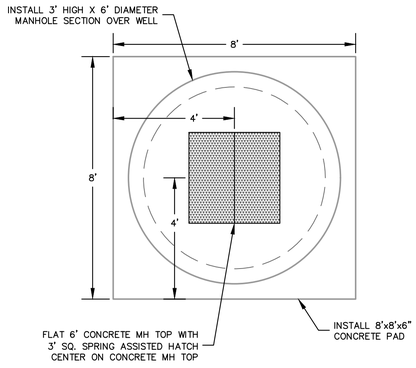


NOTE:
CONTRACTOR TO REPAIR SANITARY SEAL AFTER INSTALLATION OF PITLESS UNIT AND DISCHARGE PIPE.

EXIST WELL SECTION
SCALE: N.T.S.



EXIST MONITORING WELL SECTION
SCALE: N.T.S.



LID DETAIL
SCALE: N.T.S.

REVISION	BY	DATE	APPRV
ELEVATIONS ADDED	MU	10/31/2025	

TITLE: **WELL CROSS SECTION**

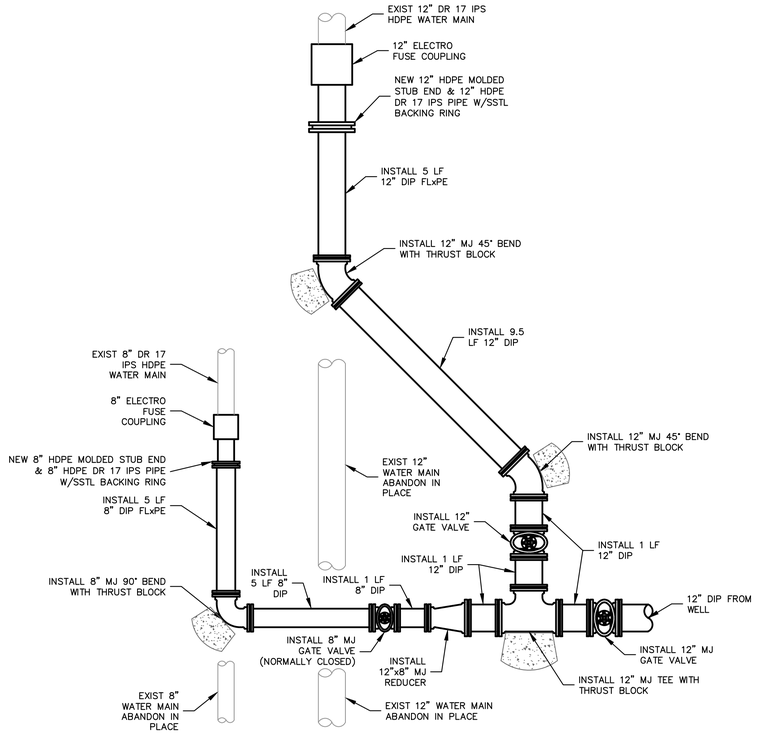
PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

STATE OF ALASKA 49TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

BY :
DATE : JAN 2026
SCALE : AS SHOWN

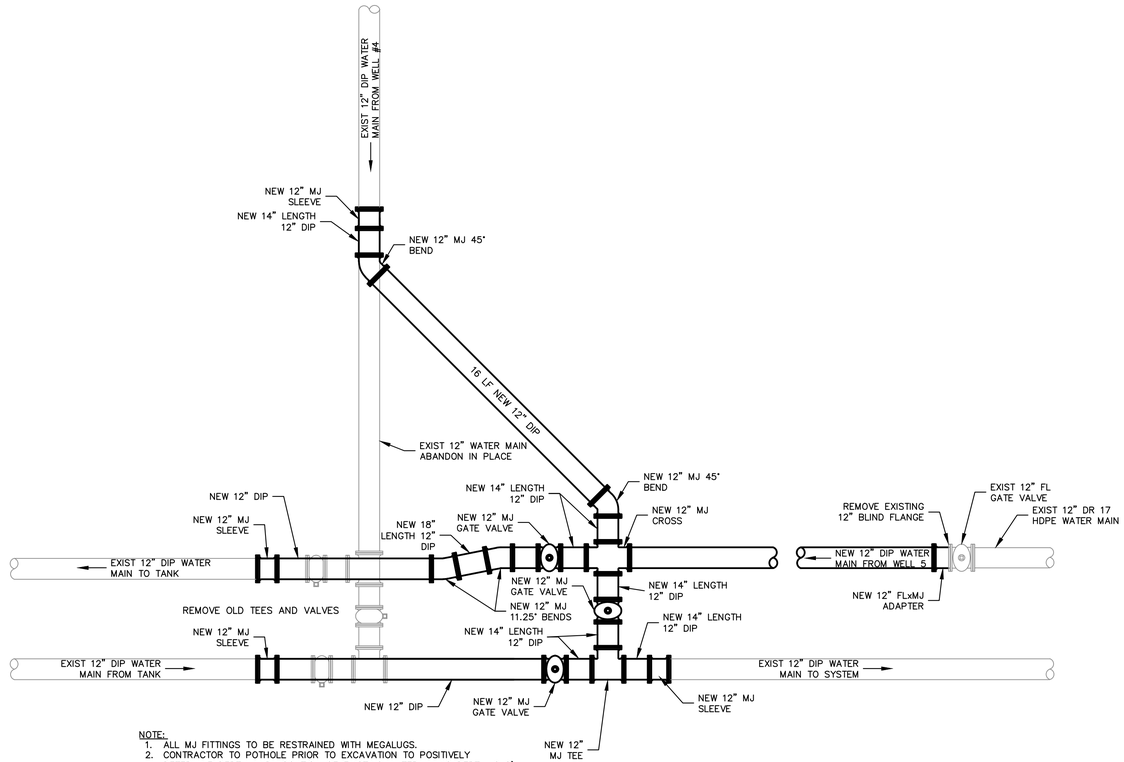
SHEET C8 OF 8 SHEETS



NOTE:
1. ALL MJ FITTINGS TO BE RESTRAINED WITH MEGALUGS.
2. CONTRACTOR TO POTHOLE PRIOR TO EXCAVATION TO POSITIVELY DETERMINE DEPTH AND LOCATION OF EXISTING WATER MAINS DEPTH IS 8'.

EXIST WATER MAIN TIE-IN 1

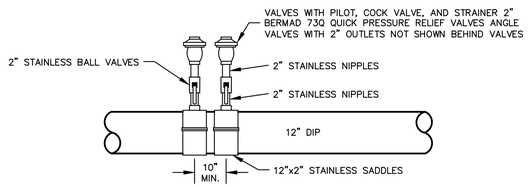
SCALE: N.T.S.



NOTE:
1. ALL MJ FITTINGS TO BE RESTRAINED WITH MEGALUGS.
2. CONTRACTOR TO POTHOLE PRIOR TO EXCAVATION TO POSITIVELY DETERMINE DEPTH AND LOCATION OF EXISTING WATER MAINS DEPTH IS 8'.

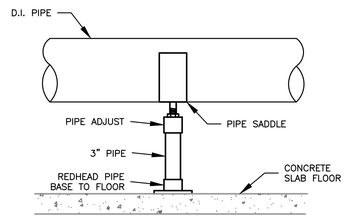
WELL 5 TO WELL 4 TIE-IN 2

SCALE: N.T.S.



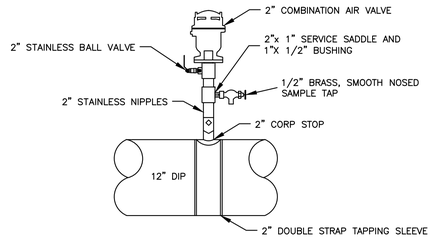
PRESSURE RELIEF VALVE 3

SCALE: N.T.S.



PIPE STAND DETAIL 4

SCALE: N.T.S.



AIR VALVE WITH SAMPLE TAP DETAIL 5

SCALE: N.T.S.

REVISION	BY	DATE	APPRV.	REV
NOTES REVISED	MJ	10/31/2025		1

TITLE: **GENERAL DETAILS**

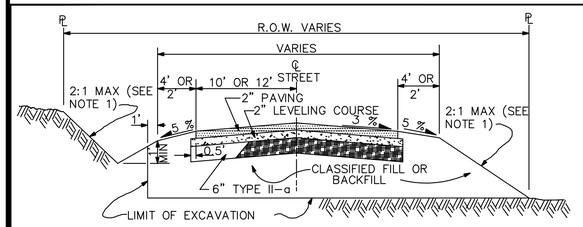
PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

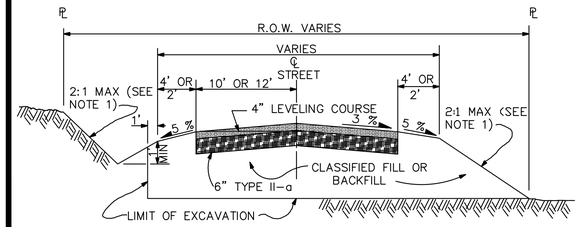
DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY: MJ
DATE: JAN 2026
SCALE: AS SHOWN

SHEET D1 OF 2 SHEETS



TYPICAL SECTION - 20'/24' STRIP PAVING



TYPICAL SECTION - 20'/24 GRAVEL STREET

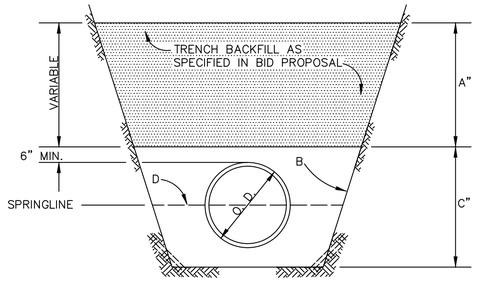
NOTES:

1. MATERIAL TO BE PLACED OR REMOVED AND GRADED IN A NEAT MANNER FROM EXCAVATION LIMITS TO EXISTING ELEVATION AT PROPERTY LINE AS DIRECTED BY THE ENGINEER.
2. DEPTH OF EXCAVATION TO BE DETERMINED BY THE ENGINEER.
3. THE TOP 6" OF CLASSIFIED FILL OR BACKFILL IMMEDIATELY BENEATH THE LEVELING COURSE SHALL BE RESTRICTED TO MINUS 3-INCH MATERIAL.
4. UNLESS OTHERWISE APPROVED, THE ℄ OF STREET WILL BE THE ℄ OF R.O.W.

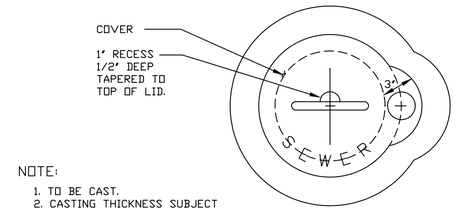
SCALE: NTS	TYPICAL SECTIONS FOR 20'/24' STRIP PAVING AND GRAVEL STREETS	SECTION# 20.01 THRU# 20.14
APPROVED:		DETAIL # 20-1
REVISED: 02/03		

NOTES:

(A) TRENCH BACKFILL MATERIAL PLACED AND COMPACTED TO DEPTHS AS DETERMINED BY THE ENGINEER.
(B) TRENCH WALL SLOPES WILL VARY WITH SOIL STRENGTH AND CHARACTER. SLOPES TO CONFORM TO SAFETY STANDARDS.
(C) CLASS "B" OR "C" BEDDING.
(D) BEDDING TO SPRING LINE ONLY WHEN DUCTILE IRON PIPE IS INSTALLED.

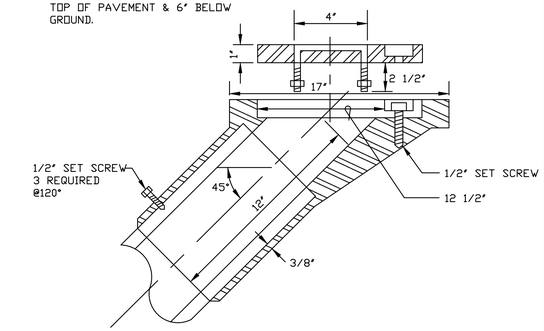


SCALE: NONE	TRENCH BACKFILL	SECTION# 20.07
APPROVED:		DETAIL # 20-11
REVISED: 1/88		

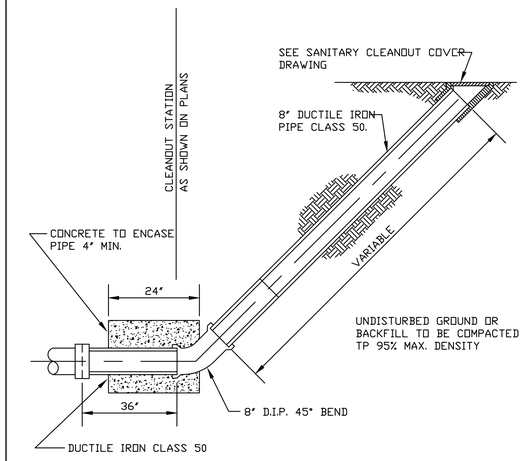


NOTE:

1. TO BE CAST.
2. CASTING THICKNESS SUBJECT TO FOUNDRY REQUIREMENTS.
3. CASTING MUST BE SIZED TO 8" AND OVER, CLASS 22 C.I. OR CLASS 50 D.I. PIPE.
4. COVER SHALL BE 1/4" BELOW TOP OF PAVEMENT & 6" BELOW GROUND.

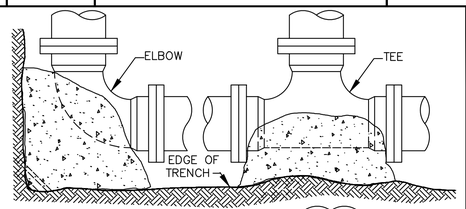


SCALE: 3"=1'-0"	SANITARY CLEANOUT COVER	SECTION# 50.12
APPROVED:		DETAIL # 50-20
REVISED: 11/87		

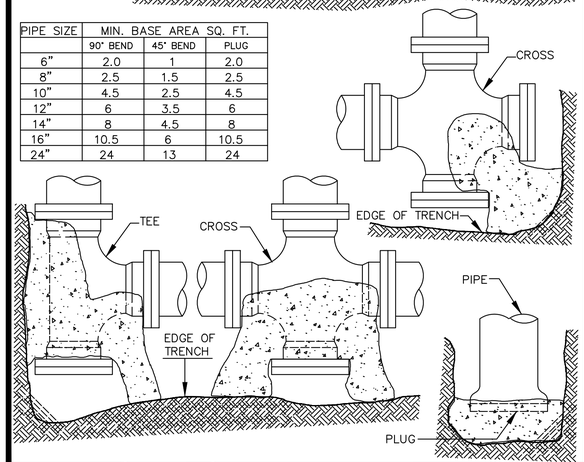


NOTE: WHEN D.I. PIPE WITH MECHANICAL JOINT IS USED CONCRETE ENCASEMENT IS NOT NECESSARY

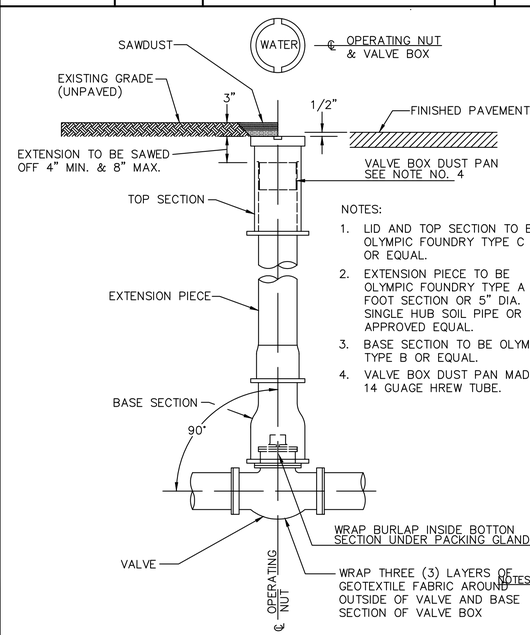
MUNICIPALITY OF ANCHORAGE	SCALE: 1/2"=1'-0"	SANITARY CLEANOUT	SECTION# 50.12
	APPROVED:		DETAIL # 50-21
	REVISED: 11/87		



PIPE SIZE	MIN. BASE AREA SQ. FT.		
	90° BEND	45° BEND	PLUG
6"	2.0	1	2.0
8"	2.5	1.5	2.5
10"	4.5	2.5	4.5
12"	6	3.5	6
14"	8	4.5	8
16"	10.5	6	10.5
24"	24	13	24



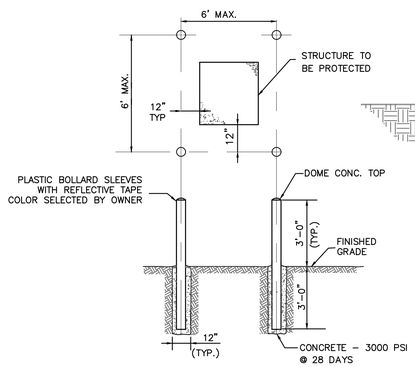
SCALE: NTS	THRUST BLOCK	SECTION# 60.02
APPROVED:		DETAIL # 60-2
REVISED: 11/87		



NOTES:

1. LID AND TOP SECTION TO BE OLYMPIC FOUNDRY TYPE C OR EQUAL.
2. EXTENSION PIECE TO BE OLYMPIC FOUNDRY TYPE A 10 FOOT SECTION OR 5" DIA. SINGLE HUB SOIL PIPE OR APPROVED EQUAL.
3. BASE SECTION TO BE OLYMPIC TYPE B OR EQUAL.
4. VALVE BOX DUST PAN MADE OF 14 GUAGE HREW TUBE.

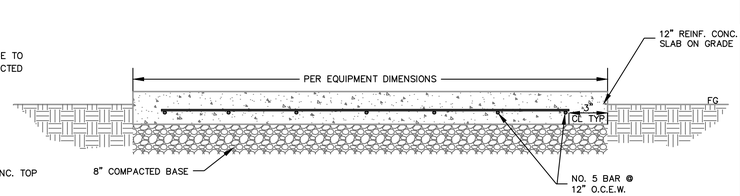
SCALE: NTS	TYPICAL VALVE BOX	SECTION# 60.03
APPROVED:		DETAIL # 60-4
REVISED: 11/87		



1. BOLLARDS TO BE 6" SCH. 40 STEEL PIPE, 6'-0" LONG AND FILLED WITH CONCRETE.
2. BOLLARDS ON SIDE NOT ACCESSIBLE TO VEHICLES MAY BE OMITTED.
3. DO NOT BLOCK HOSE CONNECTIONS ON HYDRANT.
4. BOLLARD SPACING PER PLANS.

BOLLARD DETAIL 1

SCALE: N.T.S.



CONCRETE SLAB DETAIL 2

SCALE: N.T.S.

REVISION	BY	DATE	APPRV. REV

TITLE: **GENERAL DETAILS**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA 49 TH
DEAN D. DAY
1/16/2026
CE No. 7452
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9080
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY: | DATE: JAN 2026 | SCALE: AS SHOWN | SHEETS OF 2 | SHEET D2

CODE PLAN GENERAL NOTES

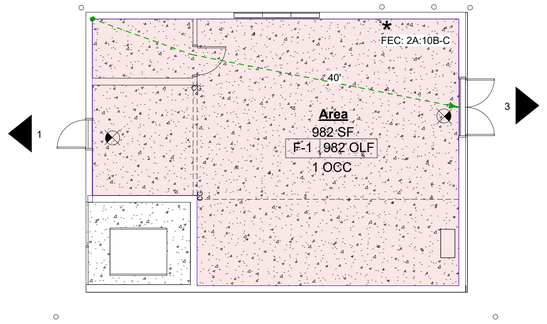
1. SEE MAIN FLOOR PLAN FOR DIMENSIONS, WALL TYPE REFERENCES.
2. SEE DOOR AND RELITE SCHEDULES FOR DOOR HARDWARE AND OTHER FIRE RATING REQUIREMENTS FOR DOORS AND RELITES.
3. SEE ELECTRICAL FOR EXIT SIGNS AND EMERGENCY EGRESS LIGHT FIXTURES.
4. INTERIOR WALL AND CEILING FINISHES SHALL CONFORM TO IBC SECTION 803.5 AND TABLE 803.5 FOR FLAME SPREAD REQUIREMENTS.
5. PORTABLE FIRE EXTINGUISHERS MUST BE PROVIDED WHERE REQUIRED BY NFPA 101.4. WHEN PROVIDED, FIRE EXTINGUISHERS MUST BE LOCATED IN ACCORDANCE WITH NFPA 10. IF PROVIDED IN ELECTRONIC EQUIPMENT AREAS, CLEAN AGENT TYPE PORTABLE FIRE EXTINGUISHERS MUST BE USED. PORTABLE FIRE EXTINGUISHERS UTILIZING CARBON DIOXIDE (CO2) ARE ONLY PERMITTED TO BE USED IN ENCLOSED ROOMS IF THEY EXCEED 1,000SF.

FIRE STOPPING NOTES

ALL PENETRATIONS MADE THROUGH FIRE-RATED WALLS, CEILINGS AND FLOOR ASSEMBLIES, BOTH EMPTY HOLES AND HOLES ACCOMODATING SUCH ITEMS AS DUCTS, PIPES, CONDUIT, AND OTHER PENETRATING ITEMS SHALL BE FIRE- STOPPED. PENETRATIONS SHALL BE FIRE STOPPED TO RETAIN THE INTEGRITY OF THE TIME-RATED CONSTRUCTION BY MAINTAINING AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND GASES, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 07270 - FIRESTOPPING. MECHANICAL AND ELECTRICAL RELATED PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR MAKING THE PENETRATION - SEE MECHANICAL AND ELECTRICAL.

PLAN LEGEND

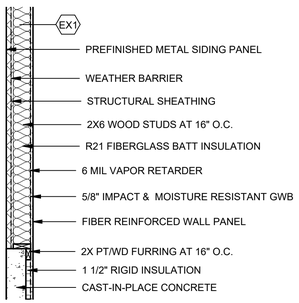
- 1 HR WALLS; 60 MINUTE OPENINGS OCCUPANCY SEPARATION
- 1 HR WALLS; 20 MINUTE OPENINGS OCCUPANCY SEPARATION
- SMOKE-PROOF ENCLOSURES
- ## EXIT FROM ROOMS. NUMBER INDICATES THE CALCULATED ACCUMULATED LOAD AT THAT ROOM OR BUILDING EXIT. ARROW INDICATES EXIT DIRECTION.
- * FIRE EXTINGUISHER CABINET, 2A:10B-C



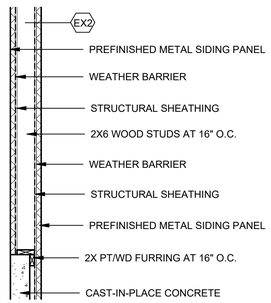
1 FIRST FLOOR CODE PLAN
Scale: 1/8" = 1'-0"

TYPICAL CONSTRUCTION ASSEMBLIES

EXTERIOR WALL ASSEMBLIES

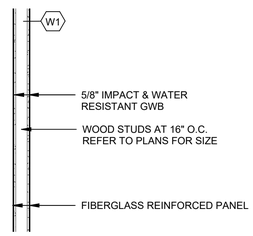


EX1_ 2X6 WALL W/ CONCRETE BASE



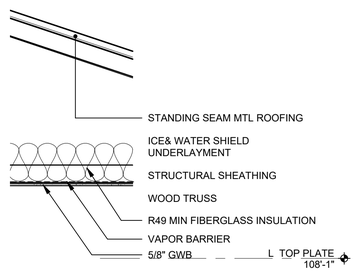
EX2_ 2X6 WALL

INTERIOR WALL ASSEMBLIES



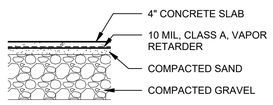
W1_ WALL - 2X STUD

ROOF ASSEMBLY

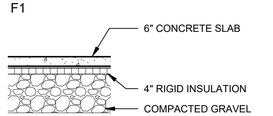


RF_ ROOF/CEILING

FLOOR ASSEMBLY



F1



F2

BUILDING CODE ANALYSIS

GOVERNING CODES: 2021 INTERNATIONAL BUILDING CODE (AK AMMENDMENTS)
2017 ICC/ANSI A117.1 (AK AMMENDMENTS)
2021 INTERNATIONAL MECHANICAL CODE (AK AMMENDMENTS)
2021 INTERNATIONAL FUEL AND GAS CODE (AK AMMENDMENTS)
2021 INTERNATIONAL FIRE CODE (AK AMMENDMENTS)
2021 NFPA STANDARD 13 & 72 FIRE PROTECTION
2018 UNIFORM PLUMBING CODE (AK AMMENDMENTS)
2020 NATIONAL ELECTRICAL CODE

CHAPTER 3 OCCUPANCY CLASSIFICATION AND USE

SECTION 306 F-1 MODERATE -HAZARD FACTORY INDUSTRIAL; WATER TREATMENT FACILITY

CHAPTER 4 SPECIAL REQUIREMENTS BASED ON USE/OCCUPANCY

N/A

CHAPTER 5 GENERAL BUILDING HEIGHTS & AREAS

CONSTRUCTION TYPE V-B, SEPARATED OCCUPANCIES

IBC TABLE 504.3 / 504.4 ALLOWABLE NUMBER OF STORIES/HEIGHT ABOVE GRADE PLANE:

OCC.	CONST. TYPE	ALLOW. STORY	ALLOW. HEIGHT/ACTUAL HEIGHT
F-1/NS	V-B	1	40'/20'-8"

IBC TABLE 506.2 ALLOWABLE AREA FACTOR:

OCC.	ALLOWABLE AREA	ACTUAL AREA
F-1	8500 SF	982 SF

508.3 NON-SEPARATED BASED ON PROVISIONS OF 508.3.1 AND 508.3.2
OCCUPANCY SEPARATION NOT REQUIRED

508.4 ACCESSORY OCCUPANCIES--NO ACCESSORY OCCUPANCIES

509 INCIDENTAL OCCUPANCIES--NO INCIDENTAL OCCUPANCIES

CHAPTER 6 TYPES OF CONSTRUCTION

TABLE 601: TYPE VB -- NO FIRE RESISTANT RATING REQUIRED FOR BUILDING ELEMENTS

TABLE 602: FIRE RESISTANCE RATING FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE
F-1 X>/= 30' NO RATING REQUIRED

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

TABLE 716.5 FIRE-RATED ASSEMBLIES:	RATING:	ASSEMBLY:
• STRUCTURAL FRAME	0-HR	N/A
• EXTERIOR BEARING WALLS	0-HR	N/A
• INTERIOR BEARING WALLS	0-HR	N/A
• FLOOR/CEILING	0-HR	N/A
• ROOF/CEILING	0-HR	N/A
• FIRE BARRIERS	NONE REQUIRED	
• FIRE PARTITIONS	NONE REQUIRED	
• DOORS	NONE REQUIRED	
• SMOKE PARTITIONS	NONE REQUIRED	

CHAPTER 9 FIRE PROTECTION SYSTEMS

903 AUTOMATIC SPRINKLER SYSTEMS
F-1 NOT REQUIRED

906 PORTABLE FIRE EXTINGUISHERS
IFC TABLE ORDINARY HAZARD TYPE 2-A WITHIN 75' TRAVEL DISTANCE

907 FIRE ALARM AND DETECTION SYSTEMS
907.2 MANUAL FIRE ALARM NOT REQUIRED
907.2.13.2 F-1 NOT REQUIRED

CHAPTER 10 MEANS OF EGRESS

TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT
OCCUPANT LOAD 1:300=3 OCCUPANTS

1006.2.1 1 EXIT REQUIRED; 2 PROVIDED
OCCUPANT LOAD <30; MAX
MAX TRAVEL DISTANCE 75'; ACTUAL 40'

CHAPTER 12 VENTILATION

TABLE
12.03.02 PROVIDE 28.3 SQUARE INCHES
OF VENTILATION PER ROOF TRUSS BAY
FOR TOTAL OF 566 SQUARE FEET.
50% AT LOW EAVE - 14SF
50% AT HIGH EAVE - 14SF

REVISION	BY	DATE	APPRVL REV

WOLF
ARCHITECTURE
625 S Cobb St Palmer, AK 99645
907.746.6670 | wolfarchitecture.com

TITLE: CODE PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

593

STATE OF ALASKA
49TH
1.16.26
GARY S. WOLF
A8257
REGISTERED PROFESSIONAL ARCHITECT

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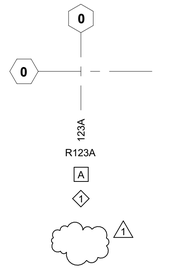
BY:
DATE: 01/16/25
SCALE:

SHEET G1.1

ARCHITECTURAL MATERIALS



GRID LINE

DOOR IDENTIFICATION

RELITE IDENTIFICATION

WINDOW TYPE

LOUVER TYPE

REVISION

MATCH LINE
Shaded area is side considered

WORK POINT, DATUM POINT, CONTROL POINT

DETAIL
Upper mark denotes drawing number
Lower mark denotes sheet

PARTIAL BUILDING SECTION

BUILDING CROSS SECTION

INTERIOR ELEVATION
Elevation number denoted in arrow
Sheet number denoted in box

ROOM IDENTIFICATION

CODED NOTE

WALL TYPE

EQUIPMENT IDENTIFICATION

DASHED LINE
Used to denote items hidden, overhead, not in contract (NIC), or to be removed

BREAK LINE
Material to continue

CENTER LINE, GRID LINES

PROPERTY LINE

EXISTING CONTOUR, DISTURBED

NEW CONTOUR

EXISTING CONTOUR, UNCHANGED

NEW FINISH GRADE

EXISTING GRADE

TOP OF FOOTING

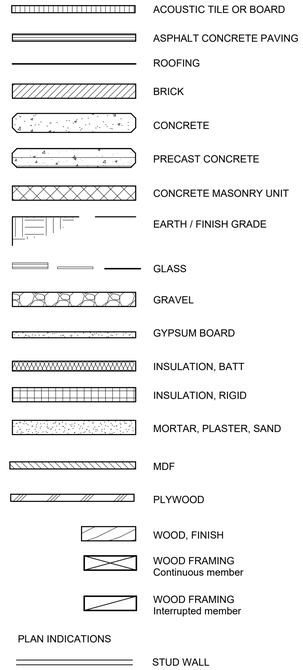
TOP OF WALL

TOP OF CURB

TOP OF PAVEMENT

ARCHITECTURAL MATERIALS

DETAIL INDICATIONS



ACOUSTIC TILE OR BOARD

ASPHALT CONCRETE PAVING

ROOFING

BRICK

CONCRETE

PRECAST CONCRETE

CONCRETE MASONRY UNIT

EARTH / FINISH GRADE

GLASS

GRAVEL

GYPSUM BOARD

INSULATION, BATT

INSULATION, RIGID

MORTAR, PLASTER, SAND

MDF

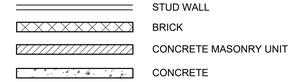
PLYWOOD

WOOD, FINISH

WOOD FRAMING
Continuous member

WOOD FRAMING
Interrupted member

PLAN INDICATIONS



STUD WALL

BRICK

CONCRETE MASONRY UNIT

CONCRETE

ABBREVIATIONS

∠	ANGLE
℄	CENTERLINE
#	POUND, NUMBER
&	AND
@	AT
°	DEGREE
±	PLUS / MINUS
Ø	DIAMETER
A/C	AIR CONDITIONING
AB	ANCHOR BOLT
AC	ASPHALT CONCRETE
ACOUS	ACOUSTICAL
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AJ	ACCENT JOINT
AL	ALUMINUM
ALT	ALTERNATE
ANC	ANCHOR(AGE)
APC	ACOUSTICAL PANEL CEILING
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
AUTO	AUTOMATIC
AWP	ACOUSTICAL WALL PANEL
BD	BOARD
BET	BETWEEN
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOF	BOTTOM OF FRAME
BOM	BOTTOM OF MASONRY
BOTT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
BUR	BUILT UP ROOF
C	COURSES
CAB	CABINET
CB	CATCH BASIN, CHALKBOARD
CC	CUBICLE CURTAIN & TRACK
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CI	CAST IRON
CIP	CAST-IN-PLACE CONCRETE
CJ	CONTROL JOINT
CLG	CEILING
CLKG	CAULKING
CLO	CLOSET
CLR	CLEAR, COLOR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CLEANOUT
COL	COLUMN
COMBO	COMBINATION TPD, SNR, & SCD
COMP	COMPOSITION, COMPOSITE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
CW	CURTAIN WALL
D	DEEP, DEPTH
DBL	DOUBLE
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPOSAL
DIV	DIVISION
DN	DOWN
DP	DAMPPROOF(ING)
DR	DOOR
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EHD	ELECTRIC HAND/ HAIR DRYER
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	ENTRY MAT
EMB	ENAMELIZED MARKING BOARD
EMER	EMERGENCY
ENCL	ENCLOSURE
EP	ELECTRICAL PANELBOARD, EPOXY PAINT
EPT	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EYEWASH
EWC	ELECTRIC WATER COOLER
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXPO	EXPOSED
EXT	EXTERIOR

ABBREVIATIONS

FA	FIRE ALARM
FAB	FABRICATE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET (RECESSED)
FEC-S	FIRE EXTINGUISHER CABINET (SEMI-RECESSED)
FF	FACTORY FINISHED
FFL	FINISHED FLOOR LINE
FHC	FIRE HOSE CABINET
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR, FLOORING
FLUOR	FLUORESCENT
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOSH	FACE OF SHEATHING
FP	FIREPROOF
FR	FIRE RESISTANT
FRMG	FRAMING
FRP	FIBER REINFORCED PLASTIC
FRTW	FIRE RETARDANT TREATED WOOD
FS	FLOOR SINK
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING
FUT	FUTURE
FWC	FABRIC WALL COVERING
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GEN	GENERAL
GI	GALVANIZED IRON
GL	GLASS
GLB	GLUE LAMINATED BEAM
GLZ	GLAZING
GMU	GLAZED MASONRY UNIT
GND	GROUND
GR	GRADE
GYP	GYPSUM BOARD (SCHEDULES ONLY)
GYP BD	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HOLLOW CORE, HANDICAP (ACCESSIBLE)
HD	HEAD
HDW	HARDWARE
HDWD	HARDWOOD
HORIZ	HORIZONTAL
HSS	HOLLOW STEEL SECTION
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/ VENTILATING/ AIR CONDITIONING
HWH(T)	HOT WATER HEATER (TANK)
I/S	INSIDE
ID	INSIDE DIAMETER (DIM)
INCL	INCLUDE
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INTERCOM	INTERCOMMUNICATION
JAN	JANITOR
JST	JOIST
JT	JOINT
KIT	KITCHEN
L	LENGTH, LONG
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LKR	LOCKER
LMS	LIQUID MARKING SURFACE
LN	LINOLEUM
LT	LIGHT, LEFT
LV	LOUVER
MACH	MACHINE
MATL	MATERIAL
MAX	MAXIMUM
MB	MARKING BOARD
MBR	MEMBER
MC	MEDICINE CABINET
MCSP	MINERAL COMPOSITE SCULPTURAL PANEL
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE, MOP HOLDER
MIN	MINIMUM
MIR	MIRROR
MIR-S	MIRROR W/ SHELF
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MT(D)	MOUNT(ED)
MTL	METAL
MUL	MULLION
N	NORTH
NAT	NATURAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

ABBREVIATIONS

O/S	OUTSIDE
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OCC	OCCUPANT, OCCUPANCY
OD	OUTSIDE DIAMETER (DIM)
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHEAD
OHD	OVERHEAD DOOR
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
PAR	PARALLEL
PB	PEG BOARD
PC	PRECAST
PCC	PORTLAND CEMENT CONCRETE
PCD	PAPER CUP DISPENSER
PERF	PERFORATED
PERP	PERPENDICULAR
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLUMB	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POS	POSITIVE
PR	PAIR
PREFAB	PREFABRICATE(D)
PREFIN	PREFINISH(ED)
PROJ	PROJECT
PS	PROJECTION SCREEN
PT	POINT, PAINT
PTD	PAPER TOWEL DISPENSER
PTDR	COMBINATION PAPER TOWEL DISPENSER & RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVMT	PAVEMENT
PWP	PLASTIC WALL PROTECTION
QT	QUARRY TILE
R	RISER, RADIUS
R&S	CLOSET ROD & SHELF
RAF	RESILIENT ATHLETIC FLOORING
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RDO	ROOF DRAIN; OVERFLOW
REBAR	REINFORCING BAR
RECD	RECEIVED
REF	REFERENCE
REFL	REFLECTED
REFR	REFRIGERATOR
REINF	REINFORCE(D)(ING)
REQD	REQUIRED
RESIL	RESILIENT
RF	ROOF
RFT	RESILIENT FLOORING TILE
RH	ROBE HOOK
RM	ROOM
RO	ROUGH OPENING
RSD	RECESSED SOAP DISPENSER
RST	RUBBER STAIR TREAD
RT	RIGHT
RWL	RAIN WATER LEADER
S	SOUTH
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SD	SOAP DISPENSER
SDG	SIDING
SECT	SECTION
SHR	SHOWER
SHT	SHEET
SHTG	SHEETING / SHEATHING
SIM	SIMILAR
SLR	SEALER
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
SPEC	SPECIFICATION
SQ	SQUARE
SS	SOLID SURFACE
SSK	SERVICE SINK
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STN	STAIN
STOR	STORAGE
STRFT	STOREFRONT
STRUCT	STRUCTURAL
SUB	SUBSTITUTE
SUSP	SUSPENDED
SV	SHEET VINYL
SWC	SANITARY WALL COVERING
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD, TEE
TB	TOWEL BAR, TACK BOARD
TC	TOP OF CURB
TEL	TELEPHONE
TEMP	TEMPORARY
TERR	TERRAZZO
TF	TOP OF FOOTING
THK	THICK
THRU	THROUGH
TOF	TOP OF FRAME
TOM	TOP OF MASONRY
TP	TOP OF PAVEMENT
TPD	TOILET PAPER DISPENSER
TR	TOWEL RACK
TS	TUBE STEEL
TV	TELEVISION
TVB	TELEVISION BRACKET
TW	TOP OF WALL
TYP	TYPICAL

ABBREVIATIONS

UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPT	UNGLAZED PORCELAIN TILE
UR	URINAL
USK	UTILITY SINK
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VENT	VENTILATE
VER	VERIFY
VERT	VERTICAL
VEST	VESTIBULE
VOL	VOLUME
VRB	VENTILATING RUBBER BASE
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST, WIDE, WIDTH
W/	WITH
W/D	WASHER/DRYER
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WH	WALL HUNG
WP	WATERPROOF, WALL PADS
WPTL	WOOD PRESERVATIVE TREATED LUMBER
WS	WEATHER STRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WTR	WATER
WWF	WELDED WIRE FABRIC

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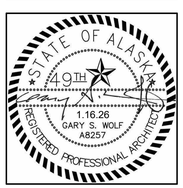
TITLE: ARCHITECTURAL SYMBOLS AND ABBREVIATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA



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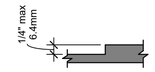
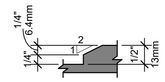
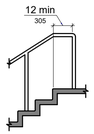
SHEET G0.01



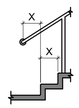
303.2 VERTICAL CHANGE IN LEVEL



303.3 BEVELED CHANGE IN LEVEL

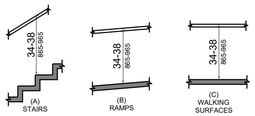


505.10.2
TOP HANDRAIL
EXTENSION AT STAIRS



note: X = tread depth

505.10.3
BOTTOM HANDRAIL
EXTENSION AT STAIRS

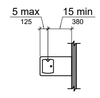


505.4 HANDRAIL HEIGHT

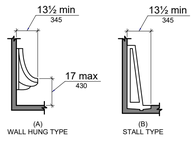
505.5 HANDRAIL
CLEARANCE

505.6 HORIZONTAL
PROJECTIONS BELOW
GRIPPING SURFACE

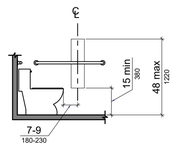
505.7.2 HANDRAIL NON-
CIRCULAR CROSS SECTION



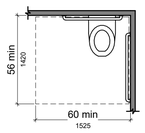
602.5
DRINKING FOUNTAIN
SPOUT LOCATION



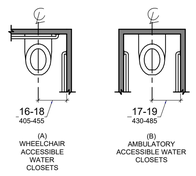
605.2 HEIGHT AND DEPTH OF URINALS



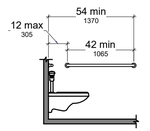
604.7 DISPENSER OUTLET LOCATION



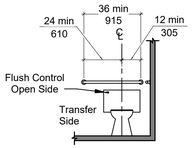
604.3.1 SIZE OF CLEARANCE AT WATER CLOSETS



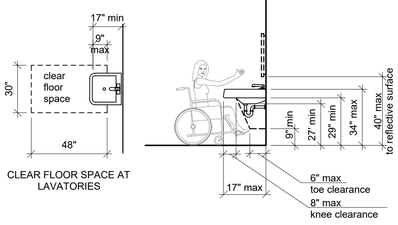
604.2 WATER CLOSET LOCATION



604.5.1 SIDE WALL GRAB BAR
AT WATER CLOSETS

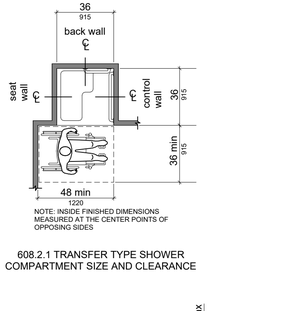


604.5.2 REAR WALL GRAB BAR
AT WATER CLOSETS

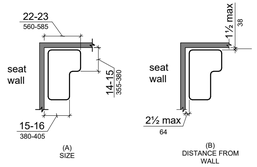


CLEAR FLOOR SPACE AT
LAVATORIES

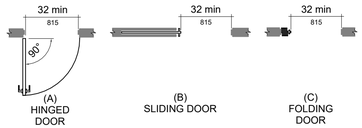
LAVATORY CLEARANCE



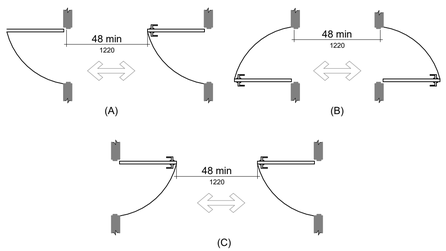
608.2.1 TRANSFER TYPE SHOWER
COMPARTMENT SIZE AND CLEARANCE



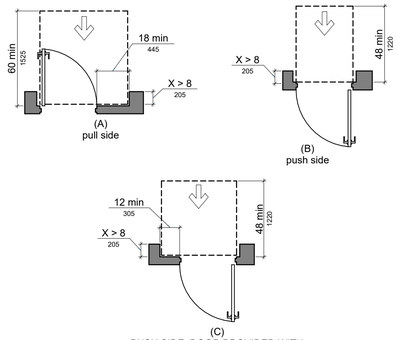
610.3.2 L-SHAPED SHOWER SEAT



404.2.3 CLEAR WIDTH OF DOORWAYS

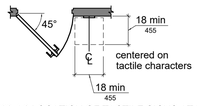


404.2.6 DOORS IN SERIES AND GATES IN SERIES

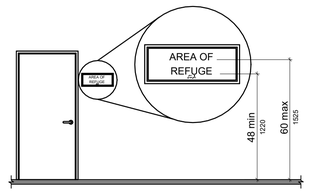


PUSH SIDE, DOOR PROVIDED WITH
BOTH CLOSER AND LATCH

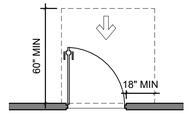
404.2.4.3 MANEUVERING CLEARANCES AT RECESSED DOORS AND GATES

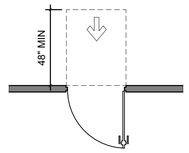


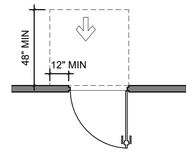
703.4.2 LOCATION OF TACTILE SIGNS AT DOORS

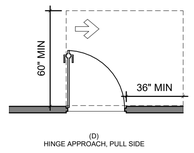


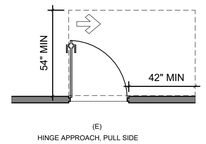
703.4.1 HEIGHT OF TACTILE CHARACTERS ABOVE FINISH FLOOR OR GROUND

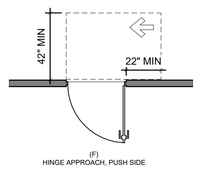


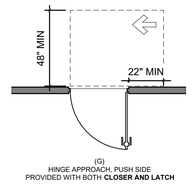


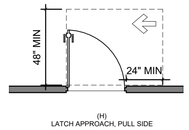


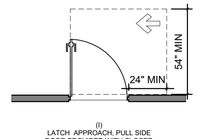


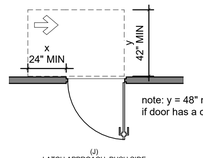


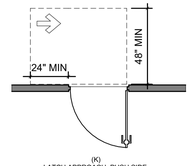




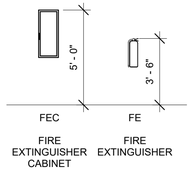




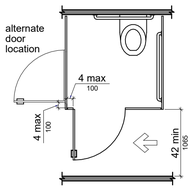




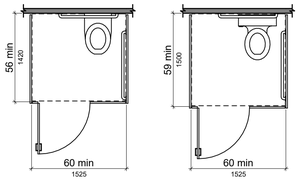
404.2.4.1 MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES



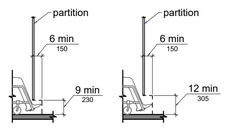
MOUNTING HEIGHTS

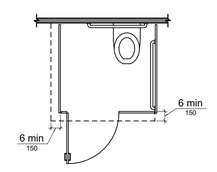


604.8.1.2 WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT DOORS

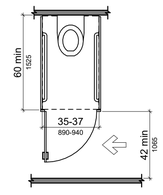


604.8.1.1 SIZE OF WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT





604.8.1.4 WHEELCHAIR ACCESSIBLE TOILET
COMPARTMENT TOE CLEARANCE



604.8.2 AMBULATORY ACCESSIBLE
TOILET COMPARTMENT

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TITLE
TYPICAL ADA DETAILS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

DAY ENGINEERING
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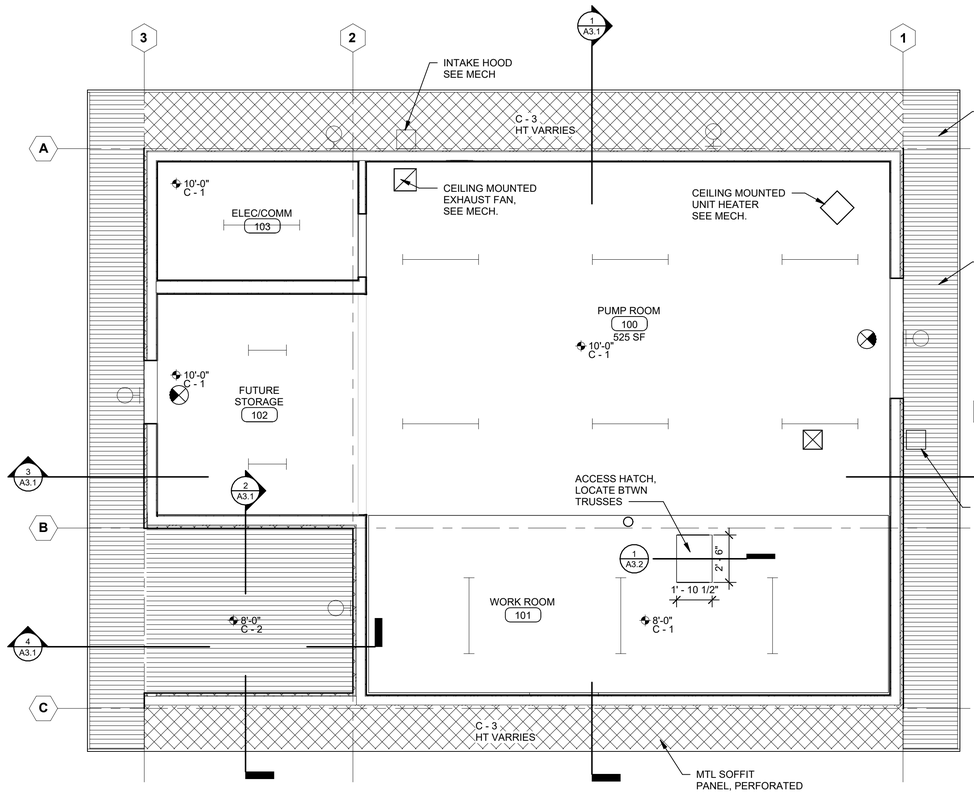
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

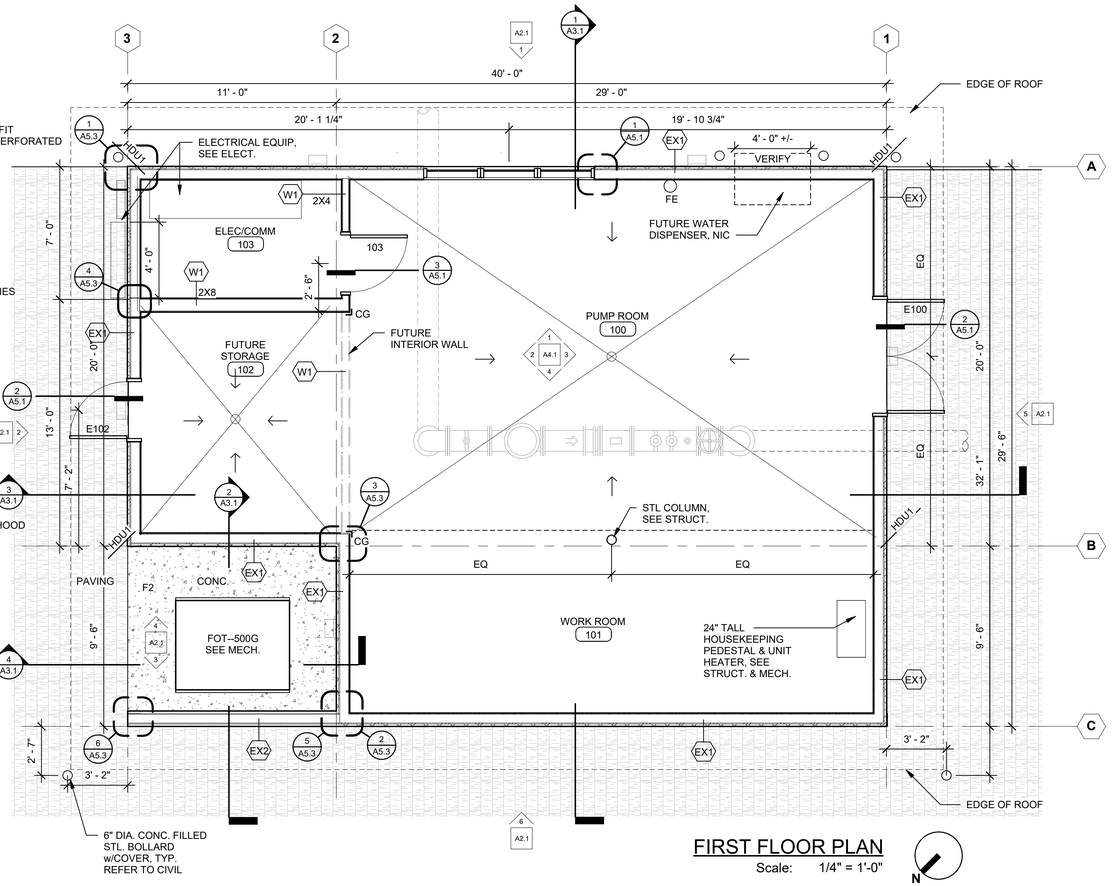
BY:
DATE: 01/16/2026
SCALE:

SHEET
G0.02



FIRST FLOOR REFLECTED CEILING PLAN

Scale: 1/4" = 1'-0"



FIRST FLOOR PLAN

Scale: 1/4" = 1'-0"

GENERAL RCP NOTES

1. SEE FINISH SCHEDULE FOR COLORS.
2. ALL GYP BD CEILINGS AND SOFFITS TO BE PAINTED.
3. EXCEPT AT ELECTRICAL UTILITY ROOMS PAINT ALL EXPOSED DUCTWORK, PIPING AND CONDUITS.
4. CEILING HEIGHT TO BE MEASURED FROM FINISH FLOOR LEVEL OF THE ROOM OR THE AREA WHERE CEILING IS IN.

RCP - CODED NOTES

C - 1 5/8" GWB
C - 2 METAL SOFFIT PANEL
C - 3 PERFORATED METAL SOFFIT PANEL

LEGEND

10'-0" C-1	CEILING HEIGHT (HEIGHTS INDICATED ARE RELATIVE TO 100'-0" FLOOR LEVEL).
	STRIPLIGHT - PENDANT OR SURFACE MTD WALL
	SURFACE MOUNTED LIGHT FIXTURES
	SUPPLY DIFFUSERS
	RETURN AIR REGISTER OR EXHAUST FAN
	EXIT LIGHT

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DRAWINGS, DIMENSIONS, SPECIFICATIONS, AND SCHEDULES PRIOR TO PROCEEDING WITH ANY WORK OF FABRICATION. NOTIFY ARCHITECT IMMEDIATELY OF ANY UNCERTAINTY OR DISCREPANCY.
2. DRAWINGS SHALL NOT BE SCALED.
3. WHERE NOTES ON THE DRAWINGS INDICATE A CONDITION AT ONE LOCATION, WHETHER INDICATED AS TYPICAL OR NOT, THE NOTE SHALL APPLY TO ALL SIMILAR LOCATIONS UNLESS NOTED OTHERWISE.
4. SEE SHEET G0.01 FOR SYMBOLS, ABBREVIATIONS, ETC.
5. SEE SHEET G0.02 FOR TYPICAL ADA DETAILS AND CLEARANCES.
6. SEE SHEET G0.02 FOR TYPICAL ACCESSORY MOUNTING HEIGHTS.
7. DIMENSIONS ARE TYPICALLY TAKEN TO GRID LINE, FACE OF STUD WALL, UNLESS NOTED OTHERWISE OR INDICATED ON DETAILS. A DIMENSION NOTING "5'-0" CLEAR" WOULD DENOTE FACE OF FINISH.
8. WALL TYPES W1 UNLESS NOTED OTHERWISE.

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TITLE: FIRST FLOOR & REFLECTED CEILING PLANS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

596

STATE OF ALASKA
49TH
1.16.26
GARY S. WOLF
A8257
REGISTERED PROFESSIONAL ARCHITECT

DAY ENGINEERING
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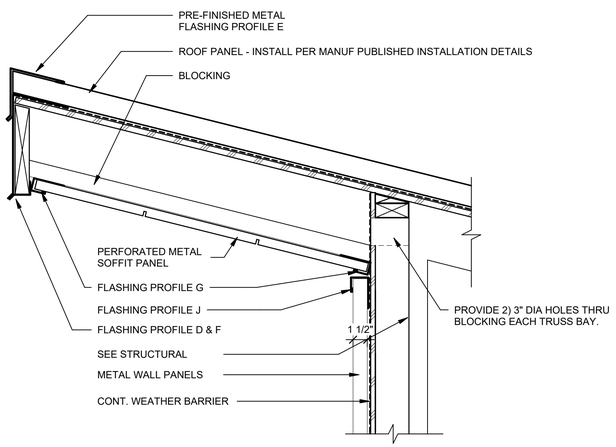
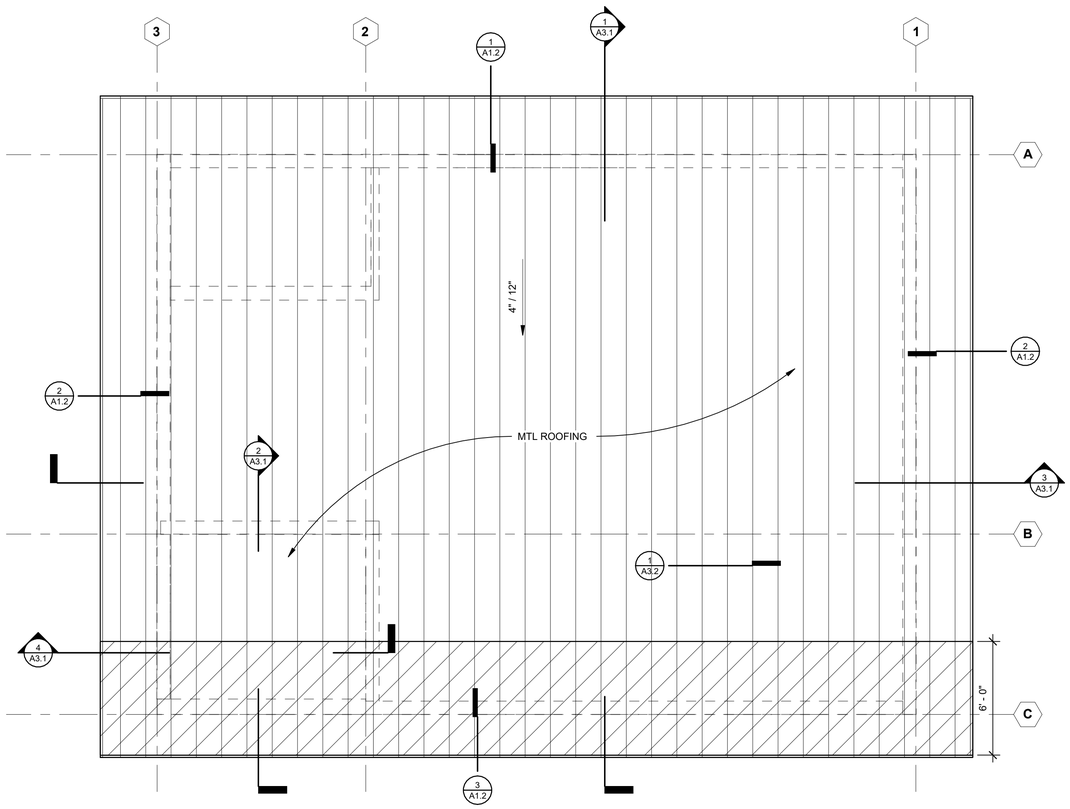
BY:
DATE: 1/16/26
SCALE:

SHEET A1.1



1 TYP - TOP OF EAVE DETAIL

Scale: 1 1/2" = 1'-0"



LEGEND

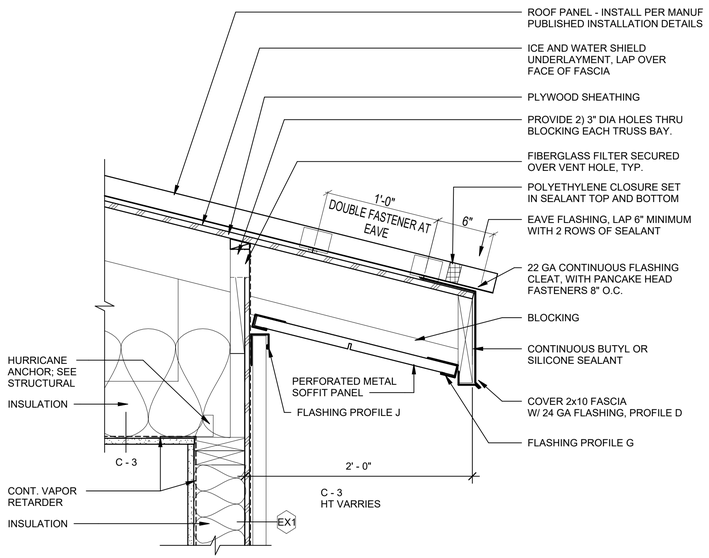
DIRECTION OF SLOPE TO DRAIN

ICE & WATER SHEILD

ROOF PLAN

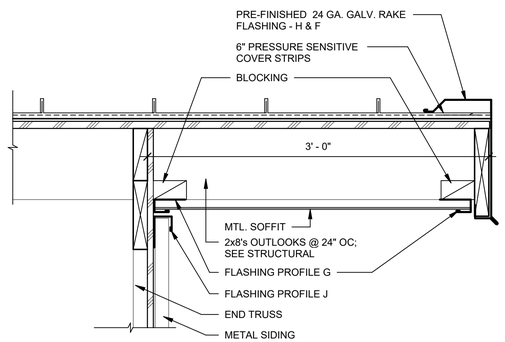
Scale: 1/4" = 1'-0"

N



3 TYP - EAVE DETAIL

Scale: 1 1/2" = 1'-0"



2 TYP - RAKE DETAIL

Scale: 1 1/2" = 1'-0"

GENERAL NOTES

1. SEE G SHEETS FOR TYPICAL ROOF CONSTRUCTION
2. VENTS, EXHAUST, & COWLS ARE MECHANICAL PENETRATION ITEMS. SEE MECHANICAL FOR LOCATIONS, TYPES, SIZES AND QUANTITY OF ALL PENETRATIONS. PENETRATIONS SHALL BE MIN 18" FROM ANY RIDGE VALLEY HIP, OR EDGE OF ROOF.
3. ALL FLASHING & ROOFING TIE-INS TO PLUMBING & HVAC PENETRATIONS ARE BY ROOFING CONTRACTOR.
4. PROVIDE MINIMUM R-38 INSUL AT ALL ROOFS OCCURRING ABOVE INTERIOR BUILDING AREA. SEE DETAILS.
5. SEE EXTERIOR ELEVATIONS FOR ADDITIONAL ROOFING DETAIL INDICATIONS.
6. SEE A5.3 FOR FLASHING DETAILS

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TITLE: ROOF PLAN & DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49TH
1.16.26
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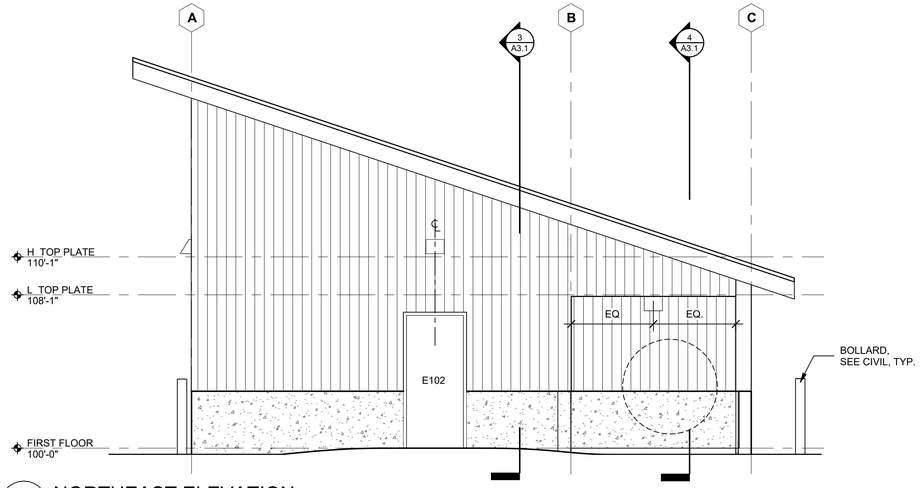
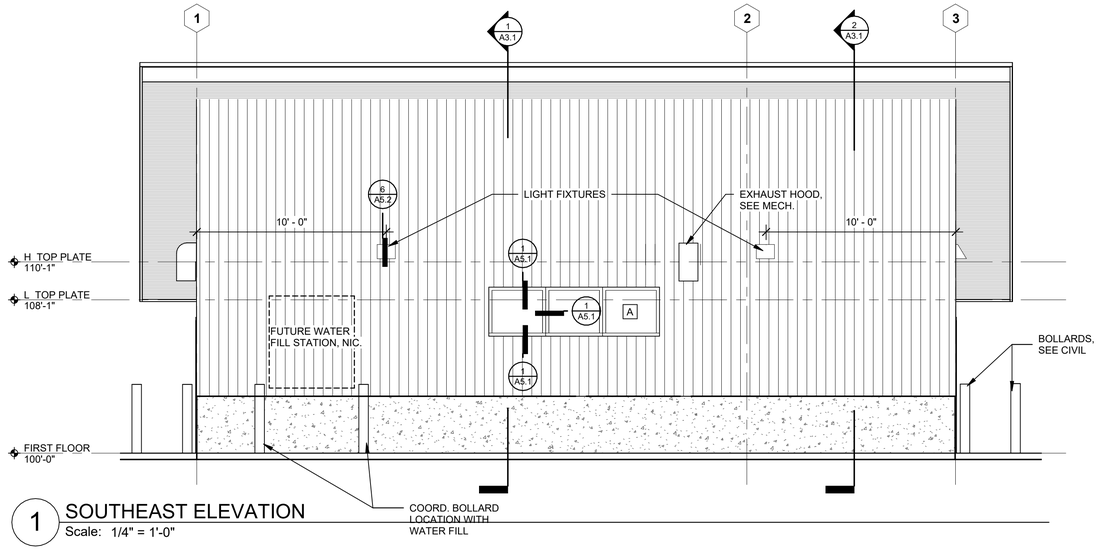
SHEET A1.2



2 NORTHEAST ELEVATION
Scale: 1/4" = 1'-0"



1 SOUTHEAST ELEVATION
Scale: 1/4" = 1'-0"

MATERIALS LEGEND

CAST-IN-PLACE CONCRETE

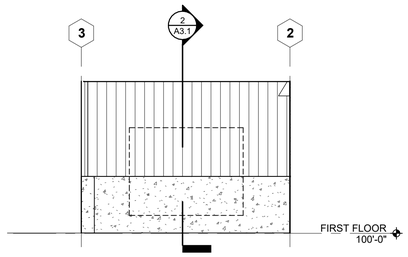
STANDING SEAM METAL ROOFING

VERTICAL METAL SIDING

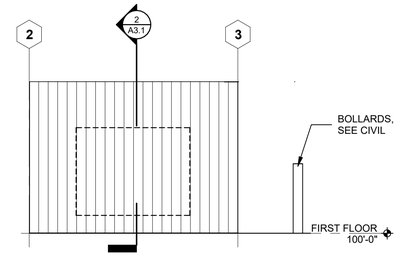
NOTE: THIS LEGEND DOES NOT INCLUDE ALL MATERIALS. SEE NOTES & REFERENCED DETAILS FOR ADDITIONAL INFORMATION.

EXTERIOR ELEVATION GENERAL NOTES

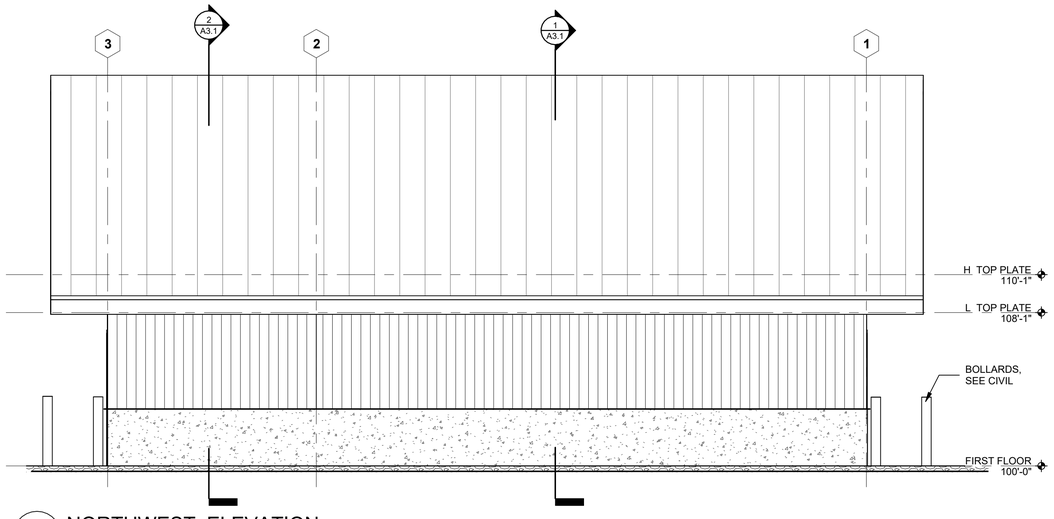
1. LOCATION AND SPACING OF WINDOW MULLIONS, MASONRY CONTROL JOINTS AND COURSE PATTERNS, ETC., ARE TO BE AS SHOWN ON EXTERIOR ELEVATIONS. WHERE NOT DIMENSIONED OR DETAILED, WINDOW MULLIONS AND MATERIAL JOINTS ARE TO BE EQUALLY SPACED AND/OR CENTERED/ALIGNED W/ ADJACENT ELEMENT (MASONRY COLUMN, EDGE OR CENTER LINE OF WINDOW OR DOOR OPENING, ETC.) AS SHOWN.
2. SEE SHEET AX.X FOR ALUMINUM LOUVER TYPES AND SEE MECH FOR COORDINATION WITH DUCTWORK.
3. REFER TO DETAILS FOR DIMENSION REFERENCE POINTS.
4. CJ'S EXTEND FULL HEIGHT OF MASONRY, TYP. WHERE "CJ" IS INDICATED AT INSIDE CORNERS THE JOINT SHALL PENETRATE THE MASONRY SURFACE ON WHICH THE LABEL OCCURS. SEE DETAILS FOR ADDITIONAL CJ LOCATIONS.
5. ALL WINDOW AND LOUVER DIMENSIONS ARE FOR ROUGH OR MASONRY OPENING, UNLESS NOTED OTHERWISE. SEE PLANS FOR ADDITIONAL DIMENSION INFORMATION.
6. 100'-0" IS THE DATUM ELEVATION AND CORRESPONDS TO THE REFERENCED FLOOR SLAB ELEVATION 1078.00'. SEE CIVIL FOR FURTHER INFORMATION.
7. EXTERIOR WALL FINISHES EXTEND FULL HEIGHT TO SOFFITS (NOT SHOWN WHERE EAVES OBSCURE VIEW). SEE BUILDING SECTIONS & DETAILS.
8. SEE REFLECTED CEILING PLANS (RCP) FOR SHEET METAL CLAD SOFFIT COLORS. SHEET METAL CLAD FINS & VERT FACE OF SOFFIT TO MATCH COLOR OF ASSOCIATED SOFFIT AS NOTED ON RCP



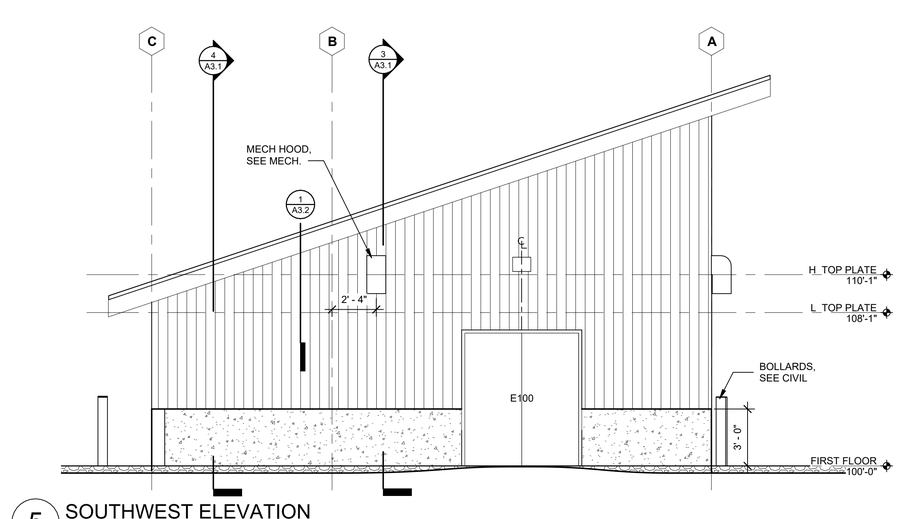
4 NW ELEVATION 2
Scale: 1/4" = 1'-0"



3 SE ELEVATION 2
Scale: 1/4" = 1'-0"



6 NORTHWEST ELEVATION
Scale: 1/4" = 1'-0"



5 SOUTHWEST ELEVATION
Scale: 1/4" = 1'-0"

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TITLE: EXTERIOR ELEVATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

598

STATE OF ALASKA 49TH
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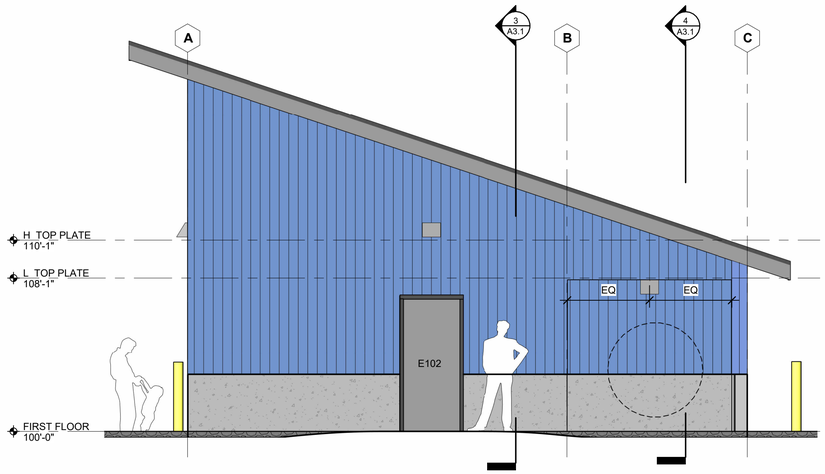
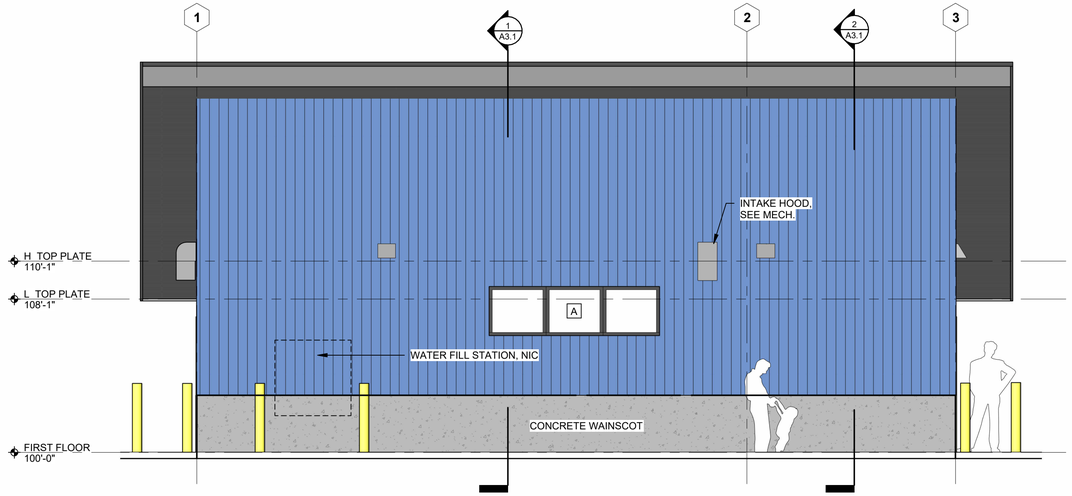
SHEET A2.1



2 NORTHEAST ELEVATION COLOR
Scale: 1/4" = 1'-0"



1 SOUTHEAST ELEVATION COLOR
Scale: 1/4" = 1'-0"

MATERIALS LEGEND

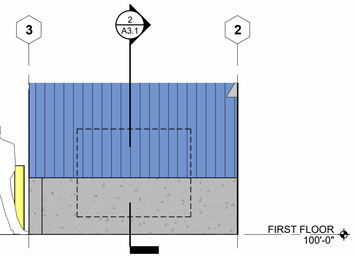
CAST-IN-PLACE CONCRETE

STANDING SEAM METAL ROOFING

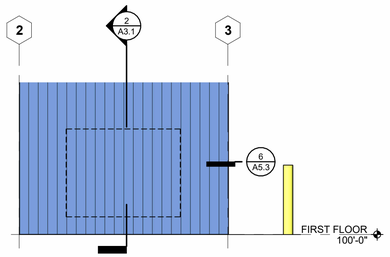
VERTICAL METAL SIDING

NOTE: COLORED ELEVATIONS ARE PROVIDED FOR MATERIAL AND FINISH REFERENCE. CONFIRM COLOR SELECTION WITH ARCHITECT AND OWNER PRIOR TO ORDERING MATERIAL.

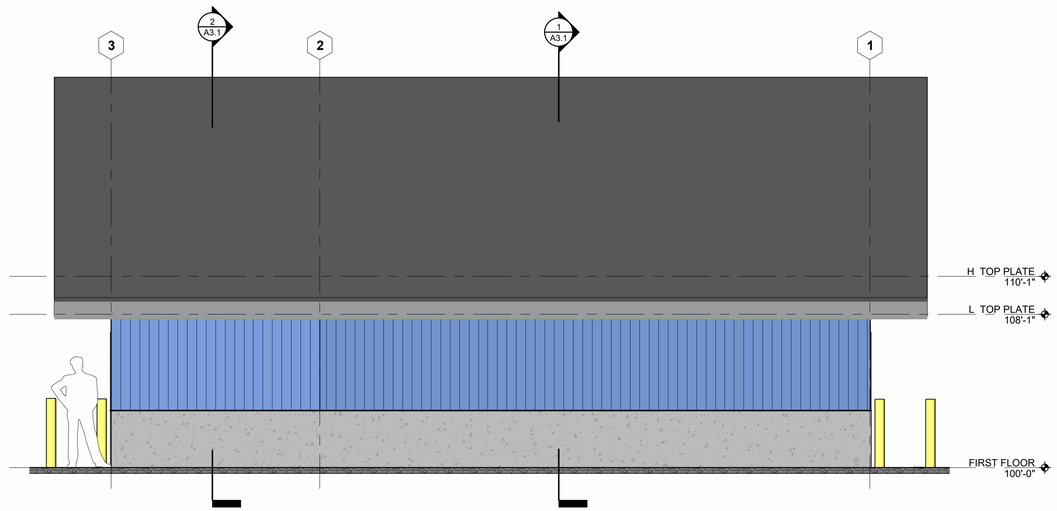
NOTE: THIS LEGEND DOES NOT INCLUDE ALL MATERIALS. SEE NOTES & REFERENCED DETAILS FOR ADDITIONAL INFORMATION.



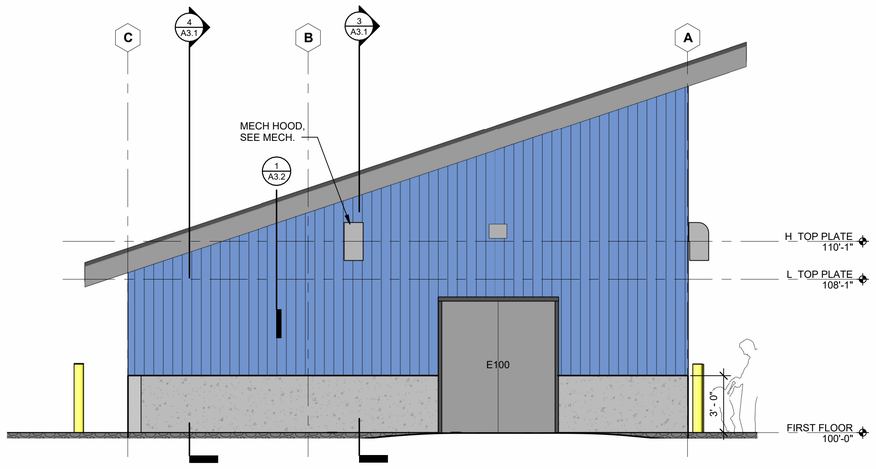
4 NW ELEVATION 2 COLOR
Scale: 1/4" = 1'-0"



3 SE ELEVATION 2 COLOR
Scale: 1/4" = 1'-0"



6 NORTHWEST ELEVATION COLOR
Scale: 1/4" = 1'-0"



5 SOUTHWEST ELEVATION COLOR
Scale: 1/4" = 1'-0"

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TITLE: ELEVATIONS - COLOR

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

599

STATE OF ALASKA 49TH
1.16.26
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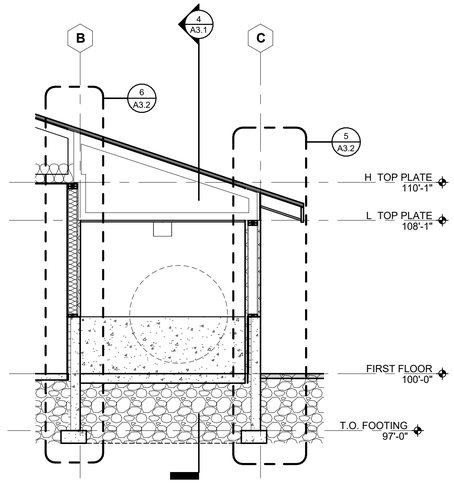
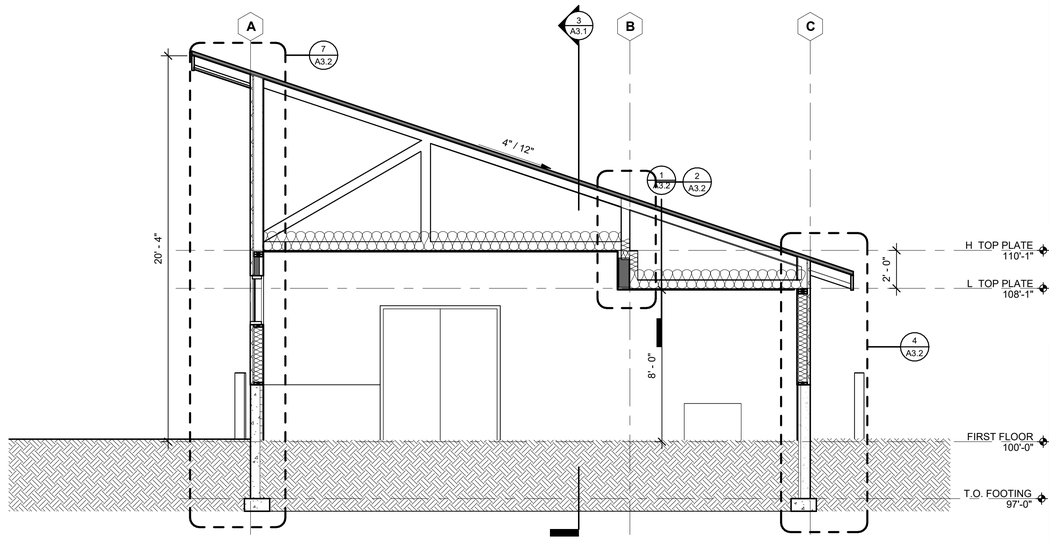
BY:
DATE: 01/16/2026
SCALE:

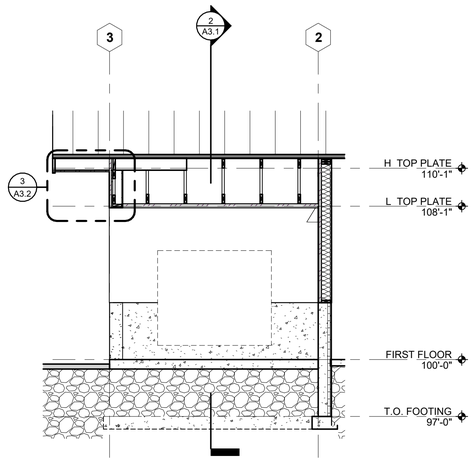
SHEET A2.2



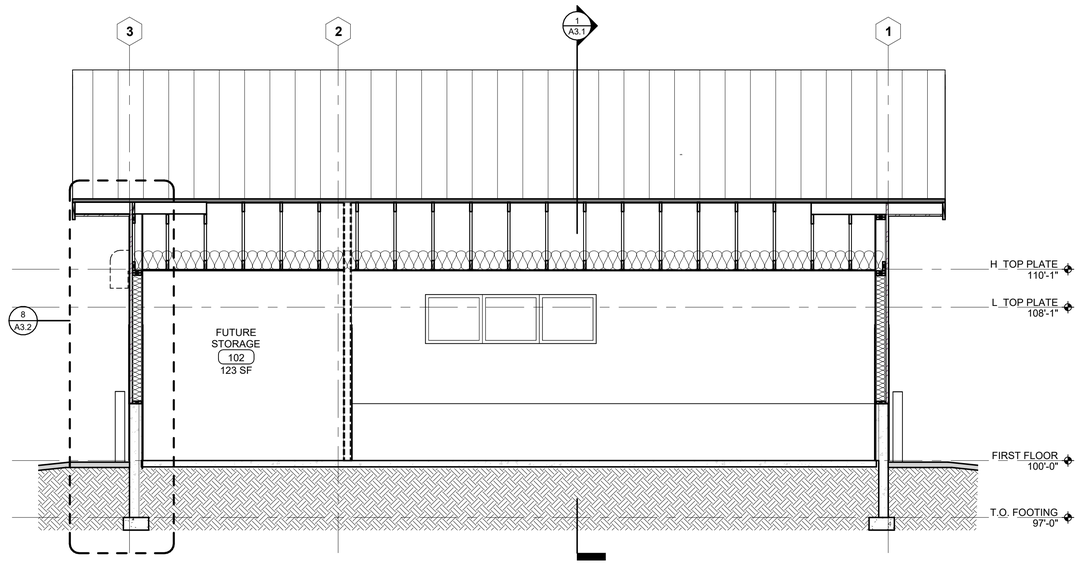
2 BUILDING SECTION 2
Scale: 1/4" = 1'-0"



1 BUILDING SECTION 1
Scale: 1/4" = 1'-0"



4 BUILDING SECTION 4
Scale: 1/4" = 1'-0"



3 BUILDING SECTION 3
Scale: 1/4" = 1'-0"

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TITLE: BUILDING SECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

600

STATE OF ALASKA
49TH
1.16.26
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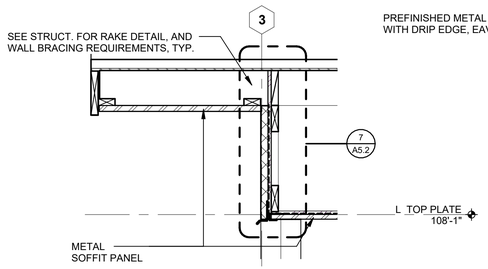
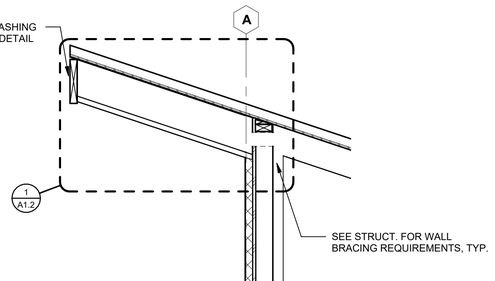
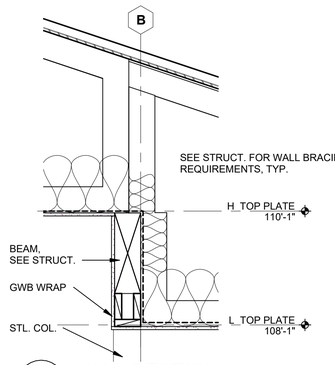
BY:
DATE: 6/30/25
SCALE:

SHEET: A3.1

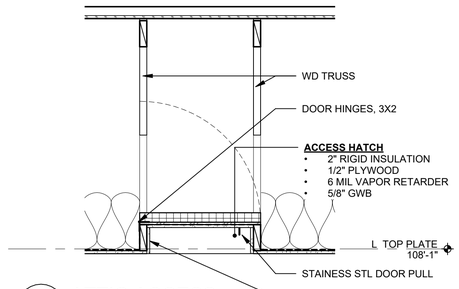


3 WALL SECTION 2
Scale: 3/4" = 1'-0"





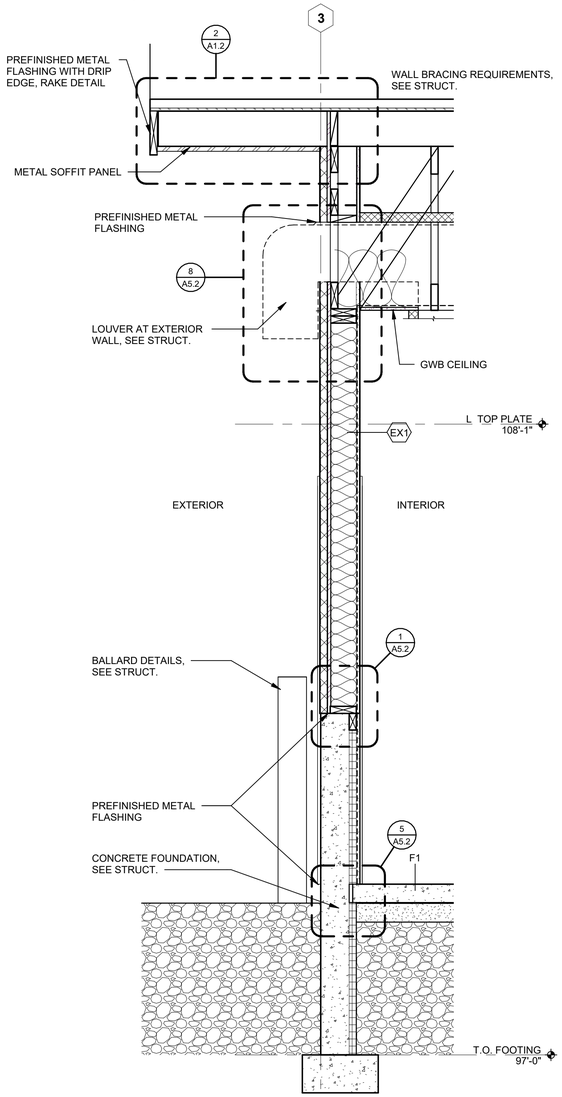
2 WALL SECTION 1
Scale: 3/4" = 1'-0"



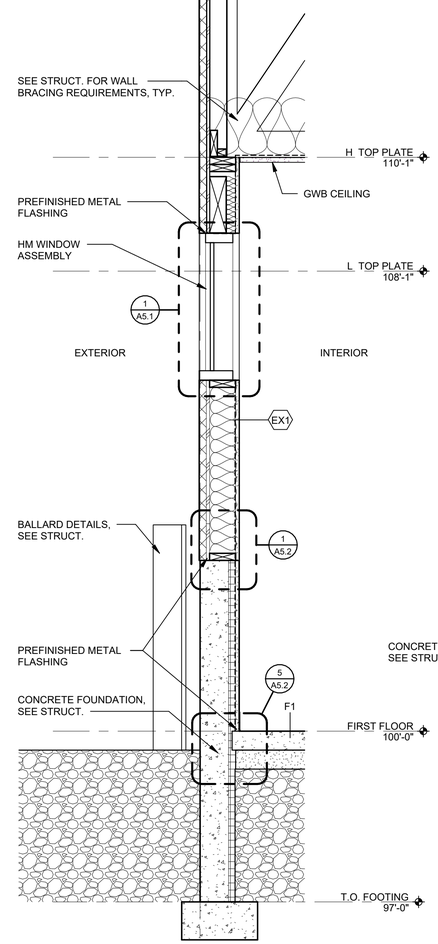
1 ATTIC ACCESS
Scale: 3/4" = 1'-0"

SHEET NOTES:

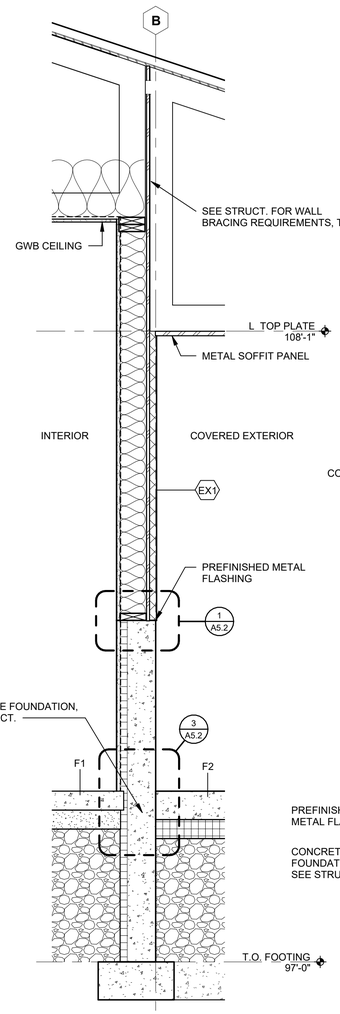
1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



8 WALL SECTION 8
Scale: 3/4" = 1'-0"



7 WALL SECTION 7
Scale: 3/4" = 1'-0"



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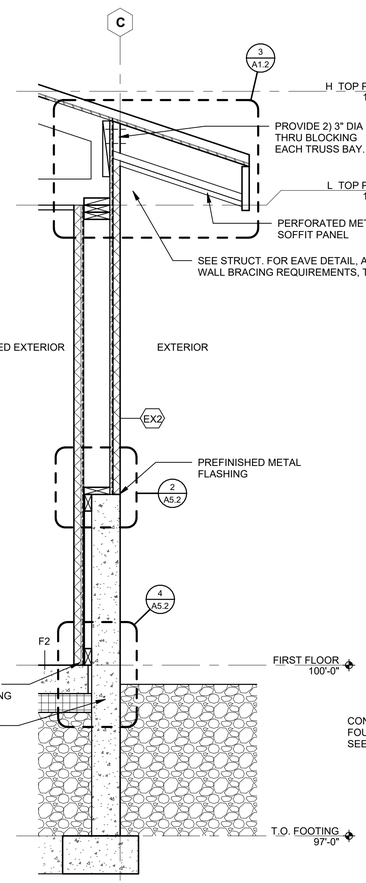

5 WALL SECTION 4
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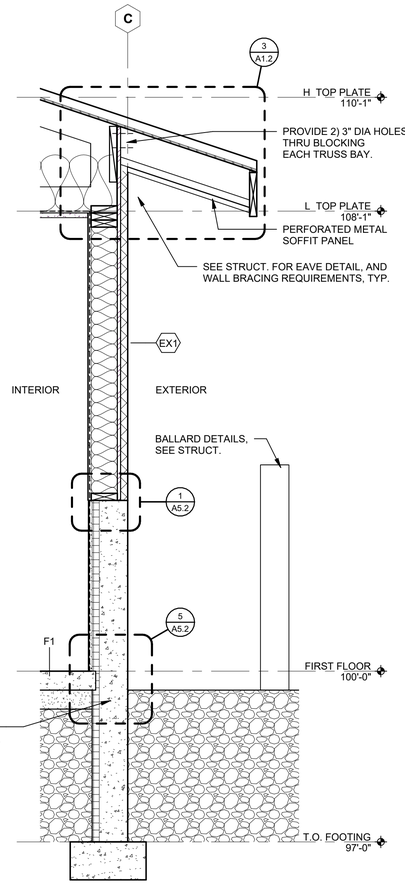

4 WALL SECTION 3
Scale: 3/4" = 1'-0"

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TITLE: WALL SECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

601

STATE OF ALASKA
49TH
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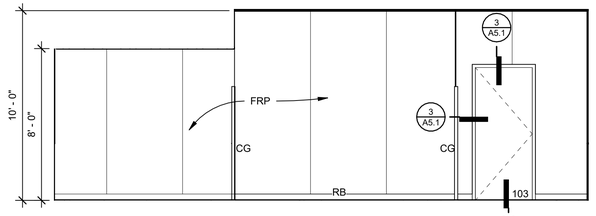
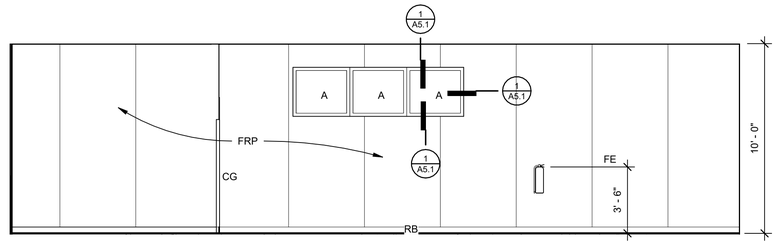
BY:
DATE: 01/16/2026
SCALE:

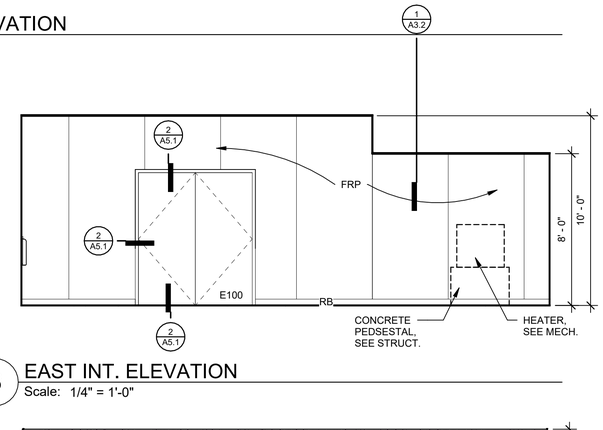
SHEET: A3.2



2 WEST INT. ELEVATION
Scale: 1/4" = 1'-0"



1 NORTH INT. ELEVATION
Scale: 1/4" = 1'-0"



3 EAST INT. ELEVATION
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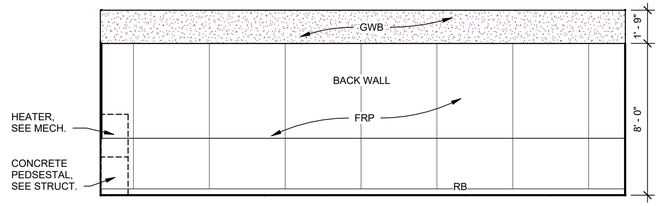

4 SOUTH INT. ELEVATION
Scale: 1/4" = 1'-0"

FINISH MATERIAL SCHEDULE

PAINT	PT-1	SHERWIN WILLIAMS	SW 7649 SILVERPLATE
	PT-2	SHERWIN WILLIAMS	SW 7660 EARL GREY
	PT-3	SHERWIN WILLIAMS	SW 7048 URBANO BRONZE
WALL BASE	RB-1	6" ROPPE	668 NIGHT HAWK
WALL COVERING	FRP	MARLITE STANDARD	LIGHT GREY

FINISH ABBREVIATIONS

AL	ALUMINUM
APC	ACOUSTICAL PANEL CEILING
AWP	ACOUSTICAL WALL PANEL
CLR	COLOR
CONC	CONCRETE
CPT	CARPET
CT	CERAMIC TILE
EM	ENTRY MAT
EP	EPOXY PAINT
EXP	EXPOSED
FF	FACTORY FINISHED
FIN	FINISH
GLZ	GLAZING
GYP	GYPSUM BOARD
LN	LINOLEUM
MATL	MATERIAL
MCSP PANEL	MINERAL COMPOSITE SCULPTURAL
MTL	METAL
PT	PAINT
RAF	RESILIENT ATHLETIC FLOORING
RB	RUBBER BASE
RFT	RESILIENT FLOORING TILE
RSS	RUBBER STAIR STRINGER
SC	SEALED CONCRETE
SLR	SEALER
STL	STEEL
SWC	SANITARY WALL COVERING
SV	SHEET VINYL
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VRB	VENTILATING RUBBER BASE
VWC	VINYL WALL COVERING
WP	WALL PADS

ROOM FINISH SCHEDULE

ROOM NUMBER	NAME	CEILING	FLOOR MAT	BASE CLR	NORTH WALL FIN	EAST WALL FIN	SOUTH WALL FIN	WEST WALL FIN	NOTES
100	PUMP ROOM	GWB	SC	RB	FRP	FRP	FRP	FRP	
101	WORK ROOM	GWB	SC	RB	FRP	FRP	FRP	FRP	
102	FUTURE STORAGE	GWB	SC	RB	FRP	FRP	FRP	FRP	
103	ELEC/COMM	GWB	SC	RB	FRP	FRP	FRP	FRP	

INTERIOR FINISH GENERAL NOTES

1. AN ASTERISK (*) IN THE FINISH SCHEDULE REFERENCES CODED NOTES IN THE REMARKS COLUMN.
2. PAINT ALL INTERIOR MECHANICAL LOUVERS AND EQUIPMENT TO MATCH ADJACENT SURFACE, UNLESS NOTED OTHERWISE.
3. PAINT ALL DOORS PAINT COLOR PT-3
4. PAINT ALL DOOR & RELITE FRAMES PAINT COLOR PT-2 UNLESS NOTED OTHERWISE.
5. ALL GYP BD CEILINGS TO BE PAINT PT-1, UNO.
6. FOR ALL PRODUCTS, FOLLOW MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
7. ELEVATED CONCRETE PEDESTAL TO BE SEALED CONCRETE.

REVISION	BY	DATE	REV	APPRVL

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TITLE: INTERIOR ELEVATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

602

STATE OF ALASKA
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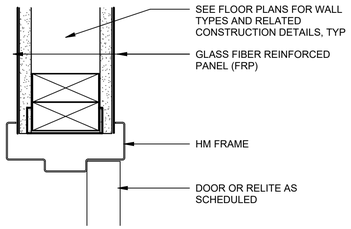
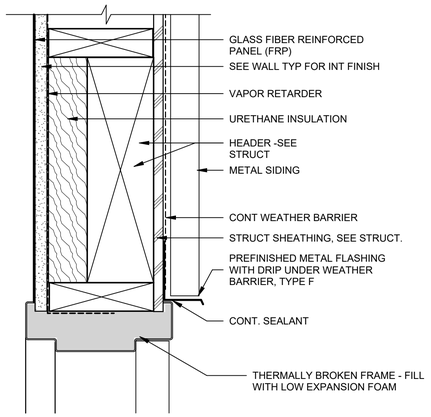
DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-1743

BY:
DATE: 01/16/2026
SCALE:

SHEET A4.1



HEAD DETAIL



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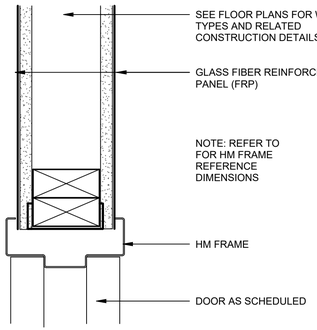
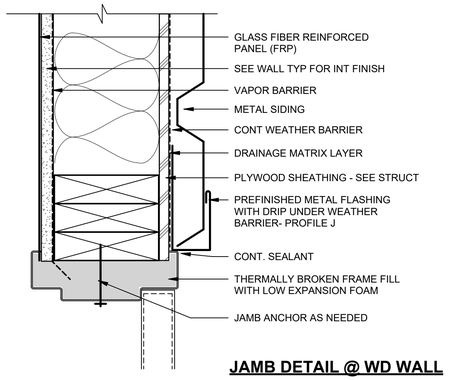
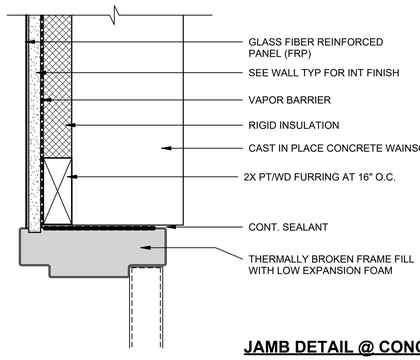


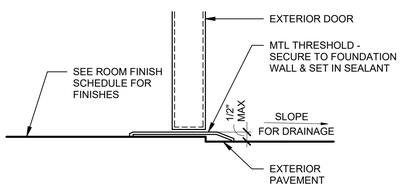
JAMB DETAIL



JAMB DETAIL @ WD WALL



JAMB DETAIL @ CONC. WAINSCOT



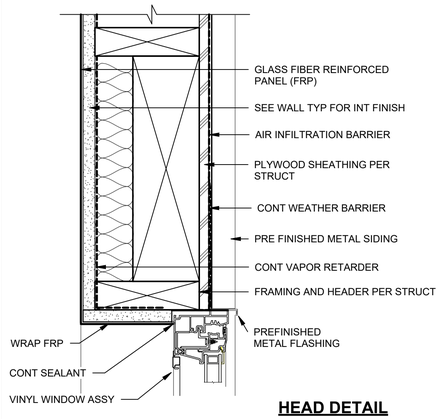
SILL DETAIL

3 INTERIOR DOOR - HM HJS TYP.
Scale: 3" = 1'-0"

2 EXTERIOR DOOR - HM HJS TYP
Scale: 3" = 1'-0"

SHEET NOTES:

1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



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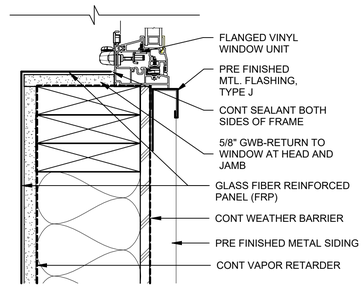

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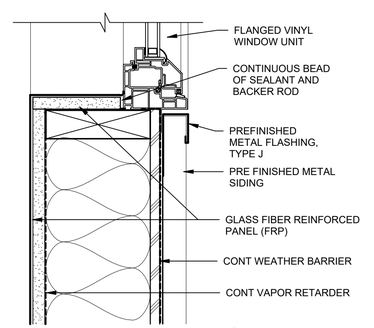

SILL DETAIL

1 EXTERIOR WINDOW - VINYL MTL HJS
Scale: 3" = 1'-0"

REVISION	BY	DATE	APPRVL REV

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TITLE: WINDOW & DOOR DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

603

STATE OF ALASKA 49TH
1.16.26
GARY S. WOLF
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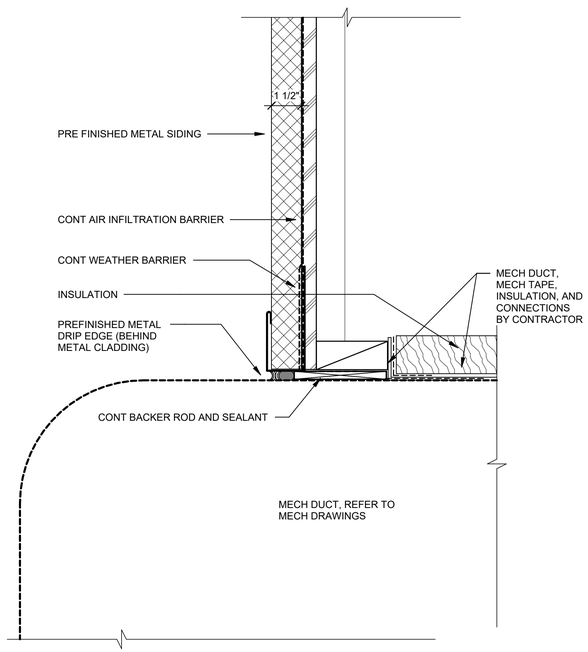
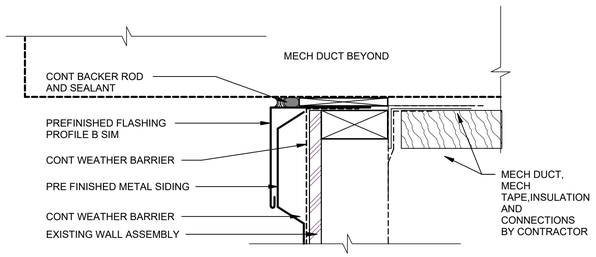
BY:
DATE: 01/16/2026
SCALE:

SHEET: A5.1



HEAD DETAIL



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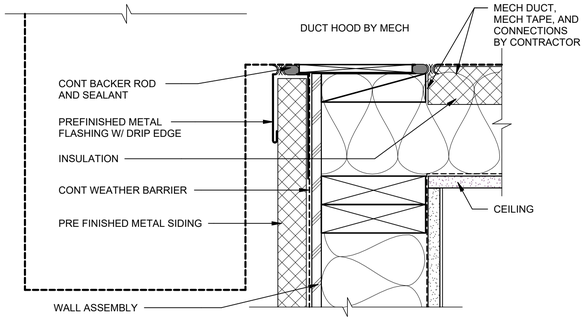
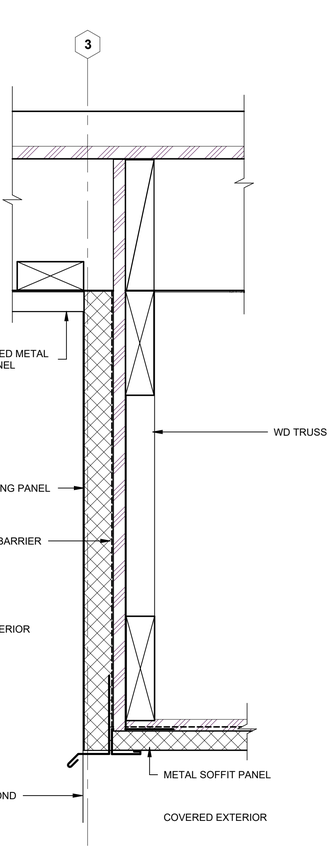


SILL DETAIL

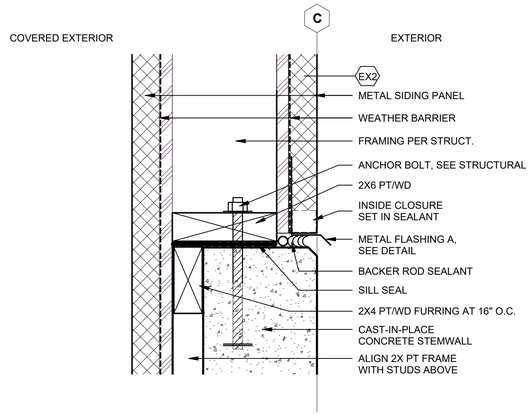
8 LOUVER AT EXTERIOR WALL
Scale: 3" = 1'-0"

SHEET NOTES:

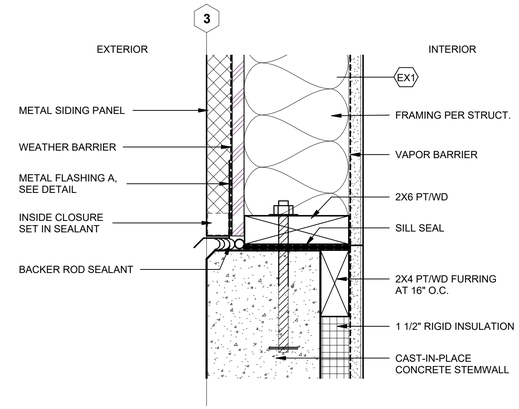
1. SEE SHEET G1.1 FOR WALL CONSTRUCTION
2. SEE A5.3 FOR FLASHING DETAILS



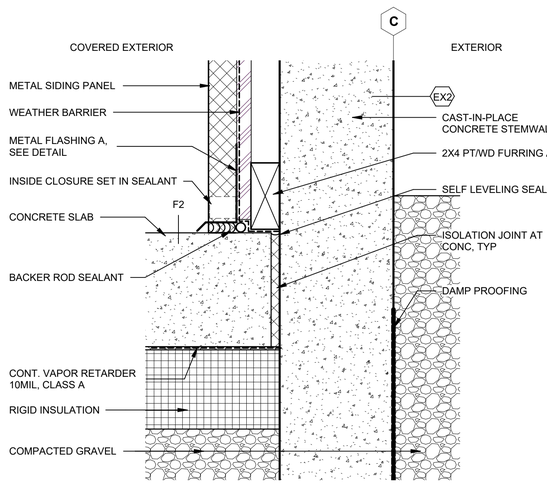
7 WALL DETAIL 7 - RAKE
Scale: 3" = 1'-0"



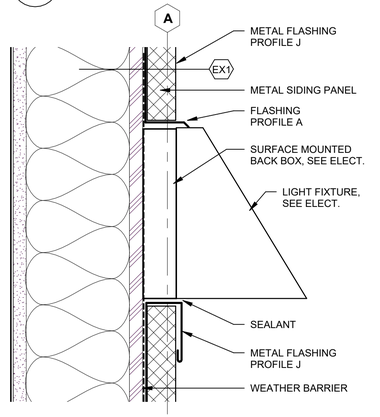
2 EXT. WALL - UPPER
Scale: 3" = 1'-0"



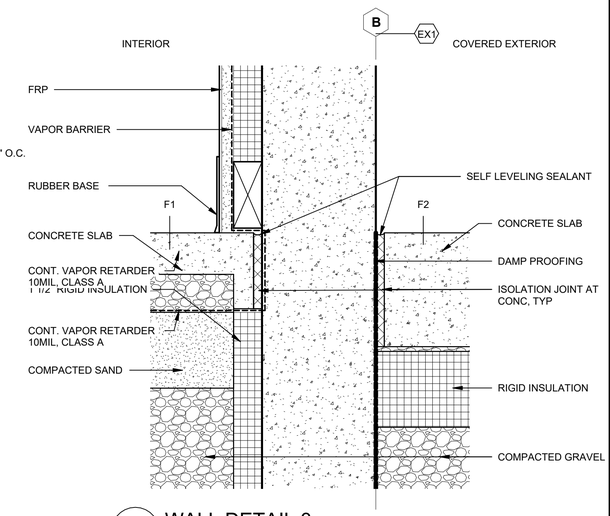
1 WALL DETAIL 1
Scale: 3" = 1'-0"



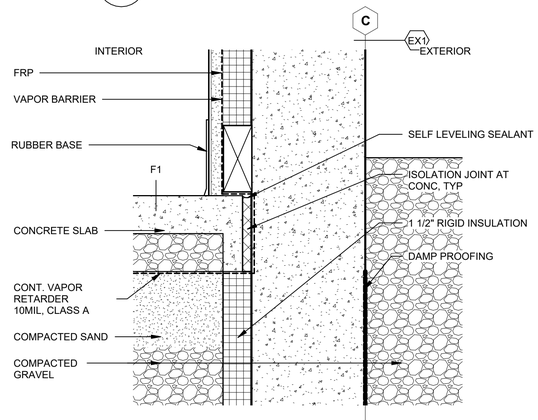
4 EXT. WALL - BASE
Scale: 3" = 1'-0"



6 LIGHT FIXTURE DETAIL, TYP.
Scale: 3" = 1'-0"



3 WALL DETAIL 3
Scale: 3" = 1'-0"



5 WALL DETAIL 5
Scale: 3" = 1'-0"

REVISION	BY	DATE	APPRVL REV

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TITLE: WALL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

604

STATE OF ALASKA
49TH
1.16.26
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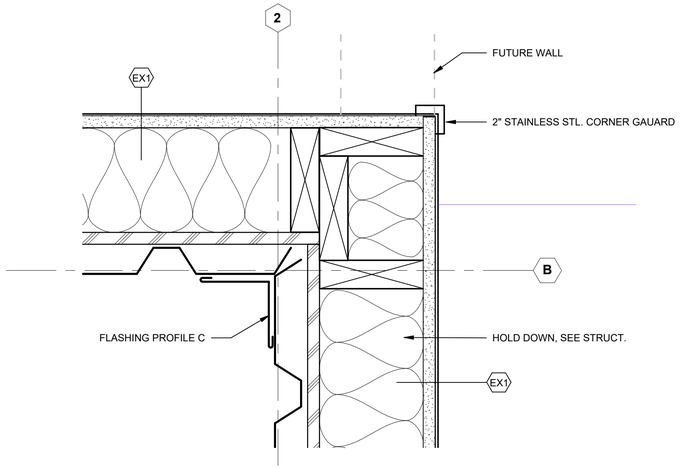
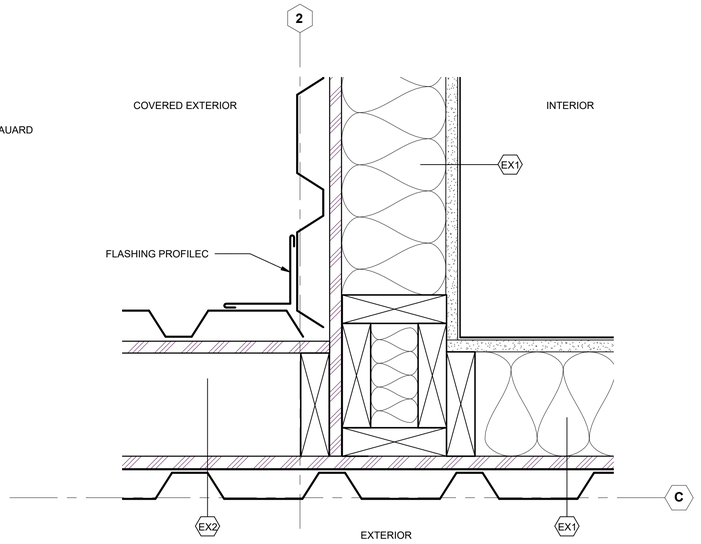
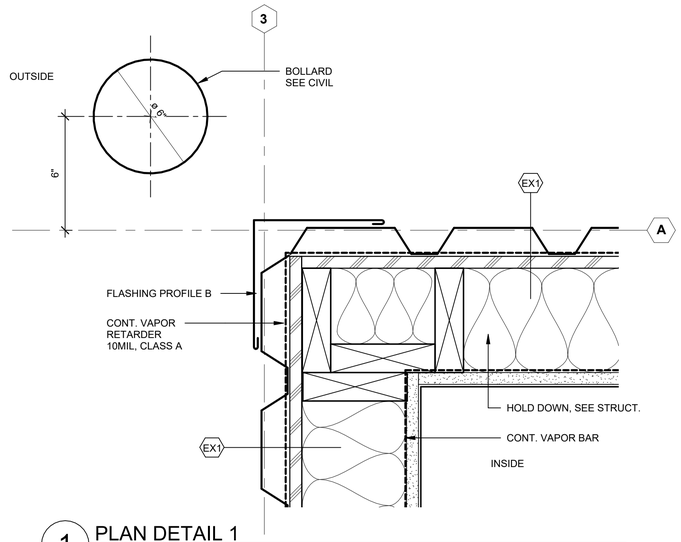
SHEET: A5.2
BY:
DATE: 01/16/2026
SCALE:



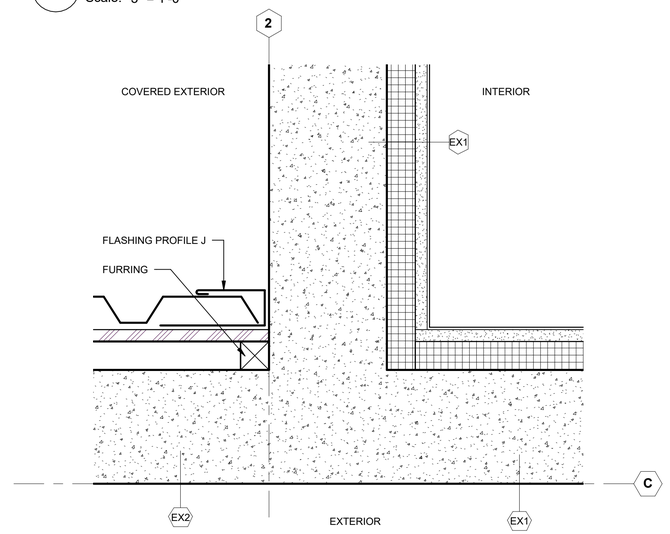
3 PLAN DETAIL 5
Scale: 3" = 1'-0"



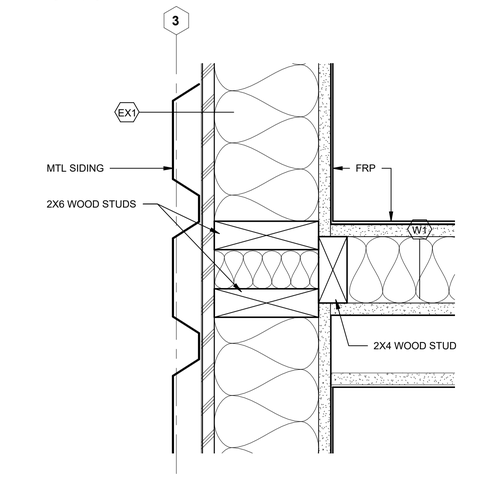
2 PLAN DETAIL 6 UPPER
Scale: 3" = 1'-0"



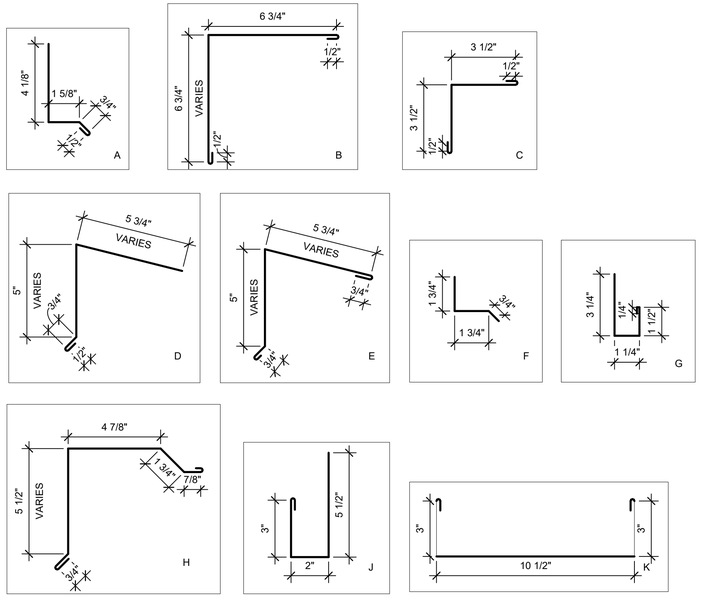
1 PLAN DETAIL 1
Scale: 3" = 1'-0"



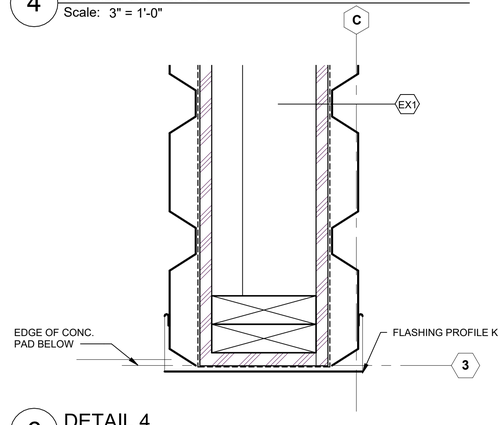
5 PLAN DETAIL 3 LOWER
Scale: 3" = 1'-0"



4 PLAN DETAIL 2
Scale: 3" = 1'-0"



8 FLASHING PROFILES
Scale: 3" = 1'-0"



6 DETAIL 4
Scale: 3" = 1'-0"

APPRVL	REV	DATE	BY	REVISION

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TITLE: PLAN DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

605

STATE OF ALASKA
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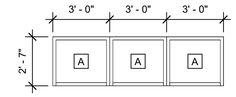
BY:
DATE: 01/16/2026
SCALE:

SHEET A5.3



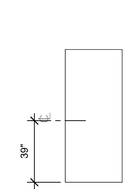
WINDOW TYPE

VINYL WINDOW NOTES:

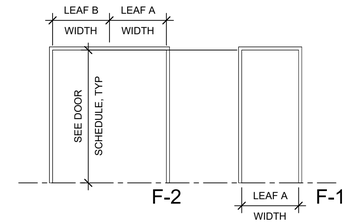
1. BASIS OF DESIGN - JELDWEN, PREMIUM, LOW-E 366, ARGON
   U-VALUE - 0.27 OR LOWER
   SHGC - 0.24 OR LOWER
   VT - 0.55 OR HIGHER
   FINISH - DK BRONZE
2. GLASS TYPE - CARDINAL 366 OR EQUAL

MAN DOOR SCHEDULE

DOOR NO	TO ROOM	PR	DOOR LEAF A	DOOR LEAF B	DOO R HT	DOOR			FRAME			HARDWARE GROUP	REMARKS / CODED NOTES
						TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
103	ELEC/COMM		3'-0"	0"	7'-0"	A	STL	PT	F-1	STL	PT	01	
E100	PUMP ROOM	PR	3'-0"	3'-0"	7'-0"	A	STL	PT	F-2	STL	PT	03	INSULATED/THERMALLY BROKEN
E102	FUTURE STORAGE		3'-0"	0"	7'-0"	A	STL	PT	F-1	STL	PT	02	INSULATED/THERMALLY BROKEN



DOOR - TYPES



FRAME TYPES - DOOR

DOOR ABBREVIATIONS

AL	ALUMINUM
BOF	BOTTOM OF FRAME
FF	FACTORY FINISH
GL	GLASS
H	HINGE (JAMB)
HR	HOUR
MFR	MANUFACTURER
PL	PLASTIC LAMINATE
PR	PAIR OF DOORS
PT	PAINT
S	STRIKE (JAMB)
SST	STAINLESS STEEL
STL	STEEL
STN	STAIN & VARNISH
TOF	TOP OF FRAME
WD	WOOD

GENERAL DOOR & RELITE NOTES

1. ALL DOORS TO BE 1 3/4" THICK, UNLESS NOTED OTHERWISE
2. SEE SHEET A5.1 FOR INTERIOR STEEL FRAME DOOR AND RELITE DETAILS
3. LABEL COLUMN NUMBERS INDICATES THE RATING IN MINUTES, UNLESS NOTED OTHERWISE
4. GLAZING DIMENSIONS FOR DOOR TYPES ARE TO INSIDE OF FRAME (CLEAR GLAZING AREA). ACTUAL CUTOUT AND TOTAL FRAME WILL BE SLIGHTLY LARGER
5. RELITE GLAZING AND STOP TO OCCUR ON CORRIDOR SIDE OF FRAME, UNLESS NOTED OTHERWISE
6. ALL DOOR HANDLES TO BE LEVER TYPE COMPLYING WITH ADA
7. DOORS AND FRAMES ARE TO BE PAINTED

REVISION	BY	DATE	APPRVL REV

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TITLE: SCHEDULES

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

606

STATE OF ALASKA
49TH
1.16.26
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BY:
DATE: 1/16/26
SCALE:

SHEET A6.1

ABBREVIATIONS

AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
APA	AMERICAN PLYWOOD ASSOCIATION
ARCH	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLKG	BLOCKING
BM	BEAM
BNDRY	BOUNDARY
BOC	BOTTOM OF CONCRETE
BOD	BOTTOM OF DECK
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BTWN	BETWEEN
CIP	CAST IN PLACE (CONCRETE)
CJP	COMPLETE JOINT PENETRATION
CLR	CLEAR
COL	COLUMN
CONN	CONNECTION
CONT	CONTINUOUS
CVN	CHARPY V NOTCH
DIAM	DIAMETER
DWGS	DRAWINGS
(E)	EXISTING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
EOR	ENGINEER OF RECORD
EW	EACH WAY
EQ	EQUAL
F'C	CONCRETE COMPRESSIVE STRENGTH
F'M	MASONRY COMPRESSIVE STRENGTH
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FT	FEET
FTG	FOOTING
GA	GAGE OR GAUGE
GALV	GALVANIZED
GLB	GLUE-LAMINATED BEAM
HORIZ	HORIZONTAL
HS	HEADED STUD
HSH	HORIZONTAL SLOTTED HOLE
HSS	HOLLOW STRUCTURAL SECTION
LVL	LAMINATED VENEER LUMBER
MAX	MAXIMUM
MECH	MECHANICAL
MF	MOMENT FRAME
MIN	MINIMUM
MT	MAGNETIC PARTICLE STRIP
NA	NOT APPLICABLE
NFS	NON FROST SUSCEPTIBLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OWSJ	OPEN WEB STEEL JOIST
PDF	POWER DRIVEN FASTENER
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REQ'D	REQUIRED
REINF	REINFORCING
RT	RADIOGRAPHIC TEST
SDI	STEEL DECK INSTITUTE
SJI	STEEL JOIST INSTITUTE
SQ	SQUARE
STD	STANDARD
TBD	TO BE DETERMINED
TEMP	TEMPERATURE
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TS	TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC
VERT	VERTICAL
W	WIDE FLANGE DESIGNATION
WF	WIDE FLANGE
WP	WORK POINT
WWF	WELDED WIRE FABRIC
W/	WITH

SCHEDULE OF CONSTRUCTION MATERIALS

CONCRETE	LOCATION	28-DAY STRENGTH	MAX. W/C RATIO	AIR ENTRAINMENT
	EXTERIOR CONCRETE (EXPOSED TO FREEZING)	4,500 P.S.I.	0.45	6% +/- 1%
	INTERIOR SLABS (NOT EXPOSED TO FREEZING)	4,000 P.S.I.	0.45	3%
	FOOTINGS, FOUNDATION WALLS	3,000 P.S.I.	0.50	5% +/- 1%
	NOTE: CONCRETE DESIGN PERFORMED USING 3000 P.S.I.			

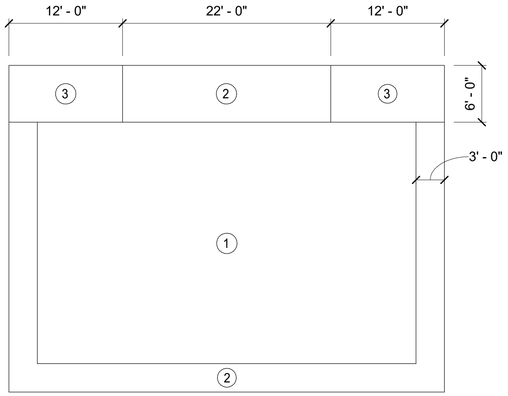
REINFORCING	APPLICATION	TYPE	COMMENTS
	FABRICATED AND STRAIGHT BARS	ASTM A615, GRADE 60	SEE LAP SPLICE SCHEDULE FOR LAP LENGTHS
	FIELD BENT	ASTM A615, GRADE 40	

STRUCTURAL STEEL	APPLICATION	TYPE	GRADE	Fy
	ANCHOR RODS	ASTM F1554	GRADE 36	
	HSS COLUMNS	ASTM A500	GRADE C	46 KSI ROUND
	PLATES	ASTM A572	GRADE 50	50 KSI

WOOD	APPLICATION		SPECIES	GRADE	COMMENTS
	DIMENSION LUMBER	STRUCTURAL WALL STUDS	HEM-FIR	NO. 2	
		PLATES AND LEDGERS	HEM-FIR	NO. 2	
		SAWN BEAMS	DOUG. FIR-LARCH	NO. 1	
		POSTS	DOUG. FIR-LARCH	NO. 1	
		BLOCKING, MISC FRAMING	HEM-FIR	STD & BETTER	

WOOD PANEL SHEATHING	APPLICATION	GRADE	MIN. THICK.	SPAN RATING	EXPOSURE
	ROOF	APA RATED	3/4"	48/24	EXPOSURE 1
	SHEAR WALLS	APA RATED	15/32"	32/16	EXPOSURE 1

ROOF DECK WIND UPLIFT ZONE DIAGRAM



STRUCTURAL DESIGN CRITERIA SCHEDULE

CRITERIA	DESCRIPTION	VALUE	COMMENTS
CODE	IBC 2021		
SEISMIC	ANALYSIS PROCEDURE	ELF	PER ASCE 7-16
	SEISMIC DESIGN CATEGORY	E	
	RISK CATEGORY	II	
	SEISMIC IMPORTANCE FACTOR, IE	1.0	
	SITE CLASS	D-	
	0.2S SPECTRAL RESPONSE ACCELERATION, Ss	1.50	
	1.0S SPECTRAL RESPONSE ACCELERATION, S1	0.77	
	0.2S SPECTRAL RESPONSE COEFFICIENT, Sds	1.20	
	1.0S SPECTRAL RESPONSE COEFFICIENT, Sd1	0.87	
	STRUCTURAL SYSTEM		LIGHT FRAME WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS
	RELIABILITY/REDUNDANCY	1	
	RESPONSE MODIFICATION FACTOR, R	6.5	
	OMEGA	3	
	Cs (STRENGTH DESIGN)	0.185	
	V (STRENGTH DESIGN)	11.7 KIPS	
WIND	BASIC WIND SPEED (3 SECOND GUST)	133 MPH	PER ASCE 7-16 BASIC WIND SPEED MAP
	RISK CATEGORY	II	
	EXPOSURE FACTOR	C	
	INTERNAL PRESSURE COEFFICIENT, GCpi	±0.18	ENCLOSED BUILDING
COMP. & CLADDING PRESSURES		10 Ft^2 / 100 Ft^2	WIND VALUES SHOWN ARE ULTIMATE LOADS MULTIPLY BY 0.6 FOR ALLOWABLE LOADS
	ROOF INTERIOR - ZONE ①	48.4 PSF 41.9 PSF	VALUES MAY BE NEGATIVE OR POSITIVE
	ROOF PERIMETER - ZONE ②	51.2 PSF 45.1 PSF	VALUES MAY BE INTERPOLATED BETWEEN 10 SQFT AND 100 SQFT
	ROOF CORNER - ZONE ③	100.7 PSF 71.3 PSF	ZONE 5 EXISTS FOR WALLS WITHIN 3 FT OF WALL CORNERS
	WALL INTERIOR - ZONE ④	41.8 PSF 36.1 PSF	
	WALL CORNER - ZONE ⑤	51.6 PSF 40.1 PSF	
ROOF LIVE LOADS	GROUND SNOW LOAD	160 PSF	
	SNOW LOAD EXPOSURE FACTOR	1.0	
	THERMAL FACTOR Ct	1.0	
	SNOW IMPORTANCE FACTOR	1.0	
	FLAT ROOF SNOW LOAD	135 PSF	
	SNOW DRIFT LOADS	PER ASCE 7-16	
FLOOR LIVE LOADS	1ST LEVEL SLAB ON GRADE	100 PSF	
FOUNDATIONS	ALLOWABLE SOIL BEARING PRESSURE	3000 PSF	PRESUMPTIVE BEARING PRESSURE PER IBC TABLE 1806.2

DEFERRED SUBMITTALS

DEFERRED SUBMITTAL ITEMS SHALL BE REVIEWED BY THE EOR AND THEN SUBMITTED TO THE BUILDING OFFICIAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CALCULATION AND DRAWINGS STAMPED BY AN ALASKA REGISTERED PROFESSIONAL ENGINEER FOR THE FOLLOWING CONTRACTOR DESIGNED ITEMS:

- PREMANUFACTURED WOOD TRUSSES
- SEISMIC RESTRAINT OF ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS

AS-BUILT DRAWINGS
CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS ON SITE, MODIFIED TO REFLECT ALL DESIGN CHANGES TO THE ORIGINAL DRAWING SET.

REVISION	BY	DATE	APPRVL REV

PND ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: DESIGN CRITERIA

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET: S1.1

STATEMENT OF SPECIAL INSPECTIONS

THE FOLLOWING SPECIAL INSPECTIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL EMPLOYED BY THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT.

SPECIAL INSPECTOR QUALIFICATIONS:
THE SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THEIR COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING.

INSPECTION TASKS:
INSPECTION TASKS ARE LISTED IN THE ATTACHED TABLES AND IN THE 2021 EDITION OF THE IBC CHAPTER 17.

REPORT REQUIREMENTS:
REPORTS SHALL BE COMPLETED ON A DAILY BASIS AND DISTRIBUTED ON A WEEKLY BASIS. COPIES OF REPORTS SHALL BE DISTRIBUTED TO THE GENERAL CONTRACTOR, THE ENGINEER OF RECORD AND THE ARCHITECT OF RECORD. REPORTS SHALL INDICATE WHETHER THE WORK WAS OR WAS NOT COMPLETED IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR. IF THEY ARE NOT CORRECTED, DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.
A FINAL REPORT DOCUMENTING THE SPECIAL INSPECTIONS PERFORMED AND THE CORRECTION OF ANY DISCREPANCIES SHALL BE DISTRIBUTED AS NOTED ABOVE.

REQUIRED INSPECTION OF SOILS

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	PERIODIC	
2	VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	PERIODIC	
3	PERFORM CLASSIFICATION AND TESTING OF FILL MATERIALS.	PERIODIC	
4	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS	
5	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.	PERIODIC	

SPECIAL INSPECTION FOR WIND RESISTANCE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	STRUCTURAL WOOD: FIELD GLUING OF ELEMENTS PART OF THE MAIN WINDFORCE-RESISTING SYSTEM NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WIND FORCE RESISTING SYSTEM INCLUDING: WOOD SHEAR WALLS, DRAG STRUTS, HOLDOWNS AND DIAPHRAGMS.	CONTINUOUS PERIODIC	
2	ARCHITECTURAL COMPONENTS: ROOF AND WALL CLADDING.	PERIODIC	

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REFERENCE FOR CRITERIA	
			REF. STANDARD	IBC REFERENCE
1	INSPECTION OF REINFORCING STEEL AND PLACEMENT	PERIODIC	ACI 318: CH 20, 25.2, 25.3 26.6.1-26.6.3	
2	REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 b. INSPECT SINGLE-PASS FILLET WELDS MAXIMUM 5/16" b. INSPECT ALL OTHER WELDS	 PERIODIC PERIODIC CONTINUOUS	AWS D1.4 ACI 318: 26.6.4	
3	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	PERIODIC	ACI 318: 17.8.2	
4	INSPECTION OF ANCHORS POST INSTALLED IN HARDENED CONCRETE MEMBERS a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4. a.	 CONTINUOUS PERIODIC	 ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5	VERIFY USE OF REQUIRED MIX DESIGN	PERIODIC	ACI 318: CH 19, 26.4.3, 26.4.4	1904.1, 1904.2
6	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	CONTINUOUS	ASTM C172 ASTM C31 ACI 318: 26.5, 26.15	
7	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	ACI 318: 26.5	
8	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TECHNIQUES	PERIODIC	ACI 318: 26.5.3-26.5.5	
9	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	PERIODIC	ACI 318: 26.11.1.2(b)	

SPECIAL INSPECTION FOR SEISMIC RESISTANCE

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	REMARKS
1	STRUCTURAL WOOD: FIELD GLUING OF ELEMENTS PART OF THE MAIN WINDFORCE-RESISTING SYSTEM NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WIND FORCE RESISTING SYSTEM INCLUDING: WOOD SHEAR WALLS, DRAG STRUTS, HOLDOWNS AND DIAPHRAGMS.	CONTINUOUS PERIODIC	
2	ARCHITECTURAL COMPONENTS: ROOF AND WALL CLADDING. INTERIOR AND EXTERIOR NON-BEARING WALLS. INTERIOR AND EXTERIOR VENEER SYSTEMS.	PERIODIC	

REVISION	BY	DATE	APPRVL REV

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AK. LIC# AECC250

TITLE: SPECIAL INSPECTIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
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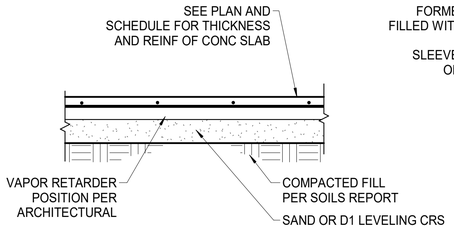
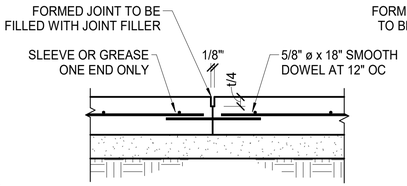
BY: DNB
DATE: 01/16/2026
SCALE:

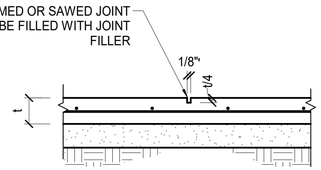
SHEET: S1.2



TYPICAL INTERIOR SLAB ON GRADE



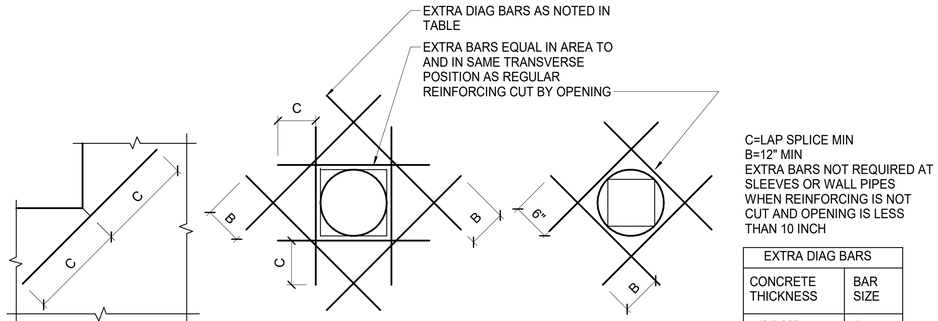
TYPICAL SLAB CONSTRUCTION JOINTS



TYPICAL SLAB CONTROL JOINT

1 TYPICAL SLAB JOINTS

3/4" = 1'-0"



C=LAP SPLICE MIN
B=12" MIN
EXTRA BARS NOT REQUIRED AT SLEEVES OR WALL PIPES WHEN REINFORCING IS NOT CUT AND OPENING IS LESS THAN 10 INCH

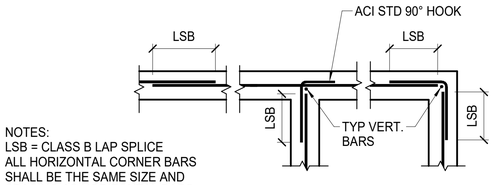
EXTRA DIAG BARS	
CONCRETE THICKNESS	BAR SIZE
4"-7.99"	4
8"-9.99"	5
10"-11.99"	5 T&B
12"-18"	6 T&B

RE-ENTRANT CORNERS

OPENING REINFORCING

2 TYPICAL WALL OPENING REINFORCING

1" = 1'-0"

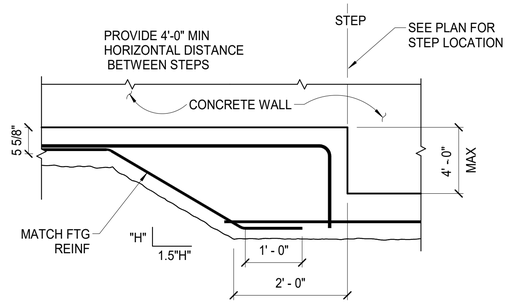


NOTES:
LSB = CLASS B LAP SPLICE
ALL HORIZONTAL CORNER BARS SHALL BE THE SAME SIZE AND SPACING AS HORIZONTAL BARS.

SINGLE CURTAIN PLAN - 8" WALLS

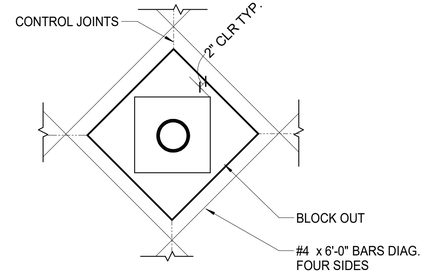
3 TYPICAL WALL CORNER REINFORCING

3/4" = 1'-0"



4 TYPICAL STEP FOOTING

3/4" = 1'-0"



5 COLUMN ISOLATION JOINTS

3/4" = 1'-0"

SLAB REINFORCING SCHEDULE

THICKNESS	TYPE	REINFORCING	CONCRETE COVER
4"	ON GRADE	#3 @ 16" OC EACH WAY	2" FROM TOP
6"	ON GRADE	#3 @ 16" OC EACH WAY	2" FROM TOP

NOTES:

CONCRETE WALL REINFORCING SCHEDULE

MARK	THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING	POSITION	REMARKS
6C	6"	#5 @ 16" OC	#5 @ 12" OC	CENTERED	TYPICAL CONCRETE STEM WALL

NOTES:
ALL HORIZONTAL REINFORCING SHALL TERMINATE AT WALL ENDS, INTERSECTIONS AND JAMBS WITH A STANDARD HOOK.

STRIP FOOTING REINFORCING SCHEDULE

MARK	FTG WIDTH	FTG DEPTH	T.O.F. ELEV.	LONGITUDINAL REINFORCING	TRANSVERSE REINFORCING
SF3	3'-0"	12"	SEE PLAN	(4) #5 TOP & BOTTOM	#5 AT 12" OC

NOTES:

ACI STANDARD 90° HOOK DIMENSIONS

BAR SIZE	#3	#4	#5	#6	#7	#8
MIN. BEND DIAM. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
EXTENSION LENGTH (L)	6"	6"	8"	9"	11"	12"

NOTE: REFERENCE ACI 318-14 SEC. 25.3

LAP SPLICES IN WALLS, FOOTINGS AND SLABS-ON-GRADE (3000 PSI)

BAR SIZE	#3	#4	#5	#6	#7	#8
CLASS B SPLICE	22"	29"	36"	43"	63"	72"

NOTE: INCREASE TABULATED LAP LENGTH BY 20% FOR BUNDLES OF 3 BARS.

REINFORCING CLEARANCE/COVER

EXPOSURE CONDITION	MIN. COVER	TOLERANCE*
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"	-3/8", +1"
EXPOSED TO EARTH OR WEATHER #5 AND SMALLER BARS:	1 1/2"	-1/4", +1/2"
EXPOSED TO EARTH OR WEATHER #6 AND LARGER BARS:	2"	-1/4", +1/2"
NOT EXPOSED TO EARTH, WEATHER OR IN CONTACT WITH GROUND:	3/4"	-1/4", +3/8"
TIES AND STIRRUPS	1 1/2"	-1/4", +1/2"

NOTES: "-" INDICATES TOLERANCE DECREASE TOWARDS MEMBER FACE. "+" INDICATES AWAY FROM MEMBER FACE.

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AK. LIC# AECC250

TITLE: CONCRETE REINFORCING SCHEDULES AND TYPICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

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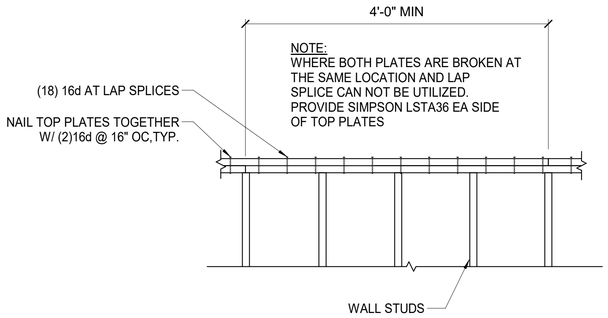
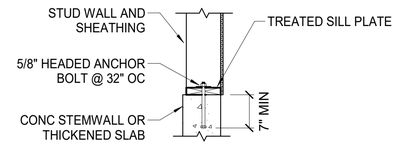
BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S1.3

HEADER SCHEDULE				
MARK	SIZE	TRIMMER STUDS	KING STUDS	NOTES
H1	4x12	(1) 2x6	(2) 2x6	
H2	5.5x12 GLB	(2) 2x6	(4) 2x6	
NOTE: ALL HEADERS ARE LOCATED AT THE TOP OF OPENING.				

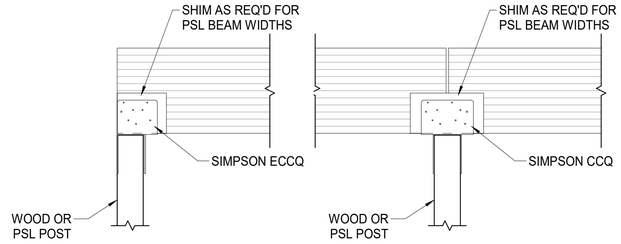


1 TYPICAL TOP PLATE SPLICE
3/4" = 1'-0"

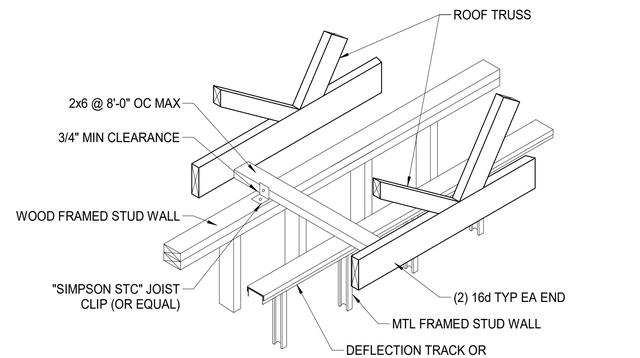


NOTE:
1. ANCHOR SIZE AND SPACING AND SILL PLATE SIZE SPECIFIED THIS DETAIL FOR ALL NON-SHEAR STRUCTURAL BEARING WALLS. SIZE AND SPACING FOR SHEAR WALLS CAN BE FOUND IN THE SHEAR WALL SCHEDULE.
2. ALL ANCHORS SHALL BE HOT-DIPPED GALVANIZED ASTM A307 BOLTS OR THREADED RODS.
3. ALL ANCHORS SHALL HAVE A GALV STD WASHER BETWEEN SILL PLATE AND NUT.
4. ALL ANCHORS SHALL BE PLACED A MINIMUM OF 3" AWAY FROM EDGE OF CONC AND LOCATED NO CLOSER THAN 6" FROM END OF WALL.

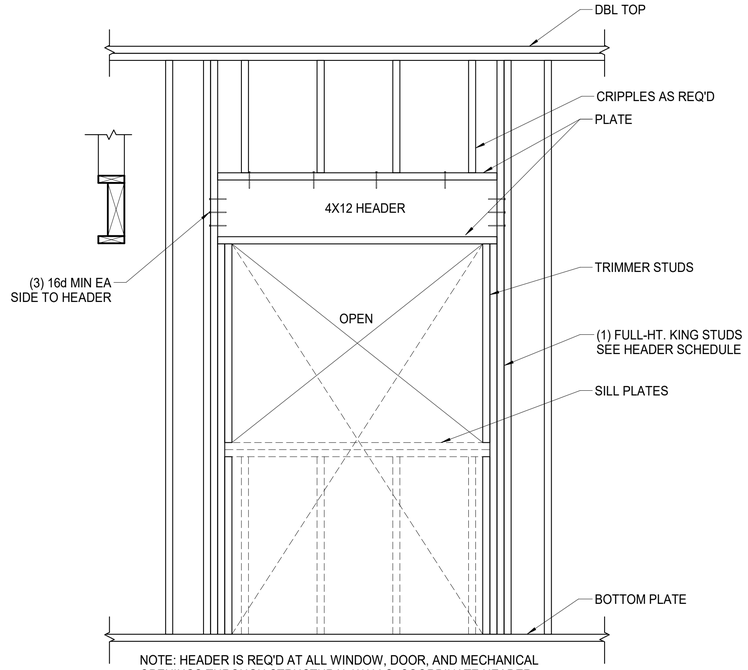
2 TYP SILL PL ANCHOR - NON SHEAR WALL
3/4" = 1'-0"



3 TYPICAL TIMBER POST CAP DETAIL
3/4" = 1'-0"

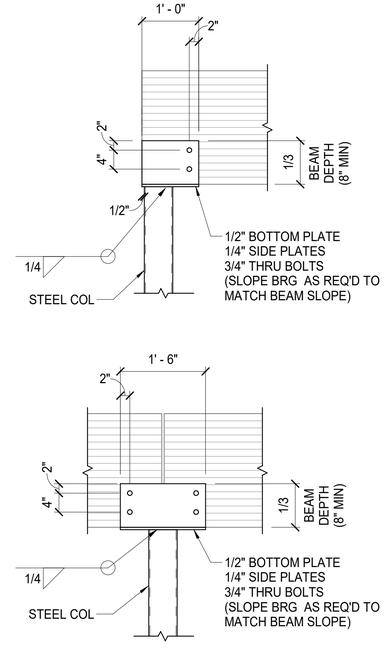


4 NON-BEARING PARTITION DETAILS
3/4" = 1'-0"



NOTE: HEADER IS REQ'D AT ALL WINDOW, DOOR, AND MECHANICAL OPENINGS THROUGH STRUCTURAL WALLS, COORDINATE HEADER POSITION WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

5 TYPICAL HEADER DETAIL
3/4" = 1'-0"



6 TYPICAL GLB COLUMN CAPS
3/4" = 1'-0"

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AK. LIC# AECC250

TITLE: WOOD FRAMING SCHEDULES AND TYPICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

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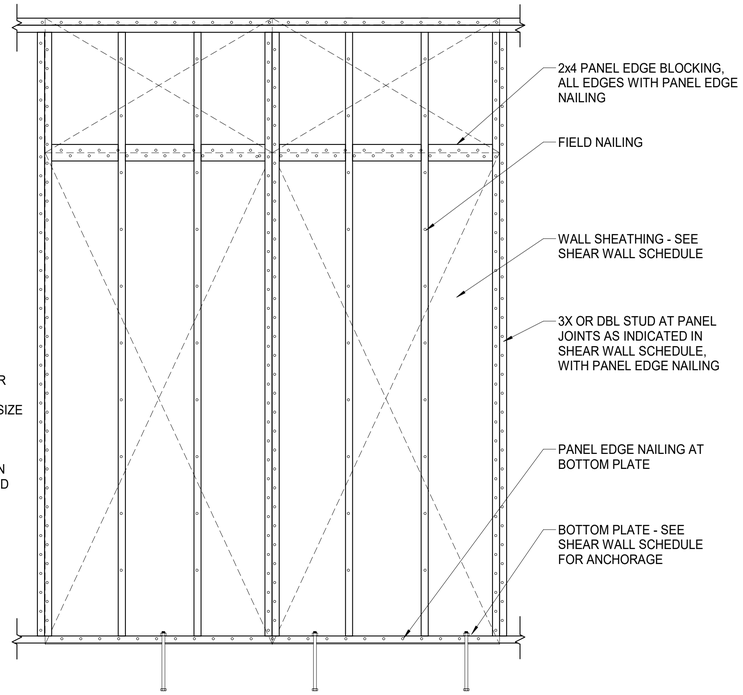
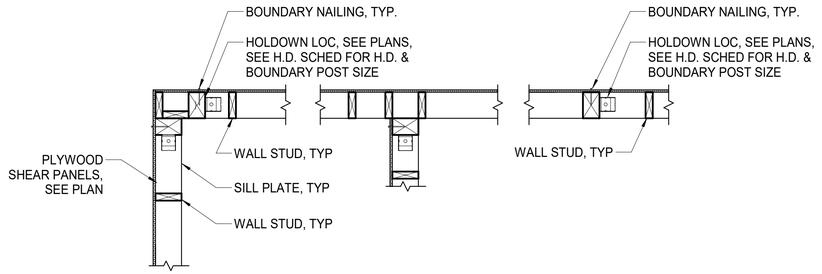
BY: DNB
DATE: 01/16/2026
SCALE:

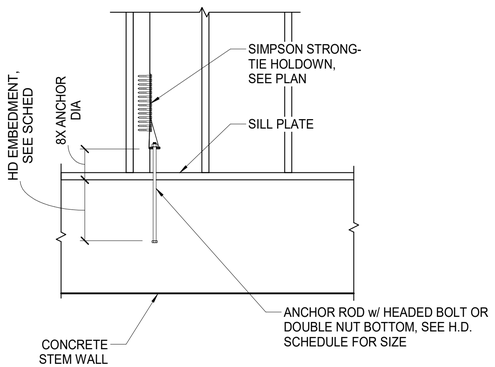
SHEET S1.4

NOTES:
1. PANELS ARE SHOWN VERTICAL, BUT MAY BE PLACED HORIZONTAL.
2. MIN. EDGE DISTANCE FOR NAILS SHALL BE 3/8".
3. MIN. SHEATHING SHEET SIZE SHALL BE 2'-0"x4'-0".
4. NAILS SHALL NOT BE OVERDRIVEN.
5. NAILS SHALL BE COMMON WIRE TYPE OR APPROVED EQUAL.

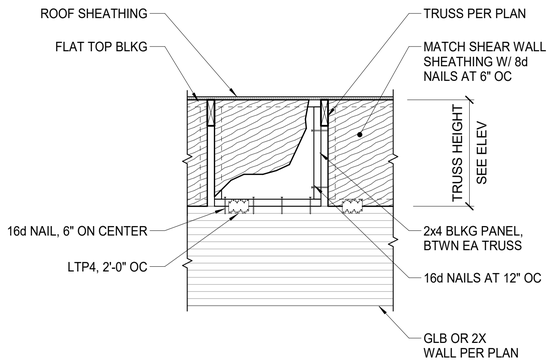


1 SHEAR WALL NAILING DETAIL
3/4" = 1'-0"



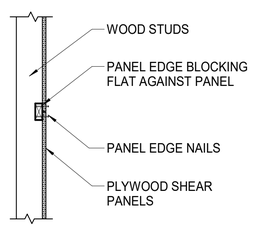


2 TYPICAL HOLDOWN DETAIL AT FOUNDATION
3/4" = 1'-0"



CONTRACTOR OPTION: BLKG PANEL MAY BE SPECIFIED BY TRUSS MFR.

5 SHEAR PANEL
3/4" = 1'-0"



3 PANEL EDGE BLOCKING
3/4" = 1'-0"

WOOD SHEAR WALL SCHEDULE

MARK	WOOD PANELS			NAIL SIZE	NAIL SPACING		PANEL JOINT STUDS	SILL OR BOTTOM PLATE ATTACHMENT					
	APA Grade	Thick.	Span rating		Edges	Field		Fastener	Detail	Dia.	Spacing	Embed.	Washer
6	Sheathing	15/32"	32/16	8d	6"	12"	2x	Anchor Rod	-	5/8"	32"	7"	4 / S1.5
4	Sheathing	15/32"	32/16	8d	4"	12"	2x	Anchor Rod	-	5/8"	16"	7"	4 / S1.5

NOTES:
1. WOOD STRUCTURAL PANELS SHALL CONFORM TO THE REQUIREMENTS FOR ITS TYPE IN DOC PS1 OR PS2.
2. APPLY SHEATHING TO THE SIDE OF WALL INDICATED BY THE SYMBOL. PANELS MAY BE INSTALLED HORIZONTALLY OR VERTICALLY. DOUBLE SHEATHED WALLS SHALL HAVE PANELS APPLIED TO BOTH FACES.
3. ALL PANEL EDGES SHALL BE LOCATED ON STUDS, BLOCKING LAID FLAT, PLATES OR RIM JOISTS. WHERE SHEATHING IS APPLIED TO BOTH FACES OF WALL, OFFSET PANEL EDGES TO FALL ON DIFFERENT STUDS.
4. STAGGER PANEL EDGE NAILING AT PANEL JOINTS.
5. ANCHOR RODS SHALL BE HOT-DIPPED GALVANIZED ASTM A307 HEADED BOLTS. FIRST AND LAST ANCHORS SHALL BE LOCATED 6" FROM END OF EACH WALL SEGMENT OR END WALL HOLDOWN.
6. SEE TYPICAL PLATE WASHER DETAIL FOR SILL PLATE ANCHOR INSTALL AND LOCATION REQUIREMENTS.
7. SEE HOLDOWN SCHEDULE FOR HOLDOWNS AND BOUNDARY POST SIZES.
8. ANCHOR ROD EMBEDMENT IS THE DISTANCE FROM TOP OF CONCRETE TO TOP OF NUT OR BOLT HEAD.

WOOD DIAPHRAGM SCHEDULE

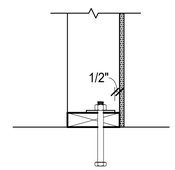
AREA DESCRIPTION	SHEATHING			NAIL SIZE	NAIL SPACING			NOMINAL THICKNESS OF FRAMING MEMBERS	PANEL EDGE BLOCKING
	APA Grade	Thick.	Span Rating		Edges (2,3)	Boundary	Field		
ROOF	Sheathing	3/4"	48/24	8d	6"	6"	12"	2x	NONE

NOTES:
1. APPLY SHEATHING PERPENDICULAR TO FRAMING MEMBERS UNLESS NOTED OTHERWISE.
2. LOCATE PANEL ENDS OVER FRAMING MEMBERS AND STAGGER LOCATION OF ENDS JOINTS BY A MINIMUM OF 2'-0" UNLESS SHOWN OTHERWISE.
3. SEE SCHEDULE FOR PANEL EDGE BLOCKING REQUIREMENTS.
4. STAGGER PANEL EDGE NAILING AT BLOCKED JOINTS.
5. NAILS SHALL BE LOCATED AT LEAST 3/8" FROM THE EDGES OF PANELS. HEADS OF NAILS SHALL BE DRIVEN FLUSH WITH THE SURFACE.
6. PANELS SHALL NOT BE LESS THAN 4' x 8' EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING WHERE ALL EDGES ARE SUPPORTED BY AND FASTENED TO FRAMING MEMBERS OR BLOCKING.

HOLDOWN SCHEDULE

MARK	HOLDOWN	ANCHOR ROD		BOUNDARY POST SIZE	COMMENTS
		Diam.	Embed.		
HD1	SIMPSON DTT2Z	1/2"	20"	4x6 OR (2) 2x6	

NOTES:
1. HOLDOWNS ARE SIMPSON STRONG-TIE OR EQUAL.
2. ANCHOR RODS SHALL BE GALVANIZED ASTM F1554 GRADE 36 HEADED BOLTS OR ASTM A36 THREADED ROD WITH DBL NUT AT BOTTOM.
3. ROD COUPLERS WITH 125% STRENGTH OF THE ROD MAY BE USED TO EXTEND RODS.
4. BOUNDARY POSTS ARE DF No. 1.



SINGLE-SIDED SHEAR WALL

NOTE: 0.229"x3"x3" MIN SIZE PLATE WASHER TO BE USED FOR EACH SILL PLATE ATTACHMENT BOLT. PLATE WASHER MUST BE WITHIN 1/2" OF SHEATHING FACE. SLOTTED HOLE IN PLATE WASHER PER AWC MAY BE USED PROVIDED A STD CUT WASHER BE PLACED BETWEEN PLATE WASHER AND NUT.

4 TYP SILL PLATE ANCHOR - SHEAR WALLS
1 1/2" = 1'-0"

REVISION | BY | DATE | APPRVL REV

PND ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: WOOD SHEAR WALL SCHEDULES AND TYPICAL DETAILS

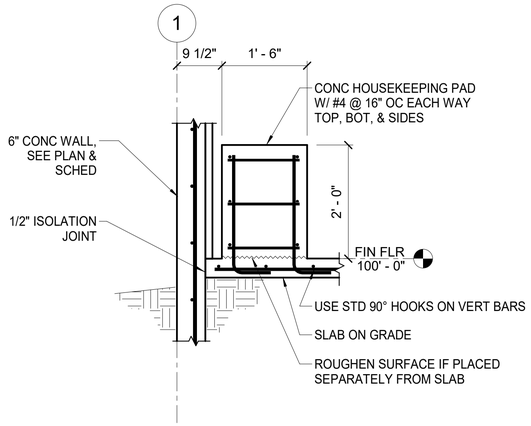
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA 49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S1.5



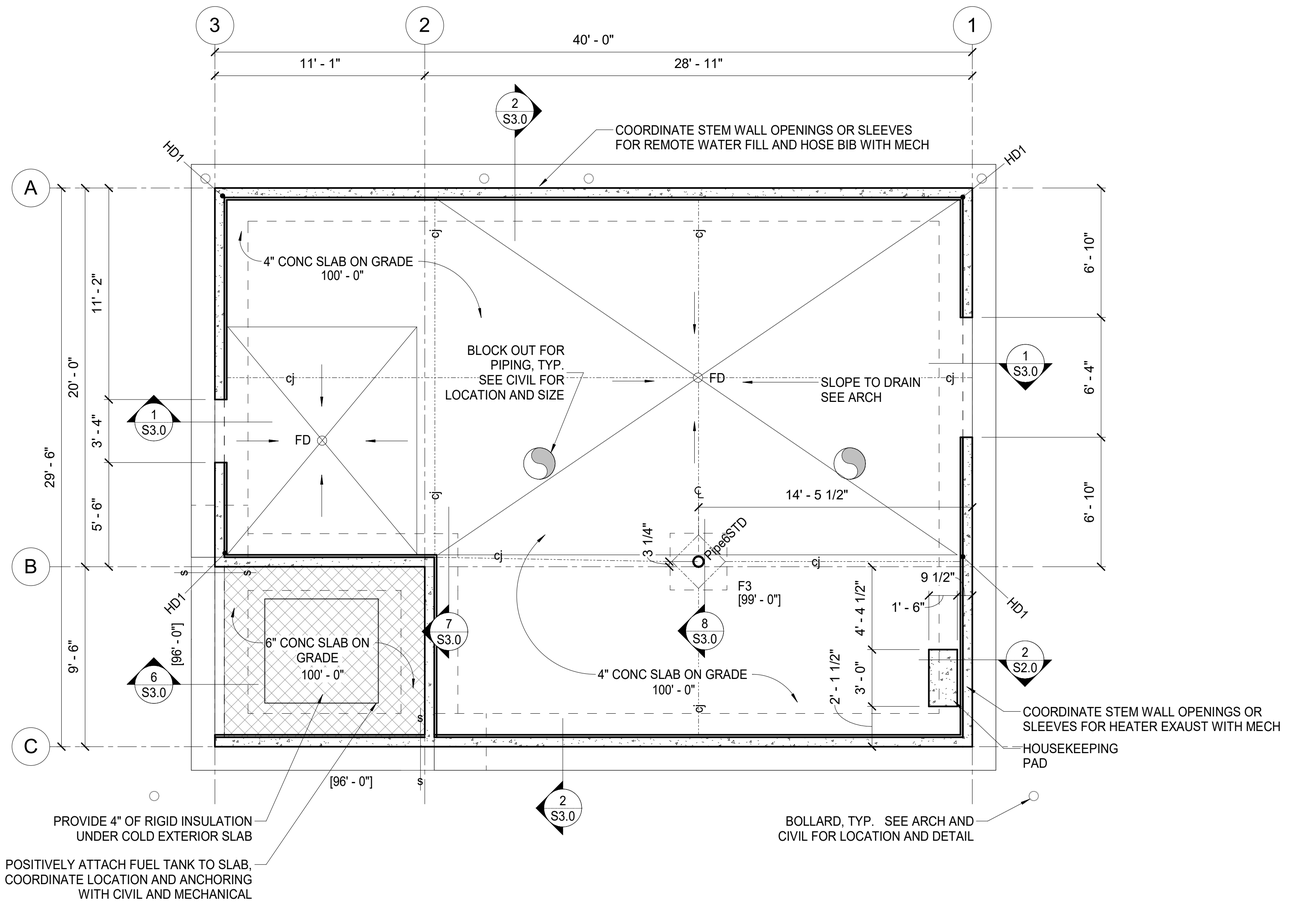
2 DETAIL
3/4" = 1'-0"

FOUNDATION SHEET NOTES

1. REFERENCE ELEVATION - TOP OF CONCRETE SLAB ELEVATION = EL. 100'-0". SEE CIVIL FOR ACTUAL ELEVATION.
2. ALL CONCRETE STEM WALLS ARE 6C UNO.
3. ALL STRIP FOOTINGS ARE SF3 UNO. TOP OF STRIP FOOTING IS 97'-0" UNO.
4. INSTALL CONTROL / CONSTRUCTION JOINTS AT 12' OC MAX, EA WAY

LEGEND

[X-XX"]	INDICATES T.O. FOOTING/SLAB ELEVATION
HDx	INDICATES HOLDOWN
FD	INDICATES FLOOR DRAIN
F?	INDICATES SPREAD FOOTING TYPE, SEE SCHED
s s	INDICATES CONC STEP FTG



1 FOUNDATION PLAN
1/4" = 1'-0"

REVISION	BY	DATE	APPRV. REV

P N D
ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: FOUNDATION & SLAB PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
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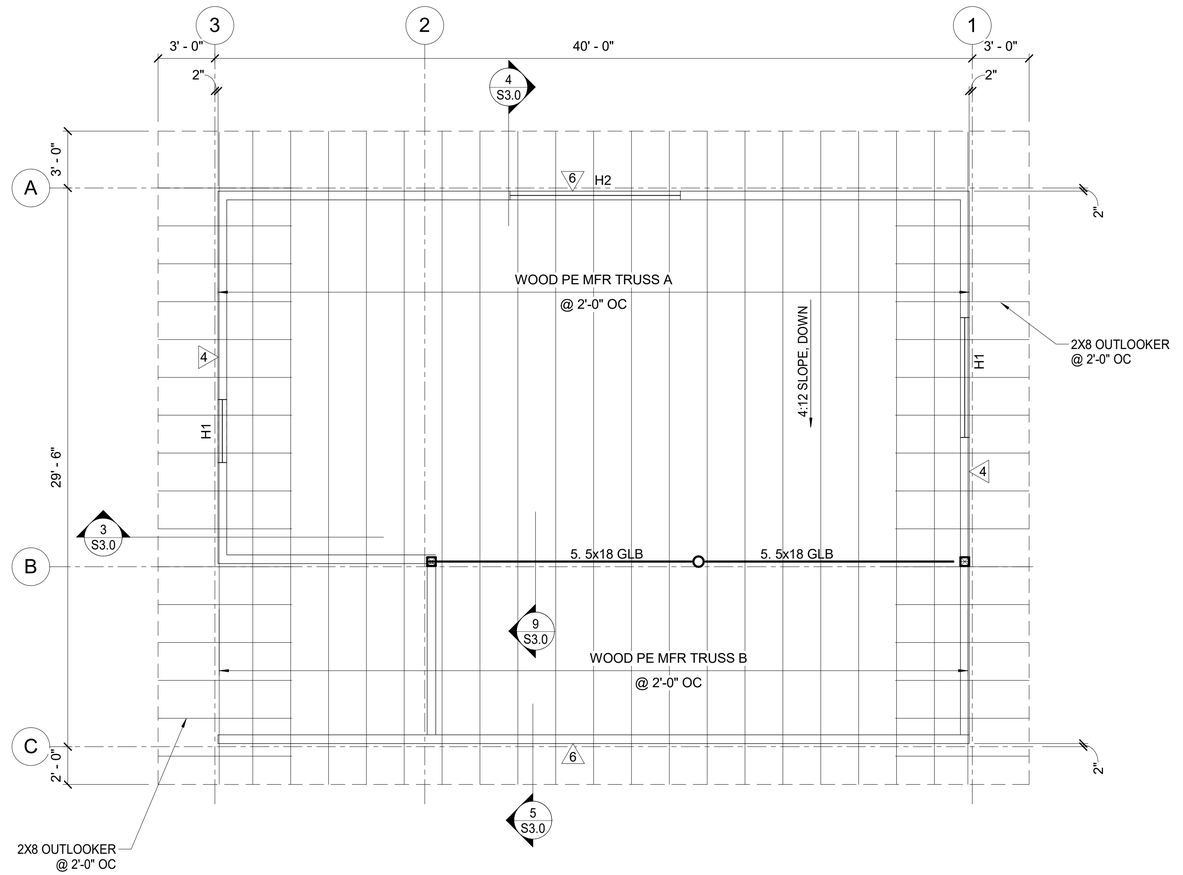
BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S2.0



ROOF SHEET NOTES

1. ROOF SHEATHING IS 3/4" PLYWOOD. ORIENT PANELS PERPENDICULAR TO FRAMING MEMBERS. SEE DIAPHRAGM SCHEDULE FOR BLOCKING AND NAILING REQUIREMENTS AT PANEL JOINTS.
2. SEE SECTIONS FOR ROOF ELEVATIONS.

LEGEND

H? INDICATES HEADER TYPE, SEE SCHED

X INDICATES SHEAR WALL BELOW, SEE SHEAR WALL SCHED

1 ROOF FRAMING PLAN
1/4" = 1'-0"

REVISION	BY	DATE	APPRV. REV

P N D
ENGINEERS, INC.
625 South Cobb Street, Suite 202
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AK. LIC# AECC250

TITLE: ROOF FRAMING PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
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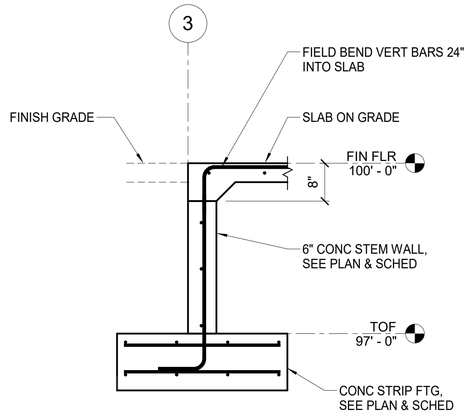
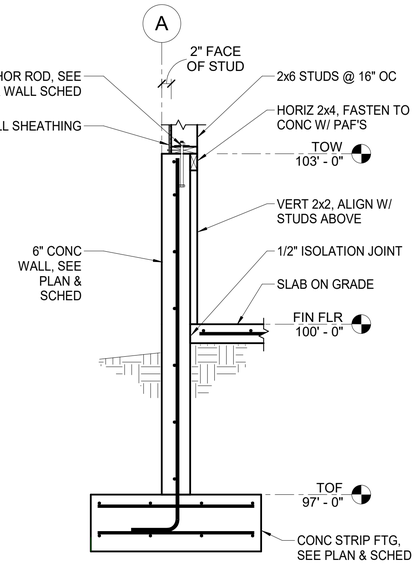
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

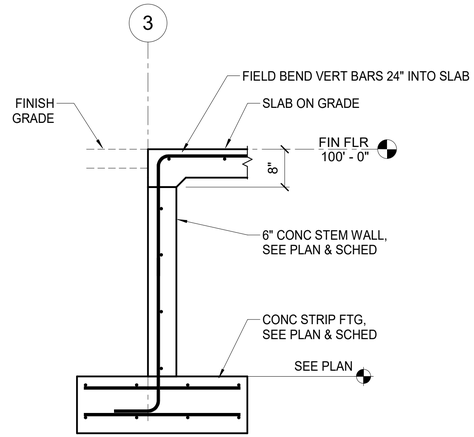
SHEET S2.1



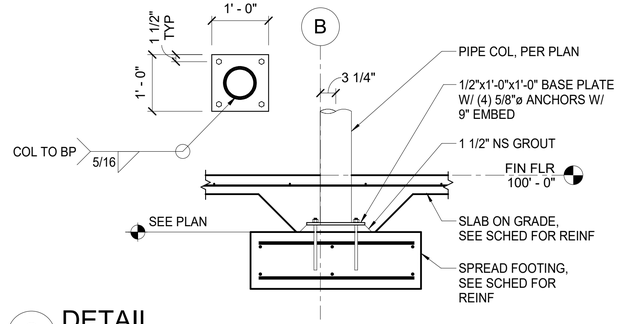
1 DETAIL
3/4" = 1'-0"



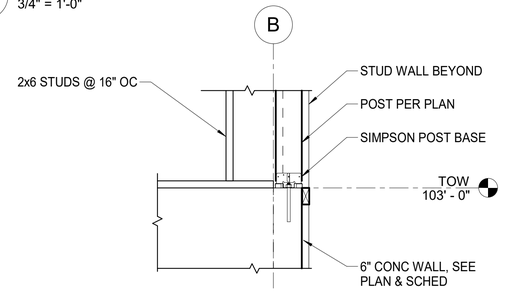
2 DETAIL
3/4" = 1'-0"



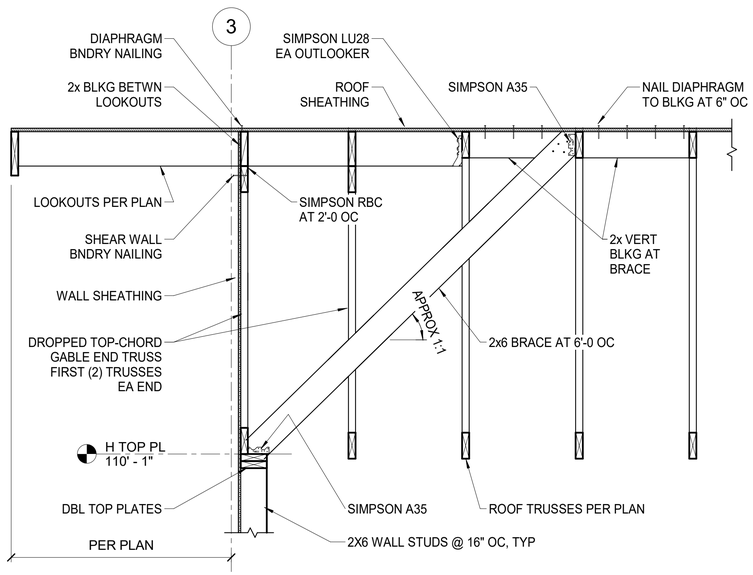
6 DETAIL
3/4" = 1'-0"



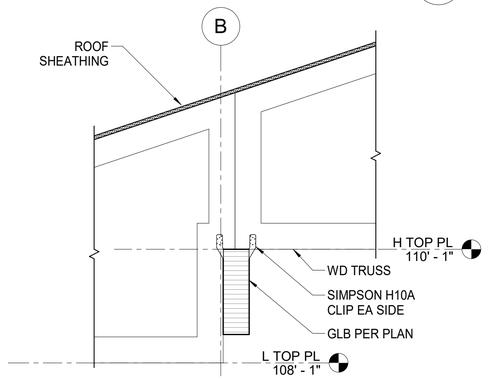
8 DETAIL
3/4" = 1'-0"



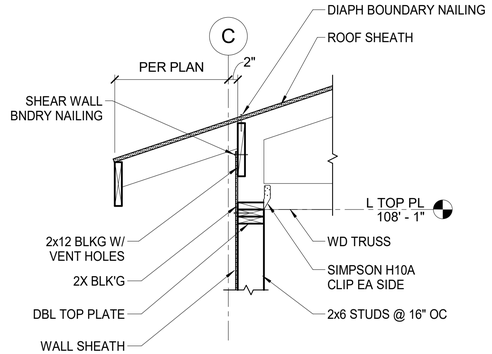
7 DETAIL
3/4" = 1'-0"



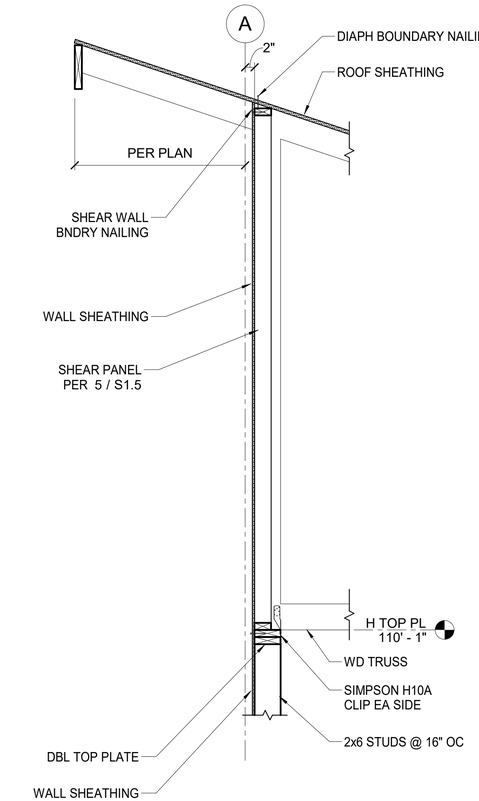
3 DETAIL
3/4" = 1'-0"



9 DETAIL
3/4" = 1'-0"



5 DETAIL
3/4" = 1'-0"



4 DETAIL
3/4" = 1'-0"

REVISION	BY	DATE	APPRVL REV

PND ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

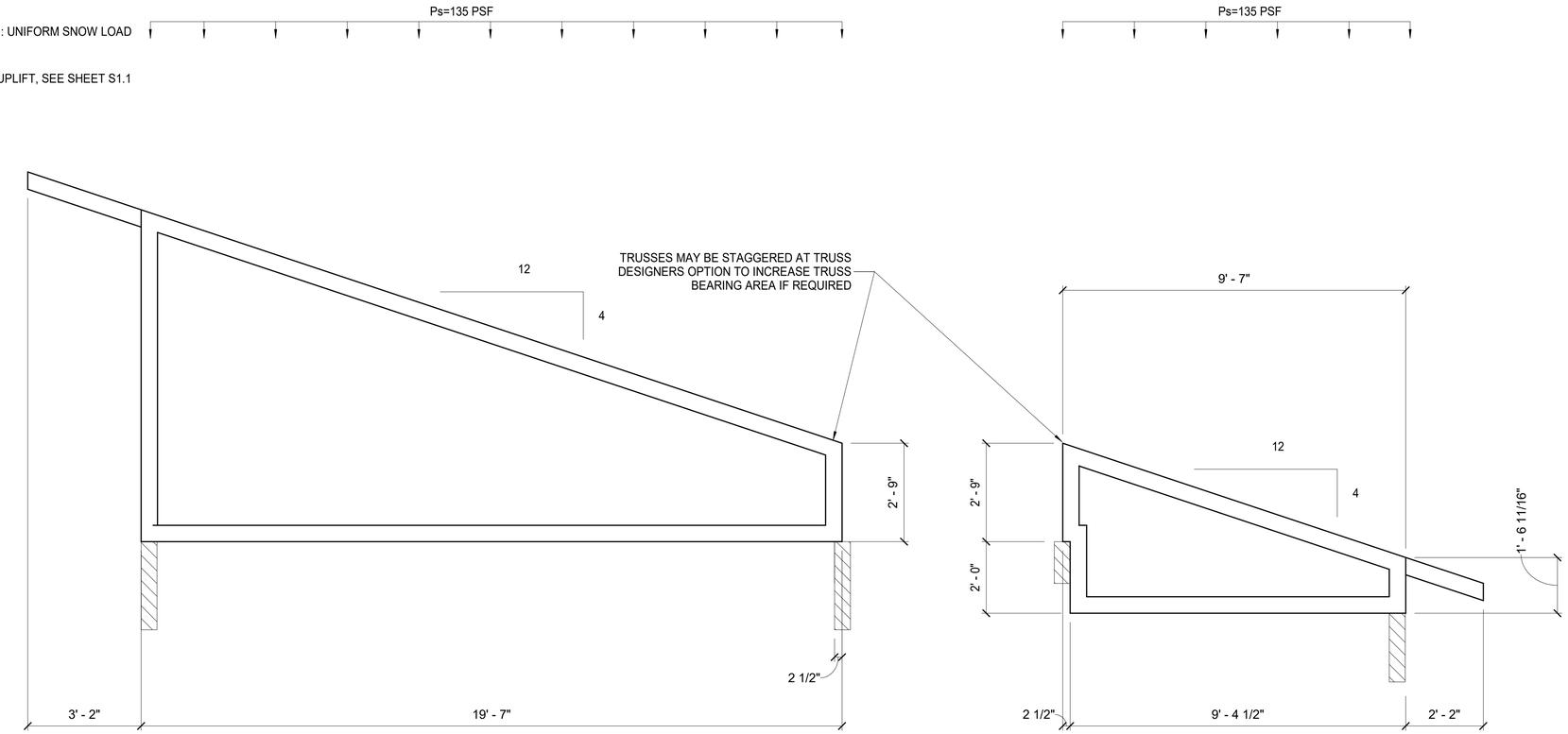
DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S3.0

LOAD CASE 1: UNIFORM SNOW LOAD

LOAD CASE 2: WIND UPLIFT, SEE SHEET S1.1



TYPE A **TYPE B**

1 TRUSS ELEVATIONS
1/2" = 1'-0"

SHEET NOTES:

ROOF TRUSS DESIGN LOADS

DEAD LOADS
= 15 PSF TOP CHORD
= 10 PSF BOTTOM CHORD
SNOW LOADS
=135 PSF UNIFORM BALANCED SNOW LOAD
WIND UPLIFT
= PER WIND LOADS ON S1.1
EQUIPMENT LOADS
= AS INDICATED

PRE-ENGINEERED WOOD TRUSSES

MATERIALS:

1. LUMBER: AS REQUIRED BY THE TRUSS MANUFACTURER. MINIMUM GRADE TO BE HEM-FIR OR DOUGLAS FIR-LARCH NO. 2 KD 15 PERCENT MC, EXCEPT FOR WEBS, WHICH MAY BE MINIMUM GRADE OF HEM-FIR OR DOUGLAS FIR-LARCH NO. 3, KD 15 PERCENT MC.

2. CONNECTIONS: ALL INTERNAL TRUSS CONNECTIONS ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER. CONNECTORS SHALL BE DEFORMED PLATE TYPE, OF MINIMUM 20 GAUGE GALVANIZED STEEL SHEET. ALL JOINTS ARE TO BE DESIGNED USING METHODS AS SET FORTH IN ANSI/TPI STANDARDS 2014.

3. HANGERS: ALL TRUSS TO TRUSS HANGERS SHALL BE MINIMUM 16 GA., AND SHALL BE PROVIDED BY THE TRUSS SUPPLIER. SPECIFICATIONS AND REFERENCE STANDARDS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION, ERECTION, HANDLING AND BRACING REQUIREMENTS ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
   A. NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
   B. TIMBER CONSTRUCTION STANDARDS.
   C. TPI 1, NATIONAL DESIGN STANDARDS FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION
   D. TP1 DSB, RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES
   E. TPI HIB, COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING & BRACING METAL PLATE CONNECTED WOOD TRUSSES.

DESIGN:

1. ALL TRUSSES ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER FOR THE LOADS INDICATED ON THE DRAWINGS.

2. WHERE TRUSSES ARE REQUIRED TO FRAME INTO OTHER TRUSSES, DESIGN OF THE HANGERS SHALL BE THE RESPONSIBILITY OF THE TRUSS SUPPLIER. THE TRUSS SUPPLIER SHALL MAKE NECESSARY PROVISIONS IN THE SUPPORTING TRUSS TO ACCEPT THE TYPE OF HANGER REQUIRED.

SUBMITTALS:

1. TRUSS DESIGNS ARE TO BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. TRUSS SUBMITTAL SHALL INCLUDE THE FOLLOWING INFORMATION:
   A. DESIGN INFORMATION FOR EACH TYPE OF TRUSS SUPPLIED.
   B. LAYOUT DRAWING INDICATING LOCATION OF EACH SPECIFIC TRUSS TYPE.
   C. TRUSS HANGER TYPE AND LOCATION, FOR ALL TRUSSES FRAMING INTO TRUSSES.
   D. TRUSS DESIGNS AND LAYOUT DRAWING STAMPED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF ALASKA.

2. SUBMITTALS WHICH DO NOT INCLUDE THE ABOVE LISTED INFORMATION WILL BE RETURNED TO THE CONTRACTOR PRIOR TO REVIEW.

APPRVL	REV	DATE	BY	REVISION

P N D
ENGINEERS, INC.
625 South Cobb Street, Suite 202
Palmer, AK 99645
PH 907.707.1081
WWW.PNDENGINEERS.COM
AK. LIC# AECC250

TITLE: TRUSS ELEVATION AND NOTES

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49 TH
David Bentti
David N. Bentti
SE121348
REGISTERED STRUCTURAL ENGINEER
01.16.26

DAY ENGINEERING
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090
PO BOX 651 • EUREKA, NEVADA 89316 • (775) 253-1743

BY: DNB
DATE: 01/16/2026
SCALE:

SHEET S4.0

LEGEND

- HOT WATER
- COLD WATER
- FUEL OIL SUPPLY (FOS)
- PIPE UP
- PIPE DOWN
- TEE UP
- TEE DOWN
- CAP
- TRAP
- UNION
- DIRECTION OF FLOW
- ISOLATION VALVE
- CHECK VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- WATER HAMMER ARRESTOR
- HOSE BIBB
- FLOOR CLEANOUT
- FLOOR DRAIN
- SUPPLY AIR UP & DOWN
- RETURN AIR UP & DOWN
- EXHAUST AIR UP & DOWN
- DETAIL NUMBER (5 / M2)
- SHEET LOCATED ON
- SHEET NOTES (1)
- THERMOSTAT (T)
- HUMIDISTAT (H)

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AMPS	AMPERES
APD	AIR PRESSURE DROP
BDD	BACKDRAFT DAMPER
BLDG	BUILDING
BTUH	BRITISH THERMAL UNIT/HOUR
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATING
CONT	CONTINUED
CO	CLEANOUT
CONN	CONNECTION
CU	COPPER
CW	COLD WATER
dB	DECIBLES
DEG	DEGREE
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
(E)	EXISTING
E/A	EXHAUST AIR
EFF	EFFICIENCY
EF-X	EXHAUST FAN DESIGNATOR
EH-X	ELECTRIC HEATER DESIGNATOR
ENT	ENTERING
ET-X	EXPANSION TANK DESIGNATOR
EXH	EXHAUST
F	FAHRENHEIT
FLA	FULL LOAD AMPS
FOT-X	FUEL OIL TANK DESIGNATOR
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB-X	HOSE BIBB DESIGNATOR
HP	HORSEPOWER
HW	HOT WATER
IN	INCHES
KW	KILOWATTS
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MFGR	MANUFACTURER
MPT	MALE PIPE THREAD
MTD	MOUNTED
NC	NOISE CRITERIA
NO.	NUMBER
NTS	NOT TO SCALE
O/A	OUTSIDE AIR
PH	PHASE
PSI	POUND PER SQUARE INCH
R/A	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
S/A	SUPPLY AIR
SH-X	SPACE HEATER DESIGNATOR
SPVB	SPILL-RESISTANT PRESSURE VACUUM BREAKER
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
T'STAT	THERMOSTAT
TYP	TYPICAL
W/	WITH
W.C.	WATER COLUMN
WHA-X	WATE HAMMER ARRESTOR
WH-X	WATER HEATER DESIGNATOR

ELECTRIC HEATER SCHEDULE

			CAPACITY		ELECTRICAL DATA			
SYMBOL	MANUFACTURER	MODEL	MBH	CFM	AMPS	KW	VOLTS/PHASE	REMARKS
EH-1	QMARK	MWUH7504	19.2	270	27.1	5.6	208/1	HORIZONTAL ELECTRIC UNIT HEATER W/ INTEGRAL THERMOSTAT AND THERMAL OVERHEAT PROTECTION. PROVIDE W/ WALL MOUNTING BRACKET.
EH-2	QMARK	CWH1202DSF	5.1	65	7.3	1.5	208/1	RECESSED WALL ELECTRIC HEATER W/ INTEGRAL THERMOSTAT AND THERMAL OVERHEAT PROTECTION. PROVIDE W/ RECESS MOUNTING FRAME.

FAN SCHEDULE

						TSP		MOTOR DATA					
SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	CFM	IN W.C.	RPM	HP	VOLTAGE/PHASE	DRIVE	SONES	REMARKS
EF-1	GREENHECK	SQ-90-VG	EXHAUST	PUMP HOUSE	500	0.29	1,505	1/6	120/1	DIRECT	7.0	INLINE DIRECT DRIVE FAN, VARIGREEN MOTOR, PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.

HOSE BIBB SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CW	SERVICE	FINISH	REMARKS
HB-1	WOODFORD	B65	3/4"	PUMP HOUSE	CHROME	ANTI-SIPHON AND FROST-PROOF, CHROME PLATED LOCKABLE RECESSED BOX, REMOVABLE KEY, MPT OUTLET CONNECTION.

SPACE HEATER SCHEDULE

								ELECTRICAL		
SYMBOL	MANUFACTURER	MODEL	LOCATION	HEATING CAPACITY	FUEL TYPE	FUEL GPH	EXHAUST	WATTS	VOLTS/PHASE	REMARKS
SH-1	TOYOSTOVE	L-731	PUMP HOUSE	40 MBH (HIGH)	FUEL OIL #1	0.30 (HIGH)	DIRECT VENT	260	120/1	DIRECT VENT THROUGH WALL HEATER W/ DIRECT VENT KIT, CORD AND PLUG CONNECTION, PROVIDE WITH TOYOTOMI OIL LIFTEX PUMP MODEL OPT-91UL.

TANK SCHEDULE

							TANK CAPACITY				
SYMBOL	MANUFACTURER	MODEL	LOCATION	FUNCTION	MEDIUM	MATERIAL	(GAL)	DIAMETER	LENGTH	LABEL	REMARKS
FOT-1	GREER TANK	500 GAL	PUMP HOUSE	FUEL STORAGE	FUEL OIL #1	STEEL	500	4'-2"	6'-0"	UL-142	DOUBLE WALL, SADDLE MOUNTED, TRIM PER PLANS.

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	MODEL	WASTE	VENT	TRAP	ELECTRICAL	TRIM/REMARKS
FD-1	FLOOR DRAIN	J.R. SMITH	2005	4"	4"	4"	N/A	SQUARE TOP.
FS-1	FLOOR SINK	J.R. SMITH	9812-880-CB24	8"	6"	8"	N/A	FIBERGLASS CATCH BASIN, PROVIDE W/ GALVANIZED STEEL GRATE, 8" PIPE ADAPTOR.
HD-1	HUB DRAIN	J.R. SMITH	9654	4"	4"	4"	N/A	STAINLESS STEEL HUB DRAIN WITH SCHEDULE 10 BUTTWELD OUTLET.
TP-1	TRAP PRIMER	PPP INC.	MPB-500-115V	--	--	--	120V/6.3W	SURFACE MOUNT ELECTRIC TRAP PRIMER W/ BOX, PROVIDE W/ DISTRIBUTION UNIT.

AIR INLET/OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	USE	MATERIAL	FINISH	CFM	FACE SIZE (IN.)	NC	REMARKS
(A)	TITUS	50F	EGGCRATE	O/A	ALUMINUM	WHITE	PER PLANS	PER PLANS	<25	1/2" X 1/2" X 1/2" GRID CORE, SURFACE MOUNTED FRAME, BORDER TYPE I.

REVISION	BY	DATE	APPRVL REV

RSA
Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Corporate No.: AECC542
RSA JOB # M4082

TITLE: MECHANICAL LEGEND, ABBREVIATIONS, AND SCHEDULE

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA · 49TH · BRIAN P. PEKAR · ME-11249 · 1/16/26 · REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

SHEET M1 OF 3 SHEETS

BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

GENERAL NOTES

A. ALL INTERIOR AND EXTERIOR HOODS, DUCTWORK, GRILLES, AND PIPING SHALL BE SHOP PRIMED AND PAINTED TO MATCH ADJOINING FINISHES.

SHEET NOTES

1. SH–1, INSTALL PER MANUFACTURER INSTRUCTIONS WITH OIL LIFTEX PUMP. MAINTAIN CLEARANCES TO COMBUSTIBLES. MOUNT SH–1 A MINIMUM OF 24" AFF.
2. EH–1,2, INSTALL PER MANUFACTURER INSTRUCTIONS. MAINTAIN CLEARANCES TO COMBUSTIBLES. MOUNT EH–1 A MINIMUM OF 6" FROM CEILING.
3. EXTEND FOT–1 VENT BEYOND EAVE AND MINIMUM 12' AFG AND 3' ABOVE ROOF.
4. EXTEND SIDE WALL VENT 6" FROM EDGE OF SIDING, AHAP. TRIM AND PAINT TO MATCH SIDING.
5. TRANSITION FROM 6" V TO 8" V BEFORE VENT TEE.
6. PLUMBING VENT IN ATTIC SPACE, ROUTE AROUND ELEC/COMM ROOM.
7. SLEEVE CONCRETE FOR EXHAUST TO ENSURE PROPER ANGLE/DRAINAGE FOR INSTALL.
8. PROVIDE WATTS LF008PCQT SPILL–RESISTANT PRESSURE VACUUM BREAKER TO HOSE BIBB HB–1, AND INTERIOR HOSE CONNECTION.

SECTION 23 09 93 – SEQUENCE OF OPERATION

ELECTRIC HEATERS – EH–1, EH–2:

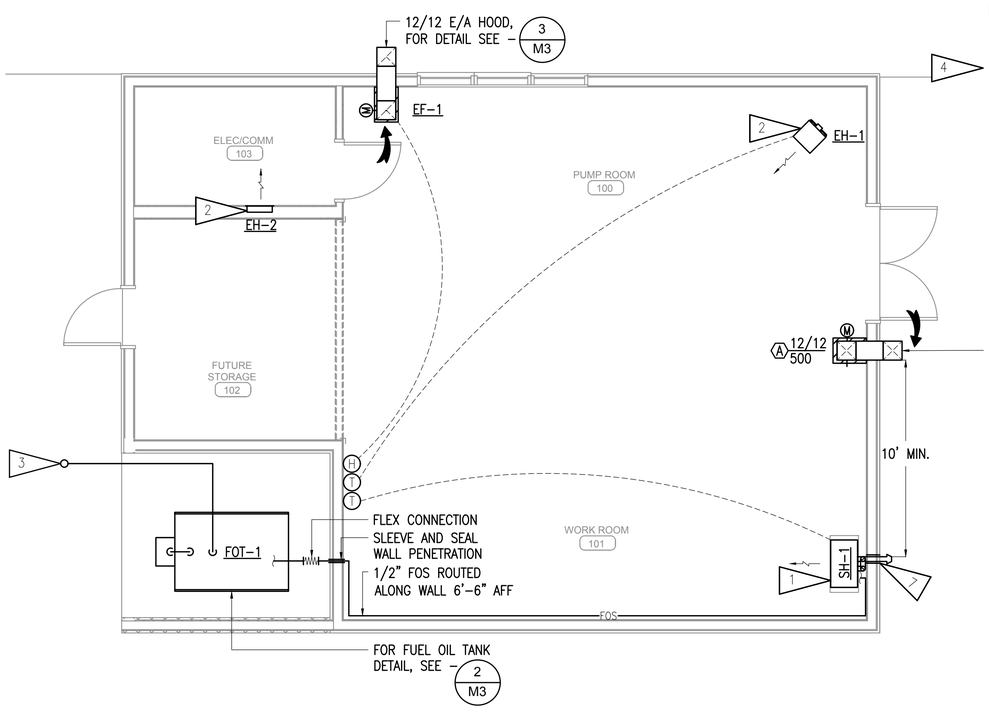
A. UNIT SHALL OPERATE TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 55 DEG F. FAN AND HEATER SHALL CYCLE ON/OFF TO MAINTAIN SETPOINT.

SPACE HEATER – SH–1:

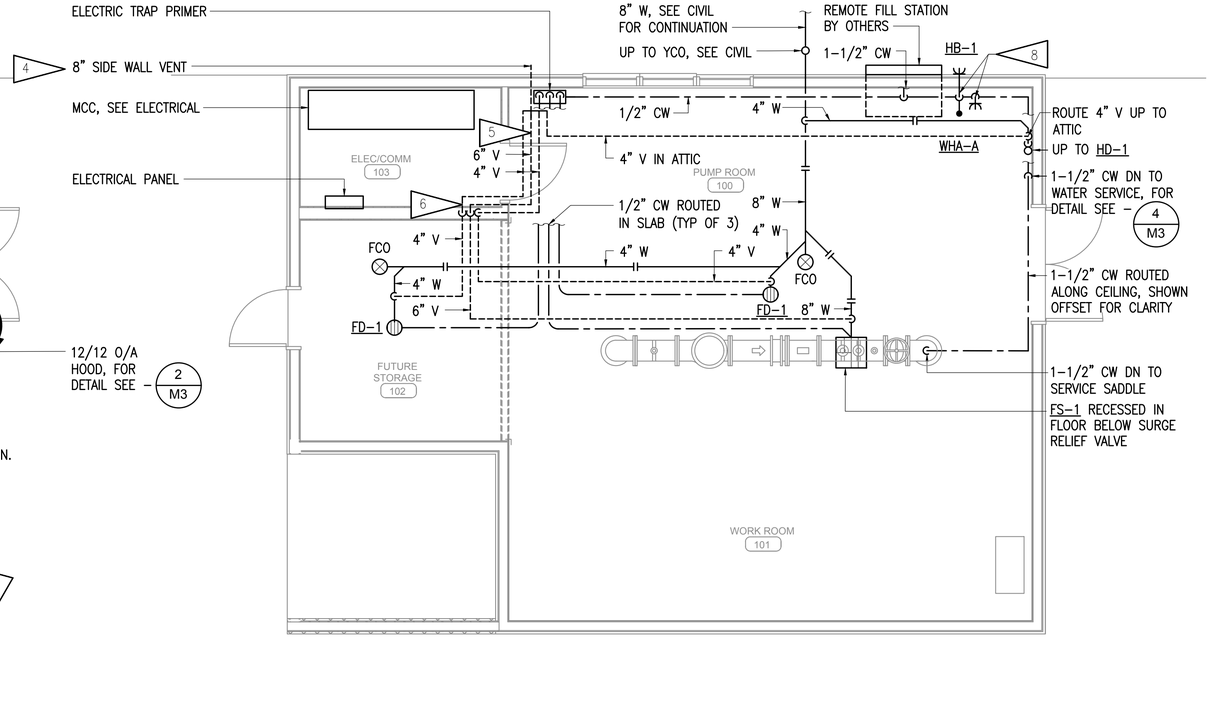
A. UNIT SHALL OPERATE TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 65 DEG F. FAN AND HEATER SHALL CYCLE ON/OFF TO MAINTAIN SETPOINT.

EXHAUST FANS– EF–1:

A. WHEN HUMIDITY IS GREATER THAN 60% RH, FAN SHALL BE IN OPERATION.
B. THE EXHAUST FAN MAY BE PLACED INTO MANUAL OVERRIDE USING A SPRING–WOUND TIMER LOCATED IN THE PUMP ROOM.



1 MECHANICAL PLAN
1/4" = 1'-0"



2 PLUMBING PLAN
1/4" = 1'-0"

APPRVL REV	DATE	BY	REVISION

RSA
Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
(907) 258-2420
Corporate No.: AECC542

RSA JOB # M4082

TITLE: MECHANICAL PLAN

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
BRIAN P. PEKAR
ME–11249
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151178 • ELY, NEVADA 89315 • (775) 289–5353
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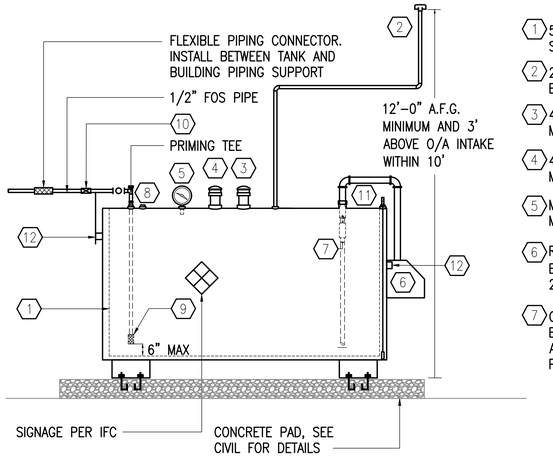
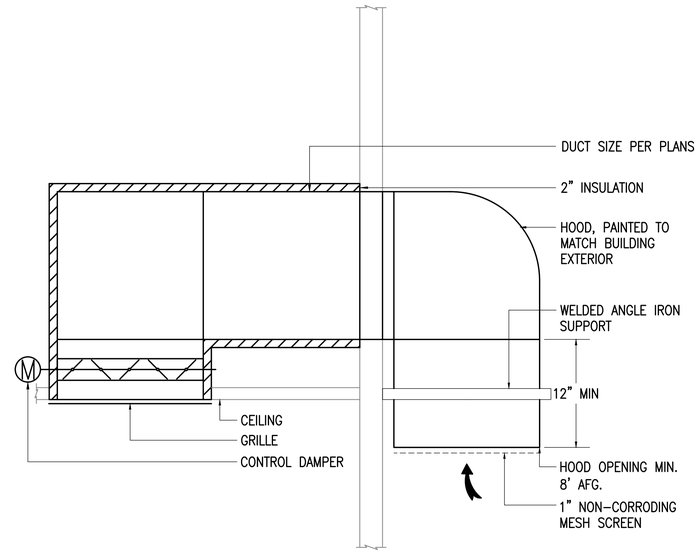
BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

SHEET M2 OF 3 SHEETS

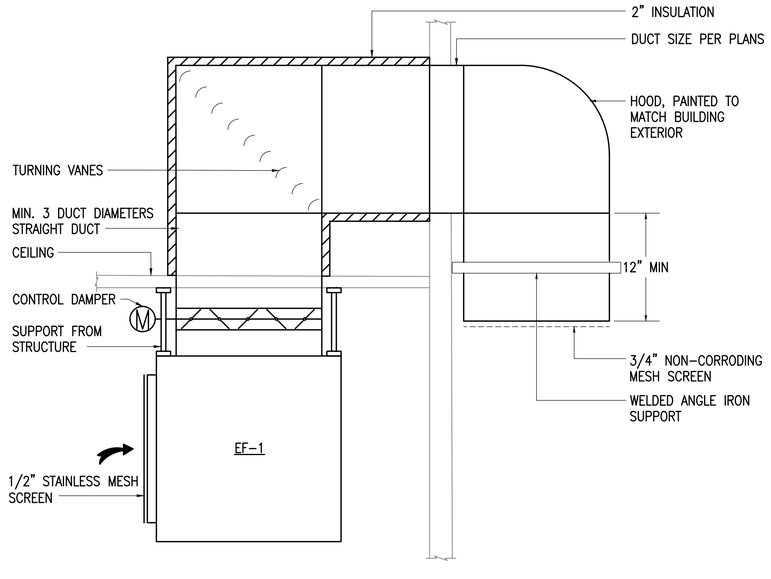


1. 500 GALLON DOUBLE WALL FUEL OIL STORAGE TANK.
2. 2" PRIMARY TANK VENT, MORRISON BROTHERS FIG. 922.
3. 4" PRIMARY TANK EMERGENCY VENT, MORRISON BROTHERS FIG. 244
4. 4" SECONDARY TANK EMERGENCY VENT, MORRISON BROTHERS FIG. 244.
5. MECHANICAL CLOCK TYPE TANK GAUGE, MORRISON BROTHERS FIG. 818.
6. REMOTE SPILL CONTAINER, MORRISON BROTHERS FIG. 515. PROVIDE W/ FIG. 246, 800A, 800DC, AND 691B.
7. OVERFILL PREVENTION VALVE, MORRISON BROTHERS FIG. 9095. COORDINATE APPROPRIATE FLOW RATE WITH LOCAL PURVEYOR OF FUEL.
8. 4" FPT TAPPING, W/PLUG.
9. PROVIDE 3/4" SINGLE POPPET FOOT VALVE OPW MODEL 99-0033 OR APPROVED EQUAL, PROVIDE TANK BUSHING AS REQUIRED FOR CONNECTION TO 3/4" FOS DROP TUBE.
10. ANTI SIPHON VALVE, MORRISON BROTHERS FIG. 912. PROVIDE (1) PER FOS LINE. COORDINATE REQUIRED RELIEF PRESSURE WITH SITE ELEVATION.
11. KRUEGER SENTRY LEAK GAUGE
12. MOUNTING CLIPS

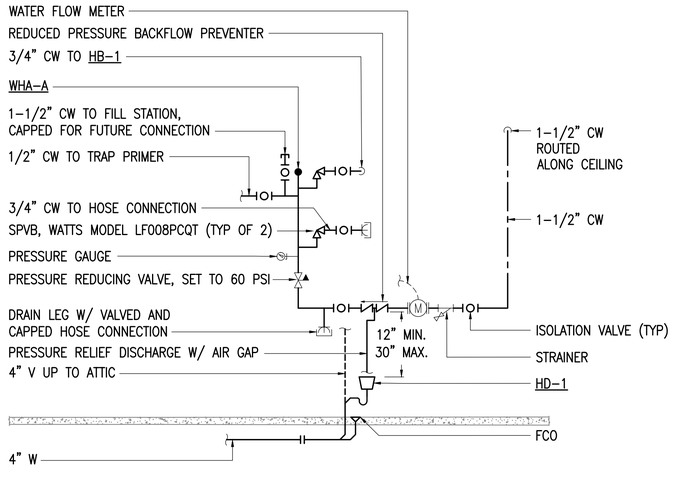
1 FUEL TANK DETAIL
NOT TO SCALE



2 EXTERIOR WALL HOOD DETAIL
NO SCALE



3 EXHAUST FAN HOOD DETAIL
NO SCALE



4 WATER SERVICE PIPING DETAIL
NO SCALE

REVISION	BY	DATE	APPRVL REV

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TITLE
MECHANICAL DETAILS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
BRIAN P. PEKAR
ME-11249
REGISTERED PROFESSIONAL ENGINEER
01/16/26

DAY ENGINEERING
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BY : JMC
DATE : 01/16/2026
SCALE : AS NOTED

SHEET **M3** OF 3 SHEETS

LEGEND

(P)	PHOTOCELL	$F	FRACTIONAL HORSEPOWER MOTOR STARTER
	LIGHT FIXTURE – SURFACE MTD ON WALL		DISCONNECT SWITCH
	STRIPLIGHT – PENDANT OR SURFACE MTD CLG	VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
A	FIXTURE TAG (LETTER INDICATES TYPE)	1	NOTE TAG (No. INDICATES NOTE)
$	SINGLE POLE SWITCH	AFF	ABOVE FINISHED FLOOR
$a	SINGLE POLE SWITCH (LOWERCASE LETTER INDICATES SWITCHING)	AFG	ABOVE FINISHED GRADE
$3	THREE WAY SWITCH	C	CONDUIT
	CONDUIT, CONCEALED	EM	DENOTES EMERGENCY POWER
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)	K	KELVIN
—UG/E—	UNDERGROUND ELECTRICAL LINE	LED	LIGHT EMITTING DIODE
—UG/COM—	UNDERGROUND COMMUNICATION LINE	LM	LUMENS
	PANEL	NEC	NATIONAL ELECTRICAL CODE
	DUPLEX RECEPTACLE	TYP	TYPICAL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER	UON	UNLESS OTHERWISE NOTED
J	JUNCTION BOX	WP	WEATHERPROOF
	MOTOR (SIZED AS NOTED)	XFMR	TRANSFORMER

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	BUILDING INTERIORS NON–HAZARD	LITHONIA #ZL1D L48 5000LM FST MVOLT 40K 80CRI WH	48" LED STRIP LIGHT, LENSED, WHITE HOUSING. PROVIDE WITH OPTION #E7W WHERE SPECIFIED AS EMERGENCY ON PLANS.	SURFACE	CEILING	5,541LM 4000K	120/277V LED	41
A2	ELECTRICAL ROOM	LITHONIA #ZL1D L48 7000LM FST MVOLT 40K 80CRI WH	SAME AS TYPE A1 EXCEPT HIGHER LUMEN OUTPUT. PROVIDE WITH OPTION #E7W WHERE SPECIFIED AS EMERGENCY ON PLANS.	SURFACE	CEILING	7,596LM 4000K	120/277V LED	59
B1	BUILDING EXTERIOR	LITHONIA #WDGE2 LED P2 40K 80CRI VW MVOLT SRM PBBW DDBXD	LED WALLPACK WITH –40°C RATING, WIDE DISTRIBUTION, SURFACE–MOUNTED BACK BOX, AND DARK BRONZE HOUSING.	WALL	10'–0" AFG	2,076LM 4000K	120/277V LED	15
B2	BUILDING EXTERIOR	LITHONIA #WDGE2 LED P1 40K 80CRI VW MVOLT SRM PBBW DDBXD	SAME AS TYPE B1 EXCEPT LOWER LUMEN OUTPUT.	WALL	8'–0" AFG	1,289LM 4000K	120/277V LED	10
C	BUILDING INTERIORS	HOLOPHANE #EMXH L24 7000LM FPFL MD MVOLT GZ10 40K 80CRI DWHXD CR	24" LINEAR LED FIXTURE FOR CORROSIVE AREAS, CAST AND EXTRUDED ALUMINUM HOUSING WITH FROSTED POLYCARBONATE LENS AND WHITE FINISH.	SURFACE	CEILING	5,442LM 4000K	120/277V LED	46.3

MOTOR CONTROL CENTER 'MCC-WH5

MFR/MODEL: SIEMENS MCC — VOLTS: 277/480V,3PH,4W — ENCLOSURE: NEMA 1 — 400 A

MTG SPACE: AS REQUIRED — MTG: PAD MOUNTED

NOTE	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	TYPE	SERVICE	AMPS	POLE	NOTE
a	3	*	PANEL 'LS' VIA 30KVA XFMR	FEDR	5442 49883			MOTR	WELL PUMP	*	3	a
a	3	*	^^^	FEDR		5402 49883		MOTR	^^^	*	3	a
a	3	*	^^^	FEDR			3885 49883	MOTR	^^^	*	3	a
	3	-	SPACE						SPACE	-	3	
	3	-	^^^						^^^	-	3	
	3	-	^^^						^^^	-	3	
	3	-	SPACE						SPACE	-	3	
	3	-	^^^						^^^	-	3	
	3	-	^^^						^^^	-	3	
TOTAL V-A					55325	55285	53768		164,379 VA			
TOTAL AMPS					200	200	194		198 A			

MINIMUM RECOMMENDED AIC RATING: 18,000 A.I.C.

TOTRE	LTG	REC	MOTR	LG MTR	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL)	0.00	0.00	149.65	37.41	0.00	0.00	0.00	0.00	149.6 KVA	180 A
CONNECTED LOAD IN KVA (BRANCH PANELS)	0.59	2.35	0.86	0.22	1.77	0.00	9.16	0.00	14.7 KVA	18 A
TOTAL CONNECTED LOAD IN KVA:	0.59	2.35	150.51	37.41	1.77	0.00	9.16	0.00	164.4 KVA	198 A
DEMAND LOAD IN KVA:	0.74	2.35	150.51	37.41	1.77	0.00	11.44	0.00	204.2 KVA	246 A

PANEL NOTES:
a SEE ONE-LINE DIAGRAM FOR BREAKER SIZE

PANEL OPTIONS:
MAIN LUGS ONLY
INTEGRAL SPD
POWER MONITORING

PANEL 'LA'

MFR/MODEL: INTEGRAL TO MCC — VOLTS: 120/208V,3PH,4W — ENCLOSURE: NEMA 1 — 100 A

MTG: MCC

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	1	20	LTG - INTERIOR & EXTERIOR	LTG	591 2818			HEAT	EH-1	35	2	2	
	3	1	20	RECP - S. EXT, ELEC/COM, STOR.	RECP		720 2818		HEAT	^^	35	2	4	
	5	1	20	RECP - WORK RM 101	RECP			900 759	HEAT	EH-2	15	2	6	
	7	1	20	RECP - SH-1 & WELL PUMP	MISC	274 759			HEAT	^^	15	2	8	
	9	1	15	EF-1	MOTR		864		MISC	ELECTRIC TRAP PRIMER	20	1	10	
	11	1	20	RECP - N. EXT, PUMP RM, TRAP PRIMER	RECP			726 500	MISC	RTU	20	1	12	
	13	1	20	SPARE		1000			MISC	GENERATOR BATTERY CHARGER	20	1	14	
	15	1	20	SPARE			1000		HEAT	GENERATOR BLOCK HEATER	20	2	16	
	17	1	-	SPACE				1000	HEAT	^^	20	2	18	
	19	1	-	SPACE						SPACE	-	1	20	
	21	1	-	SPACE						SPACE	-	1	22	
	23	1	-	SPACE						SPACE	-	1	24	
	25	1	-	SPACE						SPACE	-	1	26	
	27	1	-	SPACE						SPACE	-	1	28	
	29	1	-	SPACE						SPACE	-	1	30	
TOTAL V-A						5442	5402	3885		14,730 VA				
TOTAL AMPS						45	45	32		41 A				

MINIMUM RECOMMENDED AIC RATING: 10,000 A.I.C.

	LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	0.59	2.35	0.86	0.22	1.77	0.00	9.16	0.00	14.7 KVA	41 A
DEMAND LOAD IN KVA:	0.74	2.35	1.08	0.22	1.77	0.00	11.44	0.00	17.6 KVA	49 A

PANEL NOTES:

PANEL OPTIONS:
MAIN CIRCUIT BREAKER (SEE ONE-LINE FOR SIZE)
INTEGRAL SPD

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Corporate No.: AECC542
RSA JOB # M4082

TITLE: ELECTRICAL LEGEND AND SCHEDULE

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA — 14TH — DAVIN K. BLUBAUGH — EE–13893 — 12/5/2025 — REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
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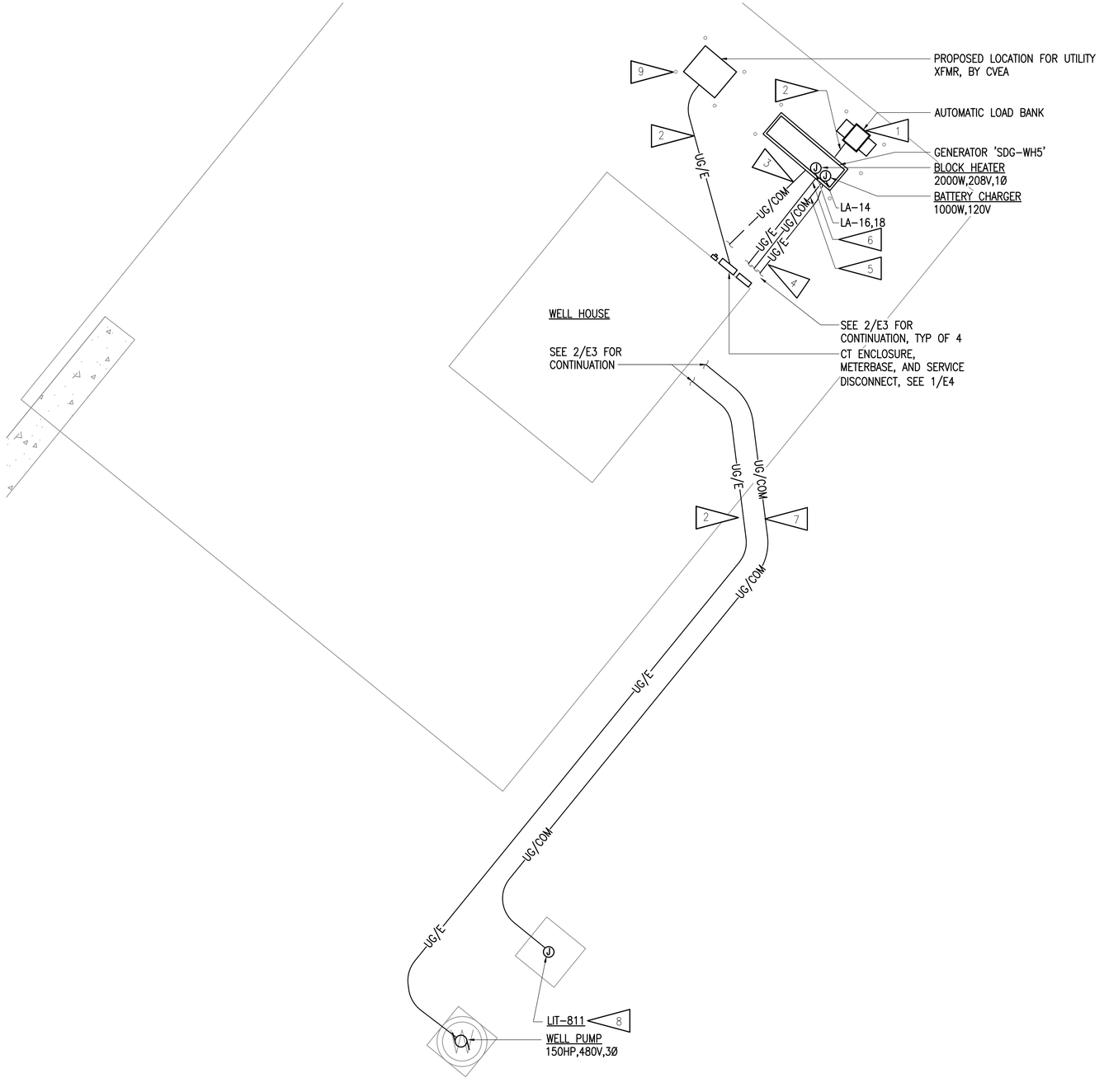
SHEET E1 OF 5 SHEETS — BY: CSZ,DB — DATE: 01/16/2026 — SCALE: AS NOTED



1 ELECTRICAL SITE PLAN - PUMP STATION 5

1" = 10'-0"

GENERAL NOTES:

A. REFERENCE AND COORDINATE WITH THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR APPLICABLE REQUIREMENTS PRIOR TO BEGINNING WORK.

B. REFERENCE 3/E4 FOR TRENCHING REQUIREMENTS.

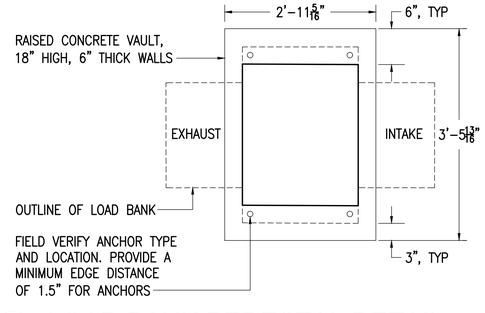
C. CONDUIT AND CONDUCTORS BETWEEN THE BUILDING, GENERATOR, AND LIFT PUMP SHALL BE ROUTED UNDERGROUND AND STUB UP BELOW THE EQUIPMENT.

D. CONDUIT AND WIRING ASSOCIATED WITH ALL INSTRUMENTATION, CONTROL, AND SIGNALING ARE NOT SHOWN ON THESE SHEETS. REFERENCE THE INSTRUMENTATION DRAWINGS FOR REQUIREMENTS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

E. FIELD COORDINATE WITH COPPER VALLEY ELECTRIC ASSOCIATION (CVEA) FOR NEW ELECTRICAL SERVICE TO BUILDING. EXACT LOCATION AND ROUTING TO BE DETERMINED BY UTILITY.

SHEET NOTES: (#)

1. PROVIDE NEW RAISED CONCRETE PEDESTAL BELOW LOAD BANK AS SHOWN WITHIN DETAIL 2. ORIENT LOAD BANK TO PEDESTAL SUCH THAT THE EXHAUST END IS FACING AWAY FROM THE SIDEWALK.
2. UNDERGROUND ELECTRICAL LINE. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
3. PROVIDE (2)1" UNDERGROUND CONDUIT WITH PULL STRING FROM GENERATOR CONTROL PANEL TO RTU IN BUILDING. SEE 2/E3 FOR CONTINUATION. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR CABLING REQUIRED.
4. PROVIDE (2) 1" UNDERGROUND CONDUIT WITH 3#10 AWG, CU, XHHW EACH FROM PANEL 'LA' TO GENSET FOR CONNECTION TO GENERATOR BATTERY CHARGER AND ENGINE BLOCK HEATER.
5. UNDERGROUND CONDUIT FROM ATS TO GENSET FOR START/STOP WIRING. SEE 1/E4 FOR DETAILS.
6. UNDERGROUND CONDUIT FROM ATS TO GENERATOR FOR STANDBY POWER CONNECTION. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
7. PROVIDE 1" UNDERGROUND CONDUIT WITH PULL STRING FROM JUNCTION BOX INSIDE TO JUNCTION BOX FOR LIT-811 CABLING. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR CABLING REQUIRED.
8. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH INSTRUMENTATION DRAWINGS PRIOR TO ROUGH-IN.
9. BOLLARDS, TYP. SEE CIVIL PLANS FOR DETAILS.



2 LOAD BANK PEDESTAL DETAIL

SCALE AS SHOWN

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Corporate No.: AECC542
RSA JOB # M4082

TITLE: **ELECTRICAL SITE PLAN - PUMP STATION 5**

PROJECT: **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
12/5/25
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
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BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

SHEET **E2** OF **5** SHEETS

GENERAL NOTES:

A. SEE SHEET E2 FOR ADDITIONAL GENERAL NOTES.

B. ALL INTERIOR AND EXTERIOR LIGHTING SHALL BE CONNECTED TO PANEL 'LA' CIRCUIT 1.

C. ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH PHOTOCELL LOCATED ON EXTERIOR OF THE BUILDING.

D. MOUNT ALL RECEPTACLES ON THE INTERIOR OR EXTERIOR OF THE EXTERIOR WALLS OF THE BUILDING AT +48" AFF, TO AVOID CONFLICTS WITH CONCRETE WALL.

E. CONDUIT AND WIRING ASSOCIATED WITH ALL INSTRUMENTATION, CONTROL, AND SIGNALING ARE NOT SHOWN ON THESE SHEETS. REFERENCE THE INSTRUMENTATION DRAWINGS FOR REQUIREMENTS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

F. LIGHTING CONTROL WIRING NOT SHOW BUT SHALL BE PROVIDED BY THE CONTRACTOR TO COMPLY WITH SPECIFICATIONS. CIRCUIT NUMBERS, AND LIGHTING CONTROLS SHOWN IN EACH ROOM.

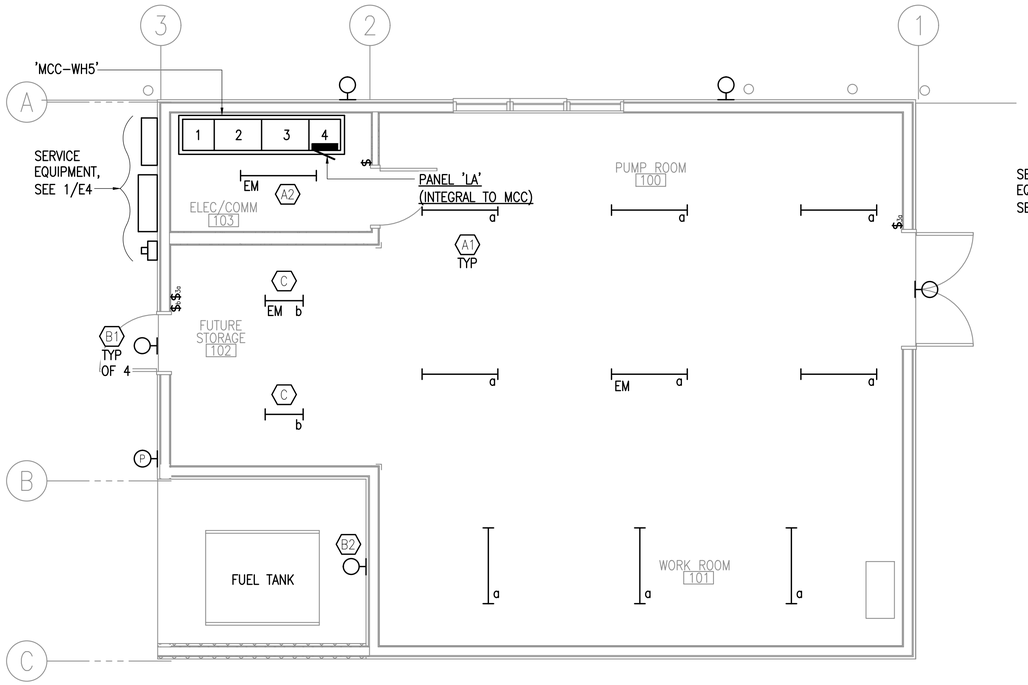
G. CONNECT ALL EMERGENCY LIGHTING TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT.

H. OCCUPANCY AND EXIT REQUIREMENTS PER IBC DO NOT REQUIRE EMERGENCY LIGHTING FOR THIS BUILDING. EMERGENCY LIGHTS ARE FOR CONVENIENCE OF OCCUPANTS IN CASE OF POWER LOSS.

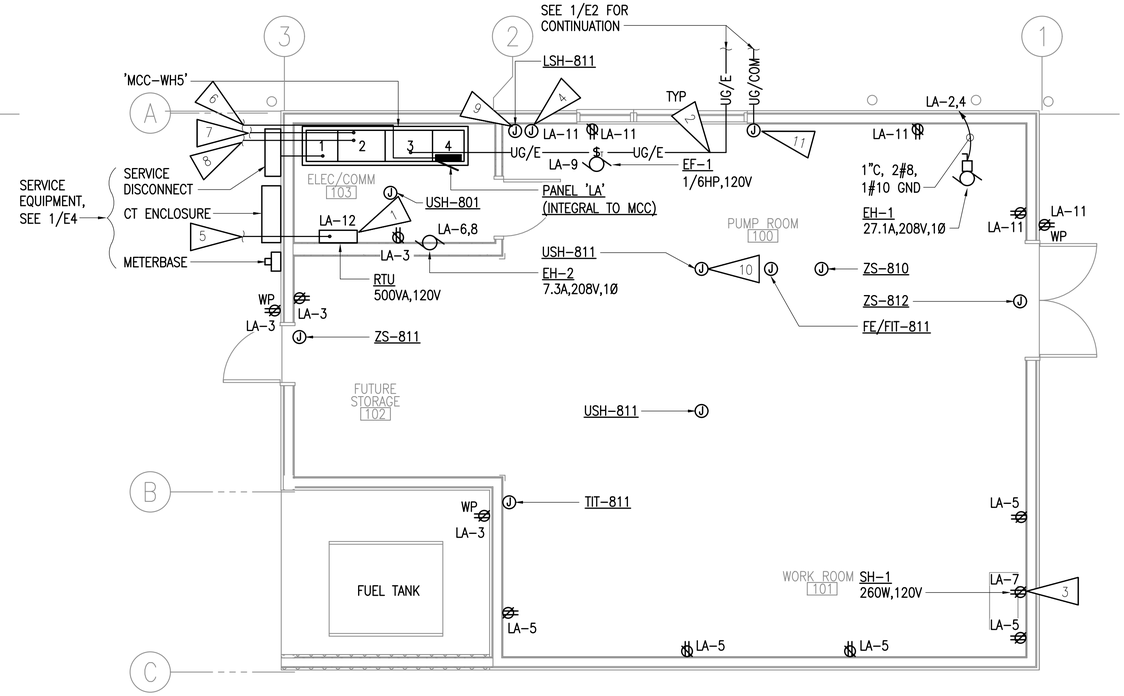
I. COORDINATE LOCATION AND CONNECTION REQUIREMENTS OF ALL DEVICES ENDING IN "–811" AND "–801" WITH INSTRUMENTATION DRAWINGS PRIOR TO ROUGH–IN.

SHEET NOTES: (#)

1. ROUTE 1.5" CONDUIT WITH PULL STRING FROM CONTROL PANEL TO ROOF FOR CONNECTION TO NEW CELLULAR/WIRELESS ANTENNA. COORDINATE WITH INSTRUMENTATION DRAWINGS FOR ANTENNA CONNECTION PRIOR TO ROUGH–IN.
2. UNDERGROUND ELECTRICAL LINE. SEE 1/E4 FOR CONDUIT AND WIRE SIZE.
3. SH–1 LIFT PUMP SHALL UTILIZE RECEPTACLE FOR POWER REQUIREMENTS.
4. JUNCTION BOX FOR CONNECTION TO ELECTRIC TRAP PRIMER. COORDINATE WITH MECHANICAL FOR EXACT LOCATION PRIOR TO ROUGH–IN.
5. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR CONTROL PANEL, SEE 1/E2 FOR CONTINUATION.
6. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR BATTERY CHARGER AND ENGINE BLOCK HEATER, SEE 1/E2 FOR CONTINUATION.
7. UNDERGROUND CONDUIT FROM ATS TO GENSET FOR ATS/GENERATOR CONTROL WIRING. SEE 1/E4 FOR DETAILS. SEE 1/E2 FOR CONTINUATION.
8. UNDERGROUND CONDUIT FOR CONNECTION TO GENERATOR SEE 1/E2 FOR CONTINUATION.
9. FIELD COORDINATE JUNCTION BOX MOUNTING LOCATION TO BE 1" AFF.
10. MOUNT ON DISCHARGE SIDE OF PCV.
11. PROVIDE 6"X6"X6" JUNCTION BOX FOR INSTRUMENTATION EQUIPMENT LIT–811 CABLING.



1 ELECTRICAL LIGHTING PLAN
1/4" = 1'-0"



2 ELECTRICAL POWER AND SIGNAL PLAN
1/4" = 1'-0"

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RSA JOB # M4082

TITLE: ELECTRICAL PLANS - PUMP STATION 5

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

STATE OF ALASKA — 24 OTH — DAWN K. BLUBAUGH — EE–13893 — 1/15/26 — REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
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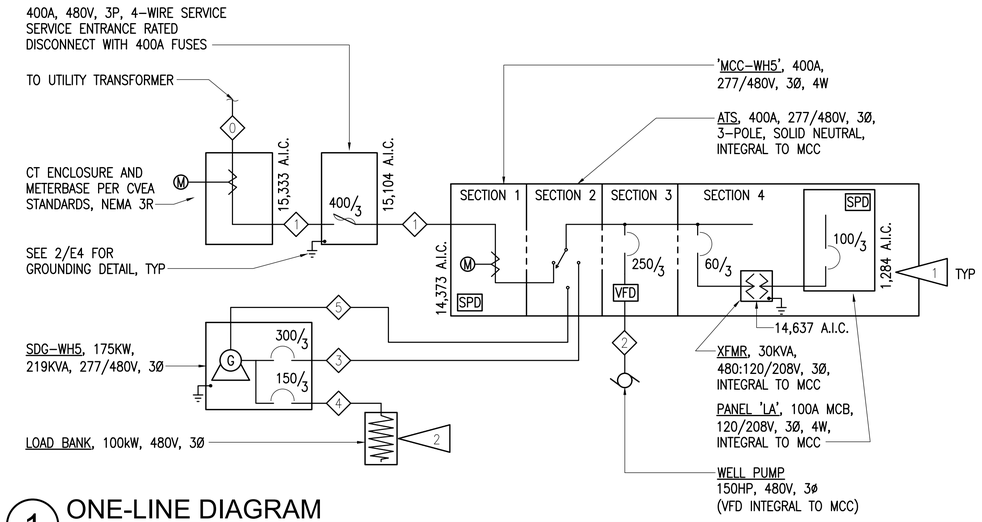
BY: CSZ_DB
DATE: 01/16/2026
SCALE: AS NOTED

SHEET E3 OF 5 SHEETS



1 ONE-LINE DIAGRAM
NO SCALE

FEEDER SCHEDULE	
FEEDER TAG	CONDUIT AND CONDUCTOR SIZE AND QUANTITY
◇0	CONDUIT ONLY, SIZED AS REQUIRED BY CVEA, CONDUCTORS BY CVEA
◇1	(2) 2"C, 4#3/0 AWG, 1#2 AWG GND CU, XHHW
◇2	2"C, 3#4/0 AWG, 1#4 AWG GND CU, XHHW
◇3	3"C, 4#350 KCMIL, 1#4 AWG GND CU, XHHW
◇4	1.5"C, 3#1/0 AWG, 1#6 AWG GND CU, XHHW
◇5	1"C AND GENERATOR START/STOP WIRING PER MANUFACTURER

GENERAL NOTES:

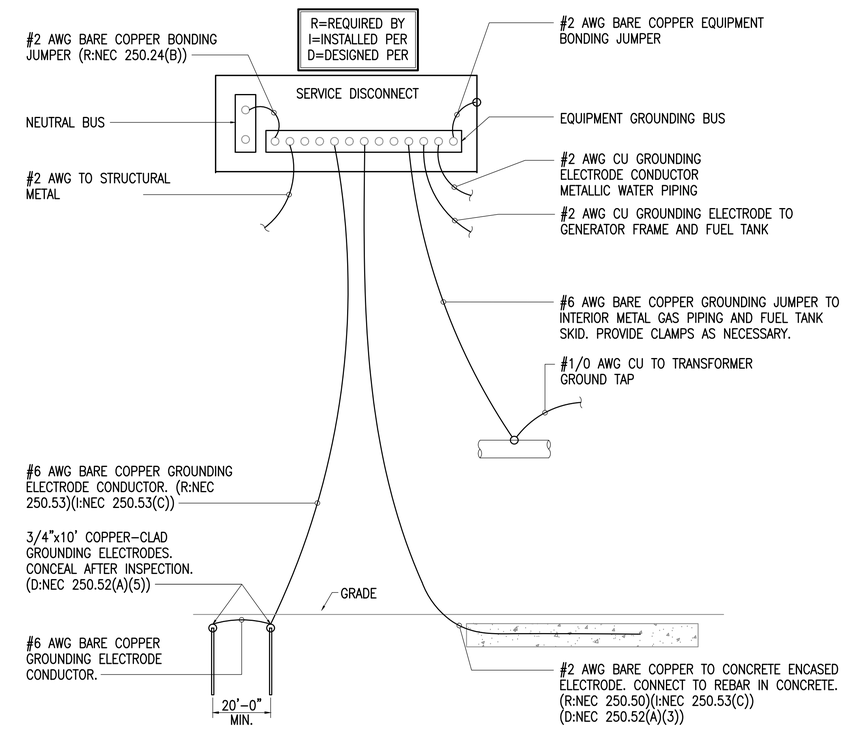
A. SEE SHEET E2 FOR GENERAL NOTES.

B. SERVICE ENTRANCE EQUIPMENT SHALL BE ASSEMBLED IN CONFORMANCE WITH THE LOCAL SERVING UTILITY'S STANDARDS. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF WITH CVEA.

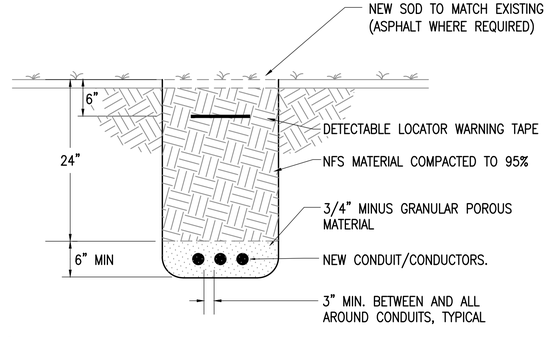
SHEET NOTES: ◁#

1. EQUIPMENT CALCULATED AIC. PANELBOARDS SHALL HAVE CALCULATED AIC INSTALLED ON NAMEPLATES.

2. PROVIDE ADDITIONAL CONTROL AND SIGNAL WIRING BETWEEN LOAD BANK AND GENERATOR IN ACCORDANCE WITH LOAD BANK MANUFACTURER'S INSTRUCTIONS.



2 GROUNDING DETAIL
NO SCALE



3 TRENCHING DETAIL
NO SCALE

CALL BEFORE YOU DIG	
THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCEMENT OF EXCAVATION. THE FOLLOWING IS A PARTIAL LIST:	
LOCATE CALL CENTER OF ALASKA	278–3121
COPPER VALLEY ELECTRIC ASSOCIATION	811

REVISION	BY	DATE	APPRVL REV

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Corporate No.: AECC542
RSA JOB # M4082

TITLE: ELECTRICAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
49TH
DAVIN K. BLUBAUGH
EE-13893
12/5/25
REGISTERED PROFESSIONAL ENGINEER

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BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

SHEET E4 OF 5 SHEETS

GENERAL NOTES:

A. SEE SHEET E2 FOR GENERAL NOTES.

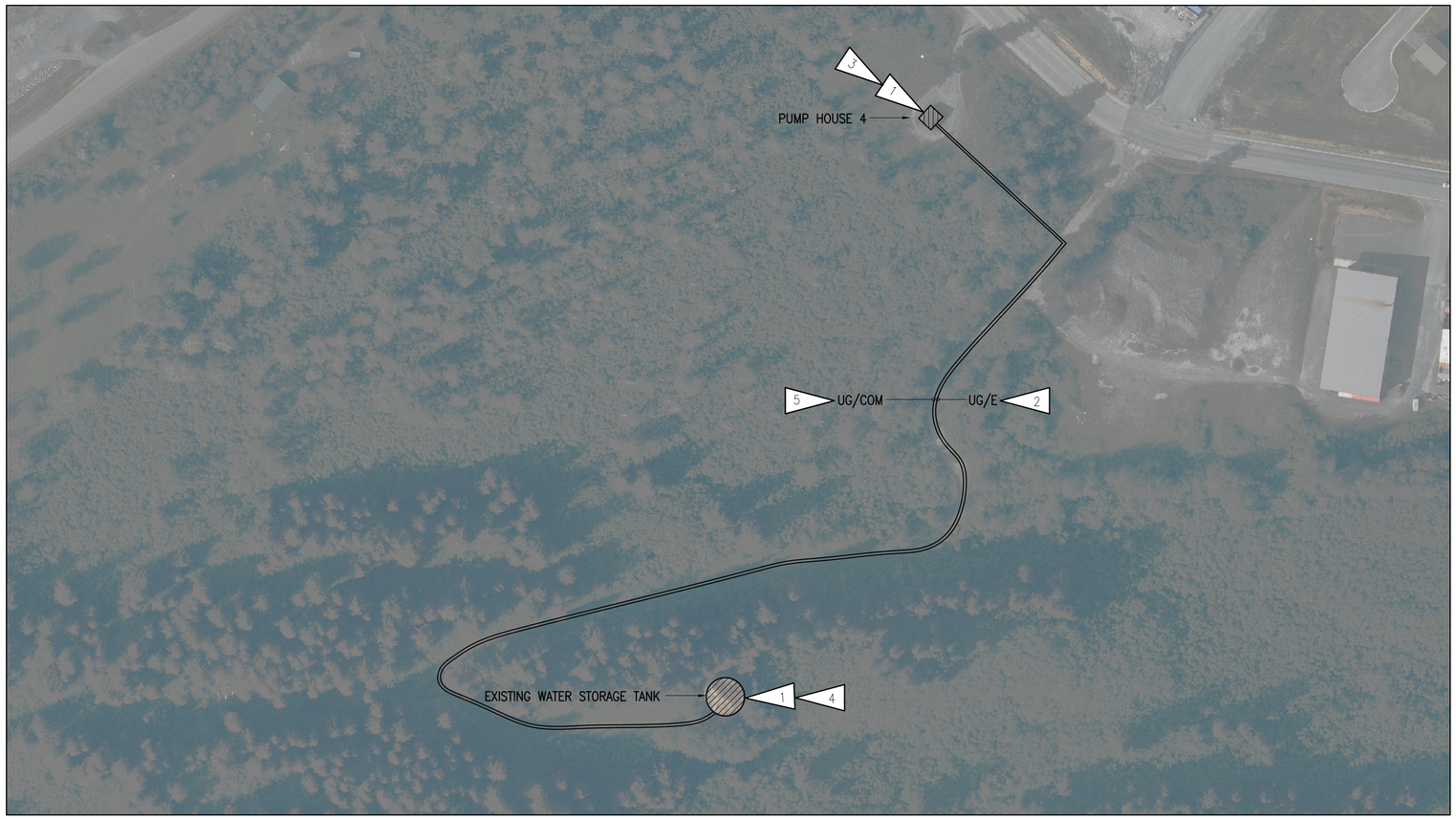
B. IN-GRADE PULL BOXES ARE NOT SHOWN BUT SHALL BE PROVIDED AT A MAXIMUM OF 200FT INTERVALS. PROVIDE ADDITIONAL PULL BOXES AS REQUIRED.

C. FOR BIDDING PURPOSES, CONTRACTOR SHALL ASSUME DISTANCE FROM PUMP HOUSE 4 BUILDING TO WATER STORAGE TANK IS APPROXIMATELY 2,400 FEET. CONTRACTOR SHALL ROUTE ALL CONDUITS INTO EXISTING MAN HOLE LOCATED AT THE WATER STORAGE TANK.

D. REFERENCE THE INSTRUMENTATION DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR THE PUMP HOUSE 4 AND WATER STORAGE TANK INSTALLATION.

SHEET NOTES:

1. PROVIDE 0.5"C, 3#12 AWG CU XHHW FROM SPLICE BOX TO SPARE 20A, 1-POLE BREAKER IN EXISTING PANELBOARD IN THE BUILDING.
2. PROVIDE 2"C, 3#4 AWG CU XHHW FROM SPLICE BOX IN PUMP HOUSE 4 TO THE EXISTING WATER TOWER.
3. PROVIDE JUNCTION BOX FOR SPLICING #3 AWG CONDUCTORS TO #12 AWG.
4. PROVIDE 0.5"C, 3#12 AWG CU XHHW FROM SPLICE BOX TO EQUIPMENT IN WATER STORAGE TANK. COORDINATE WITH OWNER FOR EXACT EQUIPMENT REQUIRING CONNECTION.
5. PROVIDE 2"C WITH PULL STRINGS FROM THE EXISTING PUMP HOUSE 4 TO THE EXISTING WATER STORAGE TANK.



1 ELECTRICAL SITE PLAN - PUMP STATION 4
NOT TO SCALE

DB	△	10/27/2025	CSZ	ADDENDUM #4
APPRVL REV		DATE	BY	REVISION

RSA
Mechanical and Electrical Consulting Engineers
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
(907) 276-0520
Corporate No.: AECC542
RSA JOB # M4082

TITLE
ELECTRICAL DETAILS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

STATE OF ALASKA
DAWN K. BLUBAUGH
EE-13893
11/5/25
REGISTERED PROFESSIONAL ENGINEER

DAY ENGINEERING
PO BOX 151179 • ELY, NEVADA 89315 • (775) 289-5353
63 KEYSTONE AVENUE #206 • RENO, NEVADA 89503 • (775) 348-8624

SHEET **E5** OF **5** SHEETS

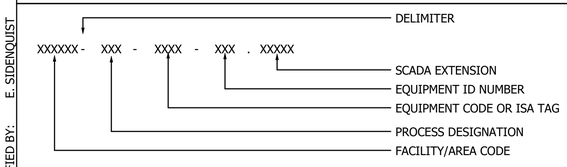
BY : CSZ,DB
DATE : 01/16/2026
SCALE : AS NOTED

LAST MODIFIED BY: E. SIDENQUIST

LAST MODIFIED DATE: 01/16/25 3:44 PM

File Name: 23830-208__Well_5

#.#



WWSS FACILITY / AREA CODE DESIGNATION EXAMPLE

NAMED FACILITY	**CODE**	**AREA**	**CODE**
WELL 5	W5	CHEMICAL	CHM

RESULTING CODE:

WELL 5 CHEMICAL W5CHM

W5	WELL 5 GENERAL

#.#

ANSI / ISA DESIGNATION

FIRST LETTER				SECOND OR SUCCEEDING LETTERS					
MEASURED OR INITIATING VARIABLE		MODIFIER		READOUT OR PASSIVE FUNCTION		OUTPUT FUNCTION		MODIFIER FUNCTION	
A	ANALYSIS	D	DIFFERENTIAL	A	ALARM	B	USER'S CHOICE	B	USER'S CHOICE
B	BURNER, COMBUSTION	F	RATIO (FRACTION)	B	USER'S CHOICE	C	CONTROL	H	HIGH
C	USER'S CHOICE	J	SCAN	E	SENSOR (PRIMARY ELEMENT)	K	CONTROL STATION	L	LOW
D	USER'S CHOICE	K	TIME RATE OF CHANGE	G	GLASS, VIEWING DEVICE	N	USER'S CHOICE	M	MIDDLE, INTERMEDIATE
E	VOLTAGE	M	MOMENTARY	I	INDICATION	S	SWITCH	N	USER'S CHOICE
F	FLOW RATE	Q	INTEGRATE, TOTALIZER	L	LIGHT	T	TRANSMIT	U	MULTIFUNCTION
G	USER'S CHOICE	S	SAFETY	N	USER'S CHOICE	U	MULTIFUNCTION	X	UNCLASSIFIED
H	HAND	X	X- AXIS	O	ORIFICE, RESTRICTION	V	VALVE, DAMPER, LOUVER		
I	CURRENT (ELECTRICAL)	Y	Y-AXIS	P	POINT (TEST CONNECTION)	X	UNCLASSIFIED		
J	POWER	Z	Z-AXIS	R	RECORD	Y	RELAY, COMPUTE, CONVERT		
K	TIME, TIME SCHEDULE			U	MULTIFUNCTION	Z	DRIVER, ACTUATOR		
L	LEVEL			W	WELL				
M	USER'S CHOICE			X	UNCLASSIFIED				
N	USER'S CHOICE								
O	USER'S CHOICE								
P	PRESSURE, VACUUM								
Q	QUANTITY								
R	RADIATION								
S	SPEED, FREQUENCY								
T	TEMPERATURE								
U	MULTIVARIABLE								
V	VIBRATION, MECHANICAL ANALYSES								
W	WEIGHT, FORCE								
X	UNCLASSIFIED								
Y	EVENT, STATE OR PRESENCE								
Z	POSITION, DIMENSION								

GENERAL SHEET NOTES

REV	DATE	REVISION	BY	APPRVL

S & B inc.

Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE
STANDARDS SHEET

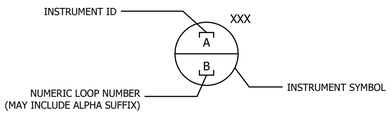
PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9090

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET **11** OF **24** SHEETS

#.# INSTRUMENTATION CALL-OUT



6.3 SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	XXX A B	XXX A B	XXX A B
PROGRAMMABLE LOGIC CONTROL	XXX A B	XXX A B	XXX A B

ANALOG INPUT
ANALOG OUTPUT
DISCRETE INPUT
DISCRETE OUTPUT
ELECTRIC SIGNAL
INTERNAL SYSTEM LINK
(SOFTWARE OR DATA LINK)

#.# COLOR PLAN

COLOR	GENERIC MEANING	ELEMENT ASSOCIATION
BLACK	BACKGROUND	
RED	EMERGENCY	A) STOP B) HIGHEST PRIORITY ALARM
YELLOW	CAUTION	A) ABNORMAL CONDITION B) SECOND PRIORITY ALARM C) CLOSED
GREEN	SAFE	A) NORMAL OPERATION B) START C) OPEN C) ON
CYAN (LIGHT BLUE)	STATIC & SIGNIFICANT	A) PROCESS EQUIPMENT IN SERVICE B) MAJOR LABELS
BLUE	NONESSENTIAL	A) STANDBY PROCESS EQUIPMENT B) LABELS, TAGS, ETC.
MAGENTA (PURPLE)	ANALYTICAL	A) RADIATION ALARMS B) QUESTIONABLE VALUES
WHITE	DYNAMIC DATA	A) MEASUREMENTS & STATE INFORMATION B) SYSTEM MESSAGES C) TREND D) ACTIVE SEQUENTIAL STEP
GRAY	INACTIVE	A) OFF B) NOT MONITORED

#.# WIRE NUMBERING

GENERAL SHEET NOTES

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208__Well_5

APPVL	REV	DATE	BY	REVISION

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TITLE
STANDARDS SHEET

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

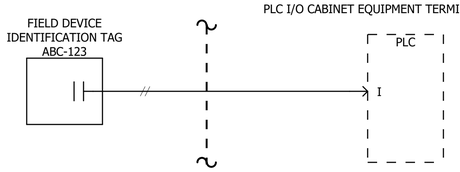
ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9999

BY : JES
DATE : 1/16/2026
SCALE : NTS

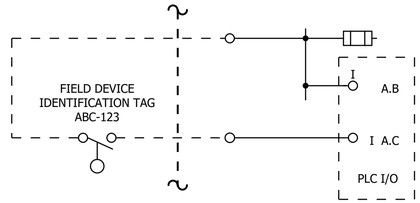
SHEET 12 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM
File Name: 23830-208_Well_5

DETAIL A

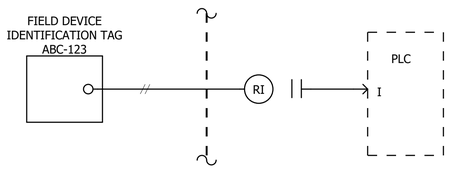


DISCRETE INPUT: DRY CONTACT IN FIELD DEVICE +24VDC SUPPLY VOLTAGE FROM PLANT I/O SYSTEM.

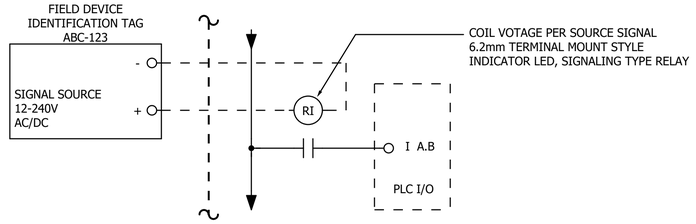


PLC INPUT CARD, DENOTED WITH BYTE.BIT MEMORY LOCATION. SUPPLY CURRENT LIMITING FUSE FOR EACH UNLESS INPUT CARD PRIVIDED PROTECTION. EXTERNAL TRANSZORB PROTECTION FOR OUTDOOR MOUNTED FIELD DEVICES FOR EQUIPMENT PROTECTION.

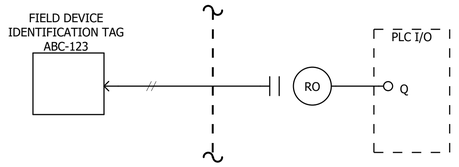
DETAIL B



FOREIGN VOLTAGE INPUT: FIELD DEVICE SOURCE VOLTAGE MATCHED BY RELAY INPUT COIL SPECIFICATION. PLANT I/O SYSTEM SIGNALED BY INTERNAL 24Vdc SUPPLY.



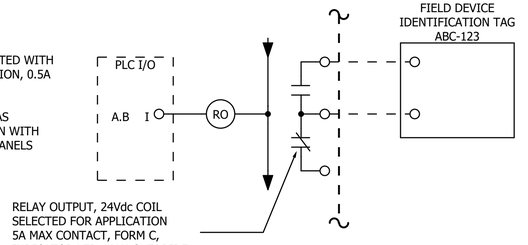
DETAIL C



PLC OUTPUT SHOWN AS RELAY OUPUT: +24Vdc SOURCE FROM OUTPUT CARD TO CONTROL RELAY IN I/O PANEL. RELAY CONTACT TO FIELD DEVICE RATED 24-120V AT 10A MAX

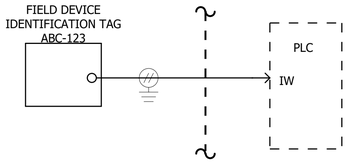
PLC OUTPUT CARD, DENOTED WITH BYTE.BIT MEMORY LOCATION, 0.5A MAX.

RELAY INTERPOSE USED AS REQUIRED FOR ISOLATION WITH THIRD PARTY CONTROL PANELS AND FIELD DEVICES.



RELAY OUTPUT, 24Vdc COIL SELECTED FOR APPLICATION 5A MAX CONTACT, FORM C, INDICATOR LED, MAN OVERRIDE, TERMINAL MOUNT STYLE UNLESS OTHERWISE SPECIFIED.

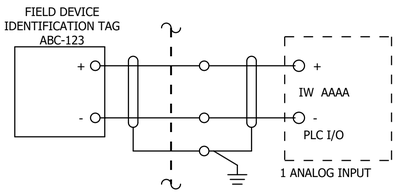
DETAIL D



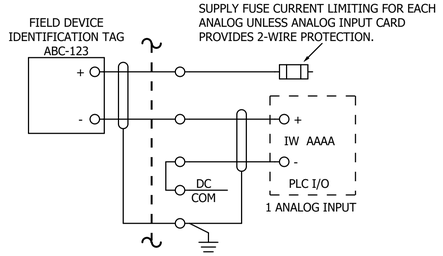
ANALOG INPUT: 4-20mAdc SIGNAL (0-10Vdc OPTIONAL). TWO-WIRE FIELD TRANSMITTERS HAVE NEGATIVE SIGNAL COMMON WITH 24Vdc POWER SYSTEM.

TYPICAL 2-WIRE DEVICE

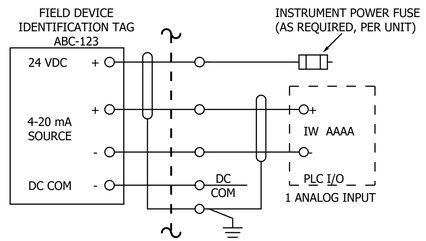
(USING PLC CARD'S INTERNAL CURRENT LIMITING)



TYPICAL 2-WIRE DEVICE

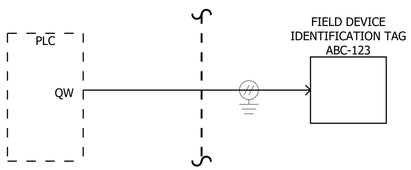


TYPICAL 4-WIRE DEVICE



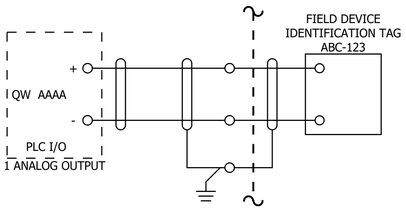
DETAIL E

ANALOG OUTPUT: 4-20mAdc SIGNAL (0-10Vdc OPTIONAL). TWO-WIRE FIELD TRANSMITTERS HAVE NEGATIVE SIGNAL COMMON WITH 24Vdc POWER SYSTEM.

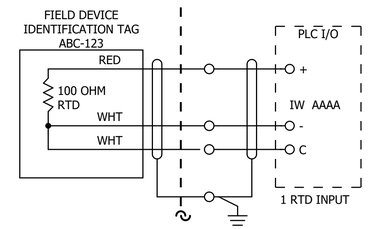


PLC ANALOG OUTPUT CARD, 4PT OR 8PT, DENOTED WITH WORD MEMORY LOCATION. 4-20mAdc OUTPUT (HARDWARE SELECTABLE TO 0-10Vdc). 15 BIT RESOLUTION.

COMMON NEGATIVE RETURN FOR ALL OUTPUT CHANNELS UNLESS SPECIFICALLY IDENTIFIED.



TYPICAL RTD DEVICE



KEY PLAN

WIRE TYPE SPECIFICATIONS

- DENOTES 2 SINGLE CONDUCTORS
- DENOTES SHIELDED PAIR CABLE
- PN — DENOTES PROFINET CABLE, SIEMENS 6XV18402AH10
- DP — DENOTES PROFIBUS CABLE, SIEMENS 6XV18300EH10
- SINGLE MODE FIBER
- CAT5e/CAT6 COPPER

GENERAL SHEET NOTES

A. WIRING CONNECTIONS ARE SHOWN AS SYMBOLIC INTERCONNECTIONS IN THE INSTRUMENTATION BLOCK DIAGRAM DRAWINGS, WIRE TYPE AND QUANTITY ARE DEFINED IN THE BLOCK DIAGRAM, CONDUCTOR PROPERTIES ARE DEFINED IN THE ELECTRICAL SPECIFICATION SECTION. BLOCK DIAGRAMS PROVIDE INTERCONNECTION REQUIREMENTS BETWEEN FIELD EQUIPMENT AND CONTROL PANELS AND ARE NOT INTENDED TO PROVIDE DIRECTION ON CONDUIT SIZE OR ROUTING.

B. FIELD AND PANEL TERMINATION OF NETWORK. DISCRETE AND ANALOG SIGNAL WIRING SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR AND VERIFIED BY THE SYSTEM INTERGRATOR PRIOR TO ENERGIZATION.

C. FIELD WIRING CONDUCTORS ARE IDENTIFIED BY PERMANENT MARKING METHODS DEFINED IN THE ELECTRICAL SPECIFICATIONS.

D. PLC/SCADA SYSTEM ABBREVIATIONS:

I:	DIGITAL INPUT(24Vdc UNLESS OTHERWISE DENOTED)
Q:	DIGITAL OUTPUT (24Vdc), TYP 0.5A MAX
IW:	ANALOG INPUT (INPUT WORD), 4-20mA
QW:	ANALOG OUTPUT (OUTPUT WORD), 4-20mA
Pn:	PROFINET NETWORK CONNECTION
ETH:	PROFINET INDUSTRIAL ETHERNET CONNECTION
HMI:	HUMAN MACHINE INTERFACE, TOUCH SCREEN FOR PROCESS VISUALIZATION
PN:	PROFINET

REVISION	BY	DATE	REV	APPRVL

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
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TITLE: WIRING INTERFACE GENERAL DETAILS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9300

BY : JES
DATE : 1/16/2026
SCALE : NTS

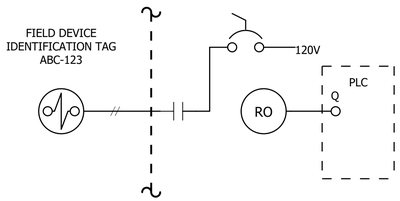
SHEET T3 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

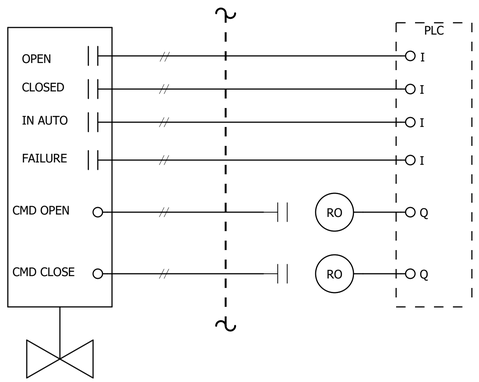
File Name: 23830-208_Well_5

DETAIL F

SOLENOID VALVE



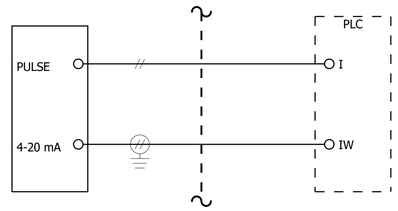
DISCRETE VALVE



APPLICATION: SPECIAL PURPOSE MOTORIZED BALL VALVES
PLC SYSTEM POSITIONS VALVE IN AUTOMATIC MODE, PROVIDES ALARM NOTIFICATION ON FAILURE TO REACH POSTION WITHIN ALLOTTED TIME, AND FOR A PROCESS FLOW VIOLATION. SCADA PROVIDES VISUALIZATION OF VALVE STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE OF VALVE

DETAIL G

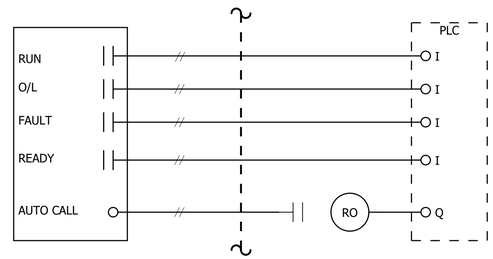
DISCRETE FLOW METER



APPLICATION: SPECIAL PURPOSE FLOWS, PLC SYSTEM MONITORS FLOW RATE AND ACCUMULATES FLOW TOTAL. RATE IS CONTINUOUSLY ANALYZED FOR CONSISTENCY. ALARMS CALCULATED FOR INVALID mA SIGNAL AND RAPID CHANGE IN FLOW. PLC STORES DAILY FLOW TOTAL, LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

DETAIL H

DISCRETE STARTER



APPLICATION: SPECIAL PURPOSE MOTOR STARTERS FOR FRACTIONAL HORSEPOWER INSTALLATIONS.
PLC SYSTEM MONITORS AUTOMATIC MODE, PROVIDES CONTROL (WHERE DEFINED BY P&ID). PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, AND FOR A PROCESS LOGIC VIOLATION. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE.

NETWORK CABLING NOTES

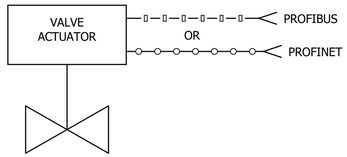
GENERAL PLANT CABLING CAN CARRY HIGH VOLTAGES AND CURRENTS. RUNNING PROFIBUS CABLES PARALLEL TO SUCH CABLES CAN LEAD TO INTERFERENCE PICKUP AND DATA TRANSMISSION ERRORS. MINIMIZE RISK OF INTERFERENCE BY FOLLOWING "INSTALLATION GUIDELINE FOR CABLING AND ASSEMBLY" AVAILABLE ONLINE AT WWW.PROFIBUS.ORG.

USE CARE TO AVOID COMMON PROFINET INSTALLATION PROBLEMS INCLUDING: OVERSTRESSED PULL TENSION, FAILURE TO FOLLOW END TAP LENGTHS IN EXCESS OF 1 METER AND FAILURE TO FOLLOW POLARITY, GROUNDING SPECIFICATIONS.

PROFINET / INDUSTRIAL ETHERNET CABLING REQUIRES HOME RUN TO NETWORK SWITCH FOR EACH DEVICE AND USE OF INDUSTRIAL CABLING AND CONNECTOR ASSEMBLIES.

DETAIL I

NETWORKED VALVE ACTUATOR



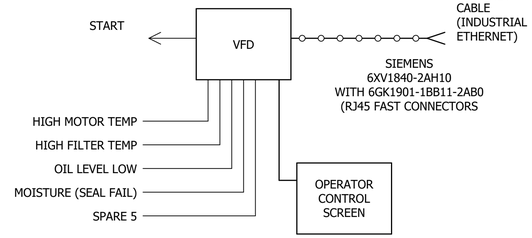
VIRTUAL I/O

VALVE POSITION XXX.X %
TORQUE APPLIED XXX FT-LBS
ACTUATOR TEM XXX DegF
FULLY CLOSED
FULLY OPEN
VALVE SELECTOR IN STOP
VALVE SELECTOR IN REMOTE
VALVE SELECTOR IN LOCAL
VALVE IN PLC CONTROL
VALVE MOTOR RUNNING
VALVE TORQUE STOPPED
VALVE OVERLOAD
CMD ERROR

APPLICATION: ALL VALVES UNLESS SPECIFICALLY IDENTIFIED. PLC SYSTEM POSITIONS VALVE IN AUTOMATIC MODE, PROVIDES ALARM NOTIFICATION ON FAILURE TO MEET SETPOINT, PROCESS FLOW VIOLATION, AND ALL VALVE INITIATED ALARM STATES. SCADA PROVIDES VISUALIZATION OF VALVE STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTINGS, AND SUPERVISORY CONTROL OVERRIDE OF VALVE. PROCESS FIELDBUS MAY BE PROFINET (PREFERRED) OR PROFIBUS. SEE NETWORK DIAGRAM FOR DETAILS THAT PRESCRIBE ROUTING TO DEVICE.

DETAIL J

NETWORKED VFD, SUBMERSIBLE MOTOR



VIRTUAL I/O

IN AUTO / IN HAND
CALL
RUNNING
READY
AT SPEED
FAULT-VFD FAULT ALARM
ALARM-VFD WARNING
OVERLOAD-MOTOR OVERLOAD
TEMPERATURE-VFD/MOTOR OVERTEMP

SPEED FEEDBACK
SPEED COMMAND
DC LINK VOLTAGE
MOTOR HP
MOTOR VOLTS
MOTOR AMPS
MOTOR TORQUE
LAST FAULT CODE
LAST ALARM CODE

APPLICATION: VARIABLE FREQUENCY DRIVE MOTOR STARTERS
PLC SYSTEM MONITORS MOTOR CONTROLLER VIA PROFIBUS NETWORK. VFD CONTOLLER PROVIDES ON BOARD LOGIC FOR LOCAL (HAND) AND REMOTE AUTO CONTROL, PROVIDES CONTROL (AS DEFINED BY P&ID), PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, FOR A PROCESS LOGIC VIOLATION AND ALL ALARM CONDITIONS GENERATED BY THE VFD CONTROL UNIT. POWER INFORMATION IS MONITORED FOR OVER AND UNDER LOAD CONDITIONS AS EARLY WARNING INDICATION OF PROCESS ABNORMALITIES. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTING, AND SUPERVISORY CONTROL OVERRIDES (HAND/OFF/AUTO). SCADA PROVIDES INDICATION OF ALL NETWORK DERIVED INFORMATION, ARCHIVES RUNTIME, SPEED, kW LOAD AND ALARM CONDITION.

REVISION	BY	DATE	REV	APPRVL

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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: EQUIPMENT WIRING FOR DISCRETE AND VIRTUAL DATA

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5050

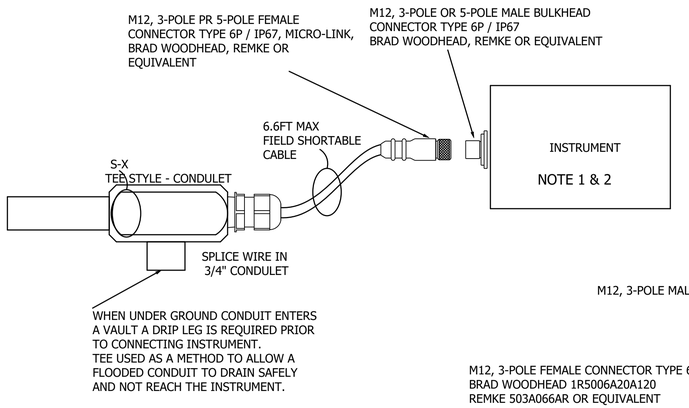
BY: JES
DATE: 1/16/2026
SCALE: NTS

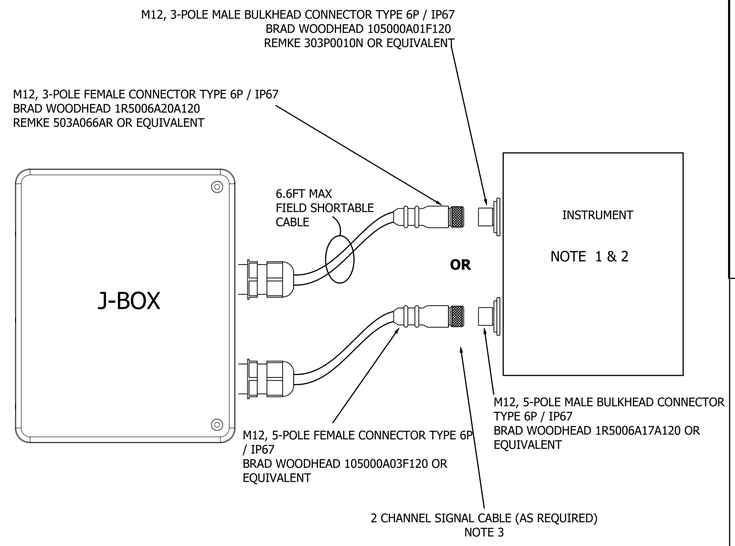
SHEET I4 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

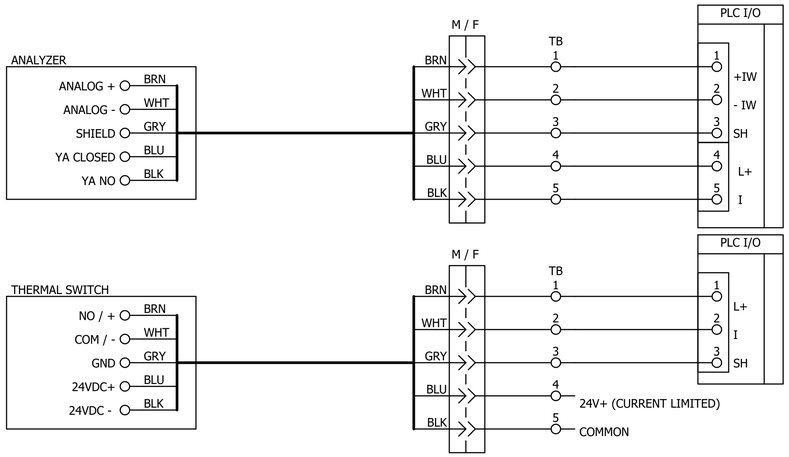
File Name: 23830-208_Well_5

DETAIL G1
TYPICAL INSTRUMENT CONNECTION DETAIL





	PINS		
3-POLE	② ① ⑤ ③ ④	1 - BROWN 2 - NOT USED 3 - BLUE 4 - BLACK 5 - NOT USED	ANALOG + ANALOG - SHIELD
5-POLE	② ① ⑤ ③ ④	1 - BROWN 2 - WHITE 3 - BLUE 4 - BLACK 5 - GRAY	ANALOG + ANALOG - YA CLOSED YA NO SHIELD



GENERAL SHEET NOTES

1. INSTRUMENTS USING 3-POLE M12 CONNECTORS ARE:
   -PRESSURE SWITCHES
   -LEVEL SWITCHES
   -LIMIT SWITCHES
   -FLOW SWITCHES
   2-WIRE TRANSMITTERS W/O FAILURE CONTACT
   -ALL ANALOG PRESSURE INSTRUMENTS
   -ULTRASONIC LEVEL PROBE
   -RADAR LEVEL PROBES
   4-WIRE TRANSMITTERS USING 120V PRIMARY POWER

2. INSTRUMENTS USING 5-POLE M12 CONNECTORS ARE:
   -ALL WATER QUALITY ANALYZERS
   DUAL ANALOG OUTPUT INSTRUMENTS ANALOG + FAIL
   THERMAL DISPERSION FLOW SWITCH
   4-WIRE TRANSMITTERS USING 24VDC PRIMARY POWER

3. AN EXAMPLE, DUAL CHANNEL INSTRUMENT IS A pH SENSOR WITH TEMPERATURE MEASUREMENT.

4. 120VAC POWER CABLES USE NEMA L5-15 LOCKING STYLE PLUG CONNECTION.

REVISION	BY	DATE	REV	APPRVL

S & B inc.
Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE: QUICK CONNECT CABLING STANDARDS

PROJECT: NEW WELL 5 PUMPING STATION VALDEZ, ALASKA

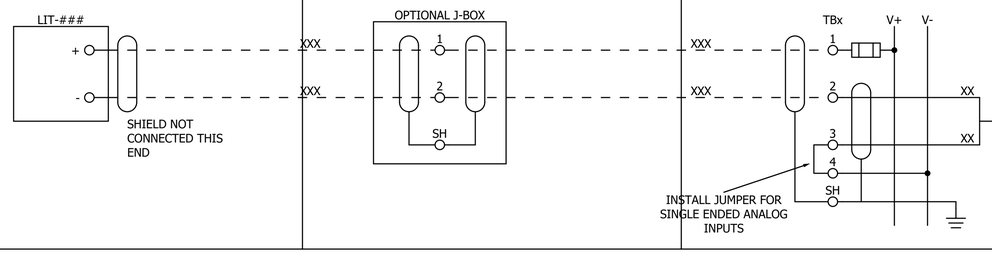
ENGINEERING
5 EAST MAIN STREET FALLON, NEVADA 89406 (775) 423-5090

BY: JES
DATE: 1/16/2026
SCALE: NTS

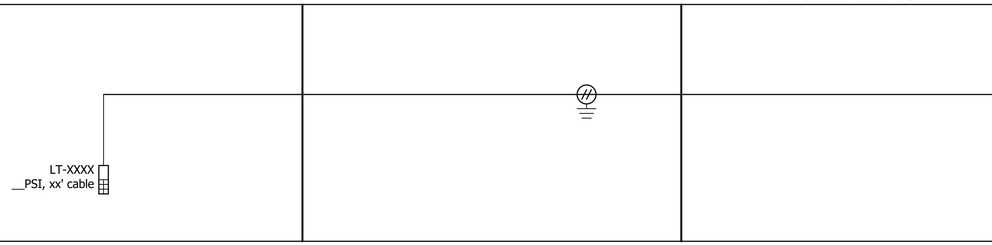
SHEET 15 OF 24 SHEETS

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM

WIRING DIAGRAM



BLOCK DIAGRAM



GENERAL SHEET NOTES:

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Current Value	9999.99	Ft
High High Alarm	+9999.99	Ft
High Alarm	+9999.99	Ft
Low Alarm	+9999.99	Ft
Low Low Alarm	+9999.99	Ft

DETAILS Show All

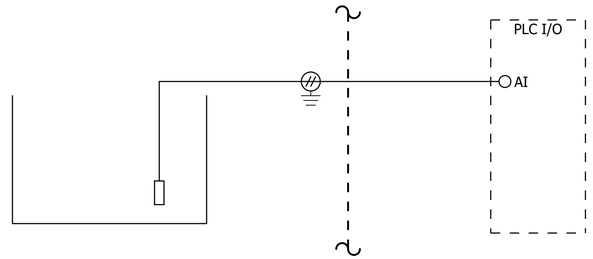
Broken Transmitter

Min EU	+9999.99	Ft
Max EU	+999999.99	Ft
Smoothing	9.99	
Deadband	99.999	

SCADA EXTENSION

DETAIL

DISCRETE LEVEL TRANSMITTER



P&ID REPRESENTATION

REVISION	BY	DATE	REV	APPRVL

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: Submersible Probe (Discrete) Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5999

BY: JES
DATE: 1/16/2026
SCALE: NTS

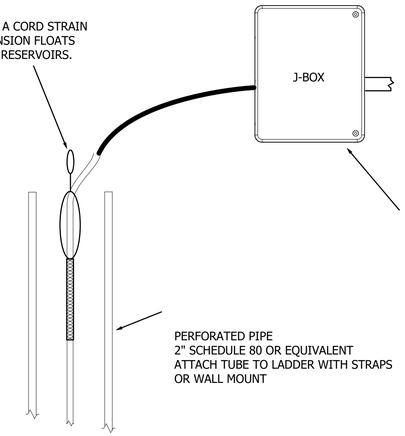
SHEET I6 OF 24 SHEETS

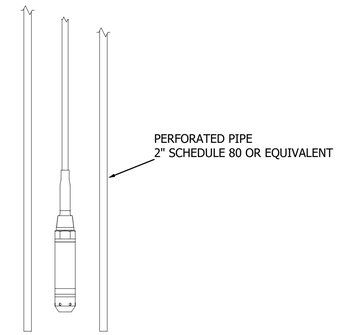
File Name: 23830-208__Well_5

LAST MODIFIED DATE: 01/16/26 12:36 PM LAST MODIFIED BY:

File Name: 23830-208_Well_5

AQUIFER STILLING WELL APPLICATION





NOTES:

REVISION	DATE	BY	APPRVL	REV

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE: Submersible Probe Installation

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

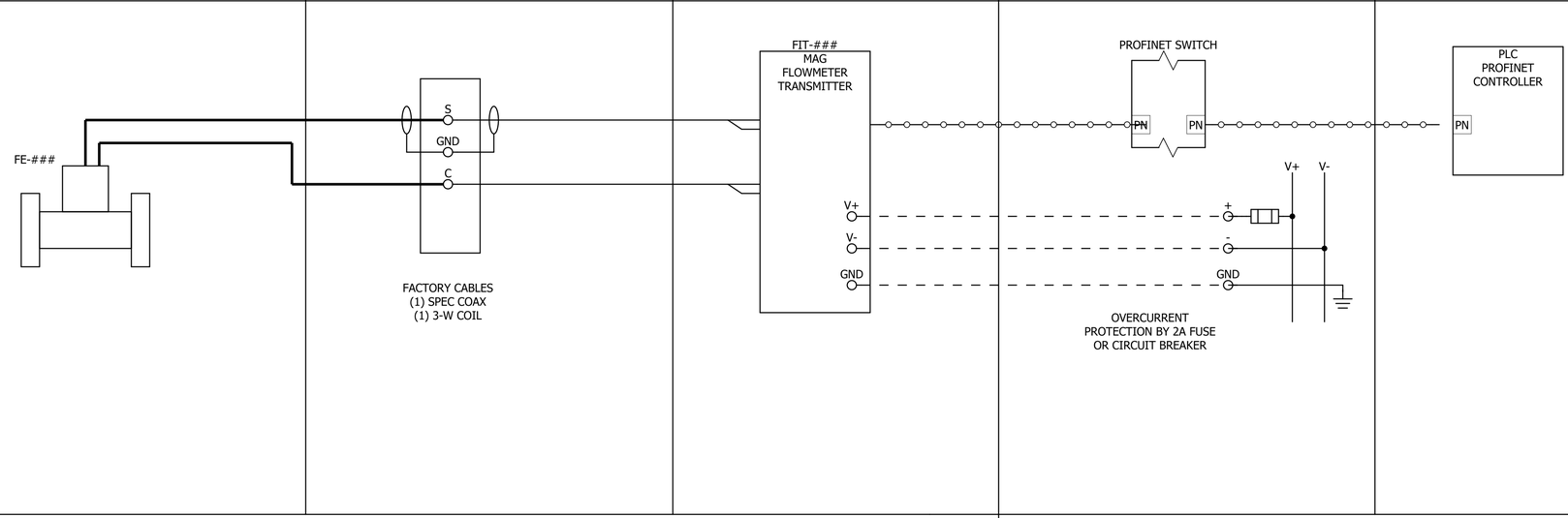
ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5090

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 17 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

1. ALL MAGMETERS. PLC SYSTEM MONITORS FLOW RATE, TOTALIZERS, DIRECTION AND DIAGNOSTIC DATA. RATE IS CONTINUOUSLY ANALYZED FOR CONSISTENCY AND SMOOTHED BY PLC. ALARMS CALCULATED FOR INVALID DATA SIGNAL AND RAPID CHANGE IN FLOW. PLC READS AND RESETS DAILY FLOW TOTAL, READS LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE FROM FLOWMETER. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

2. ANY FLOW METER IN A VAULT SHALL BE SUPPLIED WITH A SUBMERGENCE KIT FOR FLOOD DAMAGE MITIGATION

3. USE GROUNDING RINGS PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS

4. PROFINET OPERATION VIA GSMDL SPECIFICATION FILE. UNLESS SPECIFICALLY DIRECTED CONTRARY IN THE SPECIFICATIONS, CONFIGURE FLOW RATE VARIABLE TO DISPLAY IN GPM, SECONDARY VARIABLE AS RESETABLE TOTALIZER 1 AND TERTIARY VARIABLE AS LIFETIME TOTALIZER 2. CONFIGURE EQUIPMENT ERROR AND OPERATING STATUS DATA BITS FOR DIAGNOSTICS. PROVIDE INDICATION OF NETWORK HEALTH.

REVISION	BY	DATE	REV	APPRVL

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Bellevue, Washington 98005
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www.sbinc.com service@sbinc.com

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Title of Instrument xxxxxxx				Alarms	In Test Mode
{tag ID}	10000	GPM		DP_Fail	
				EQ_Fail	
			Lifetime	568.000	MG
Current Hr:	2.000	MG	Today	56.000	MG
Last Hr:	2.200	MG	Yesterday	6.000	MG

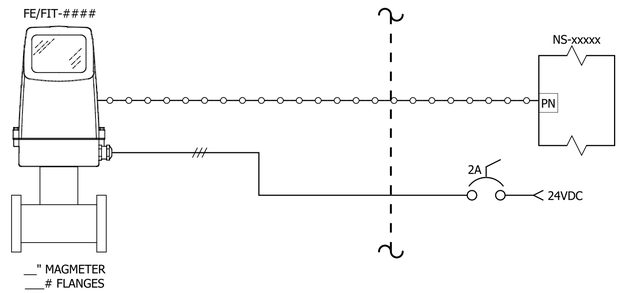
SCADA EXTENSION

Fieldbus_Network_Err
EQ_Err
Flow_Rate
Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life
Test_Mode

Today:	99999.9	kG
Yesterday:	99999.9	kG
Current Hour:	99999.9	kG
Last Hour:	99999.9	kG
Lifetime:	99999.9	MG

Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life

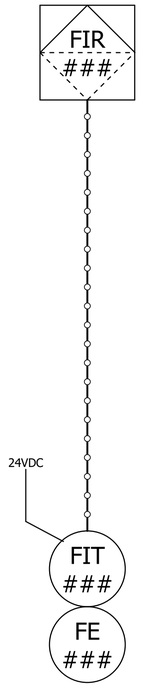
BLOCK DIAGRAM REPRESENTATION



MINIMUM REQUIRED I/O VARIABLES

FLOW RATE +/- XXXXX.X GPM
FLOW TOTAL 1 X,XXX.XXX MG
FLOW TOTAL 2 X,XXX.XXX MG
FLOWMETER ERROR

P&ID REPRESENTATION



TITLE: MAG Flowmeter (Networked)

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST INNS STREET FALLON, NEVADA 89406 (775) 423-9990

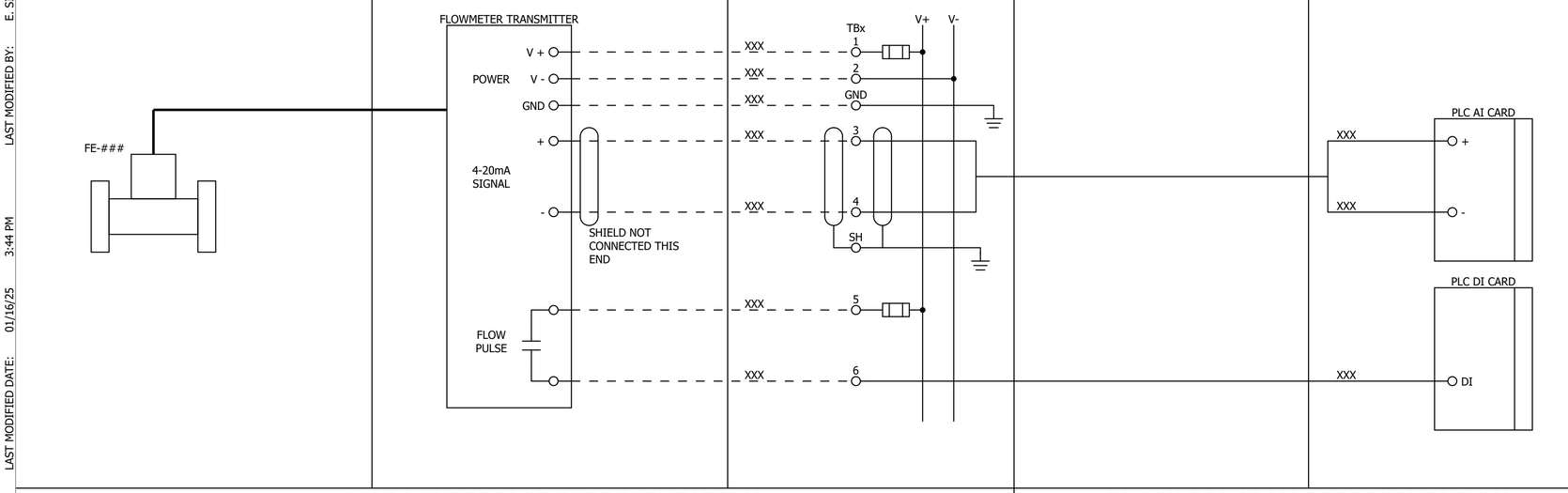
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 18 OF 24 SHEETS

File Name: 23830-208_Well_5

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

1. APPLICATION:
   ALL MAGMETERS. PLC SYSTEM MONITORS FLOW RATE, TOTALIZERS, DIRECTION AND DIAGNOSTIC DATA. RATE IS CONTINOUSLY ANALYZED FOR CONSISTENCY AND SMOOTHED BY PLC. ALARMS CALCULATED FOR INVALID DATA SIGNAL AND RAPID CHANGE IN FLOW. PLC READS AND RESETS DAILY FLOW TOTAL, READS LIFETIME ACCUMULATED TOTAL, AND INSTANTANEOUS FLOW RATE FROM FLOWMETER. SCADA PROVIDES INDICATION OF VALUES, HISTORICAL TREND AND DAILY TOTAL FLOW ARCHIVE.

2. ANY FLOW METER IN A VAULT SHALL BE SUPPLIED WITH A SUBMERGENCE KIT FOR FLOOD DAMAGE MITIGATION

APPVL	REV	DATE	BY	REVISION

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

Current Value	9999.99	GPM
High High Alarm	+9999.99	GPM
High Alarm	+9999.99	GPM
Low Alarm	+9999.99	GPM
Low Low Alarm	+9999.99	GPM
∧ ∨ DETAILS	Show All	
Broken Transmitter		
Min EU	+9999.99	GPM
Max EU	+999999.99	GPM
Smoothing	9.99	
Deadband	99.999	

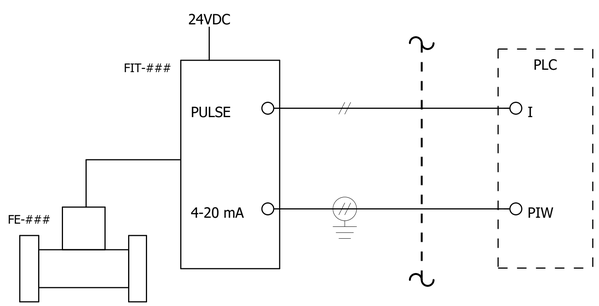
SCADA EXTENSION

Today:	99999.9	kG
Yesterday:	99999.9	kG
Current Hour:	99999.9	kG
Last Hour:	99999.9	kG
Lifetime:	99999.9	MG

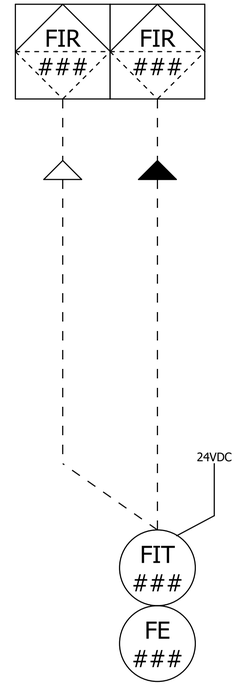
Flow_Total_CurDay
Flow_Total_CurHr
Flow_Total_LastHr
Flow_Total_Yday
Flow_Total_Life

BLOCK DIAGRAM REPRESENTATION

DISCRETE WIRED FLOW METER



P&ID REPRESENTATION



TITLE: MAG Flowmeter (Discrete) Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I9 OF 24 SHEETS

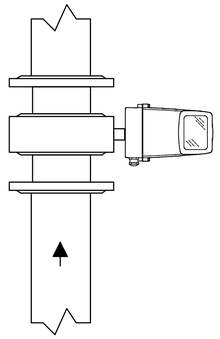
File Name: 23830-208__Well_5

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

File Name: 23830-208_Well_5

MAG METER VERTICAL PIPE INSTALLATION

Installation in vertical pipes
Recommended flow direction: upwards. This minimizes the effect on the measurement of any gas/air bubbles in the liquid.

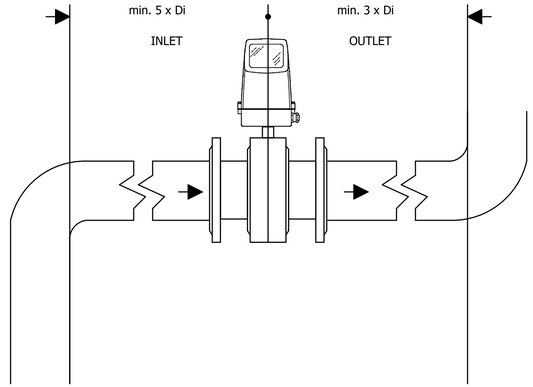


NOTES:

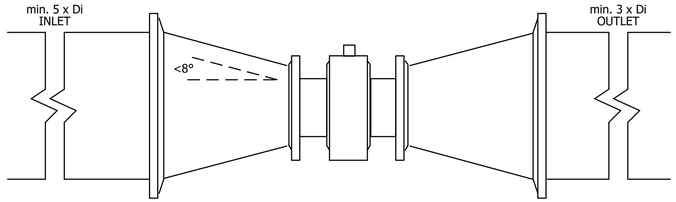
THIS IS PREFERRED MOUNTING FOR FLOWMETER DIAMETERS 1" AND LESS. HIGHLY RECOMMENDED FOR CHEMICAL FLOW MEASUREMENT AND SIMILAR APPLICATIONS WITH PULSATING FLOWS.

TYPICAL MAG METER INSTALLATION REQUIREMENTS

Inlet and outlet conditions
To achieve accurate flow measurement it is essential to have straight lengths of inlet and outlet pipes and a certain distance between pumps and valves. It is also important to centre the flowmeter in relation to pipe flanges and gaskets.



SPECIAL CONDITIONS



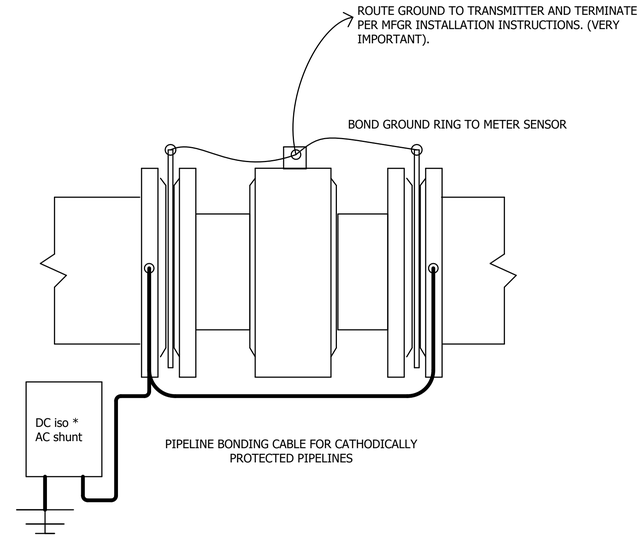
NOTES:

FLOWMETER MUST HAVE FULL PIPE CONDITIONS FOR MEASUREMENT AND BE MOUNTED WITH ELEVATION INCREASING OR FLAT IN DIRECTION OF FLOW.

INLET AND EXIT FLOW CONDITIONS MAY VARY BY MANUFACTURER, CONFIRM ACCURACY OF PROPOSED EQUIPMENT WITH APPLICATION CONDITIONS DEFINED IN MECHANICAL DRAWINGS.

SPECIAL CONDITIONS: CONCENTRIC REDUCERS MAY BE APPLIED DIRECTLY TO FLOWMETER, HOWEVER DIAMETERS ARE CALCULATED AT LARGEST DIAMETER. (I.E. 16"X12" REDUCER WILL REQUIRE 80" INLET AND 48" OUTLET).

GROUNDING AND CATHODIC PROTECTION METHODS



*DAIRYLAND MODEL PCR DECOUPLER RECOMMENDED TO MITIGATE INDUCED AC WHILE MAINTAINING DC ISOLATION. FIELD VERIFY PRESENCE OF AC VOLTAGE ON PIPELINE AND APPLY IF LEVELS EXCEED 1 VAC.

NOTES:

Magmeter technology requires a stable ground potential reference. Special attention must be given to systems with cathodic currents passing through the pipeline in which the meter sensor is mounted. Provide DC isolation, AC shunt to mitigate external induced AC voltage.

Grounding rings supplied with flowmeters must be connected to the meter transmitter as specifically diagrammed by the meter manufacturer. Confirm that gaskets do not extend within 1/8" of the inner ring of the grounding ring. Conductor size shall be no less than 10ga. For meter sensors supplied with integral grounding electrodes, ground rings are not required.

Pipelines with cathodic protection require the meter sensor to be electrically isolated from the pipeline. Provide isolation bushings for each flange bolt and gaskets between all flanges. Provide #4cu AWG conductor bridging the segmented pipeline at 3 and 9 o'clock positions along the pipeline.

REVISION	BY	DATE	REV	APPRVL

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Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: MAG Meter Installation

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

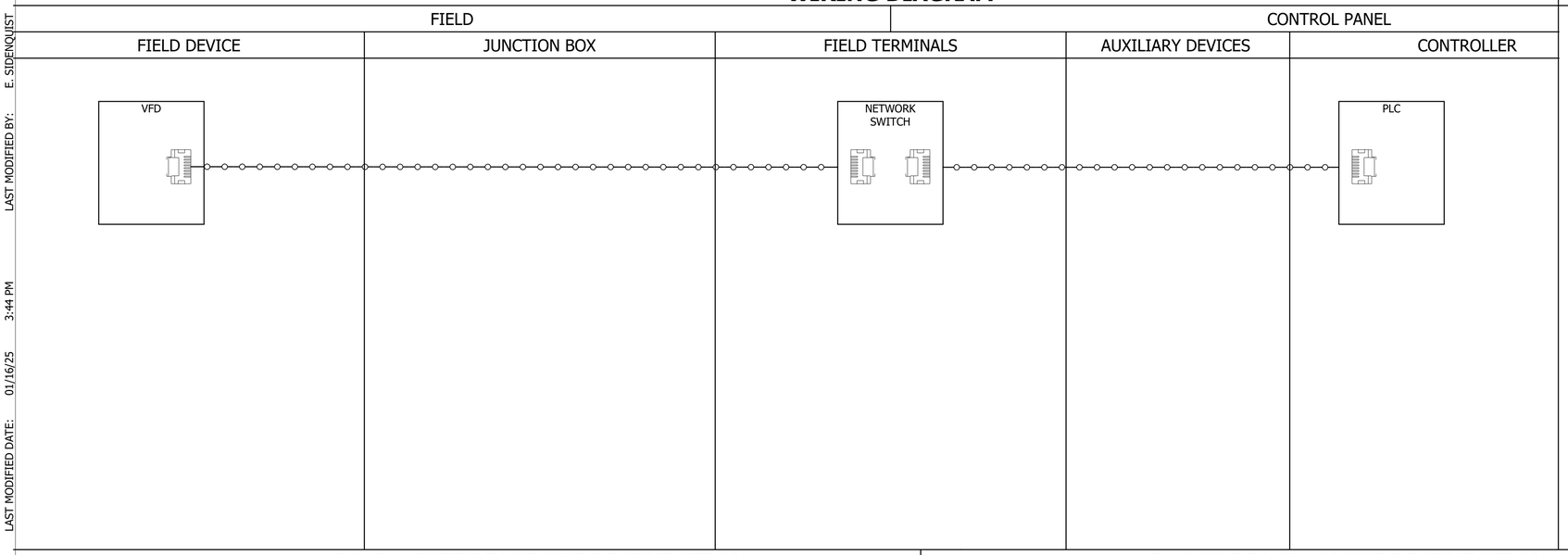
ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5090

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 10 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

APPLICATION:
VARIABLE FREQUENCY DRIVE MOTOR STARTERS PLC SYSTEM MONITORS MOTOR CONTROLLER VIA PROFINET NETWORK. VFD CONTOLLER PROVIDES ON BOARD LOGIC FOR LOCAL (HAND) AND REMOTE AUTO CONTROL, PROVIDES CONTROL (AS DEFINED BY P&ID), PROVIDES ALARM NOTIFICATION ON FAILURE TO COMMAND WITHIN ALLOTTED TIME, FOR A PROCESS LOGIC VIOLATION AND ALL ALARM CONDITIONS GENERATED BY THE VFD CONTROL UNIT. POWER INFORMATION IS MONITORED FOR OVER AND UNDER LOAD CONDITIONS AS EARLY WARNING INDICATION OF PROCESS ABNORMALITIES. SCADA PROVIDES VISUALIZATION OF MOTOR STATUS AND ALARM CONDITIONS, AUTO OPERATION SETTING, AND SUPERVISORY CONTROL OVERRIDES (HAND/OFF/AUTO). SCADA PROVIDES INDICATION OF ALL NETWORK DERIVED INFORMATION, ARCHIVES RUNTIME, SPEED, kW LOAD AND ALARM CONDITION.

VIRTUAL I/O

IN AUTO / IN HAND	SPEED FEEDBACK
CALL	SPEED COMMAND
RUNNING	DC LINK VOLTAGE
READY	MOTOR HP
AT SPEED	MOTOR VOLTS
FAULT-VFD FAULT ALARM	MOTOR AMPS
ALARM-VFD WARNING	MOTOR TORQUE
OVERLOAD-MOTOR OVERLOAD	LAST FAULT CODE
TEMPERATURE-VFD/MOTOR OVERTEMP	LAST ALARM CODE

REVISION	BY	DATE	REV	APPRVL

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www.sbinc.com service@sbinc.com

SCADA INTERFACE REPRESENTATION

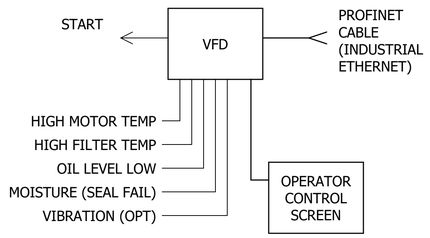
SCADA FACEPLATE

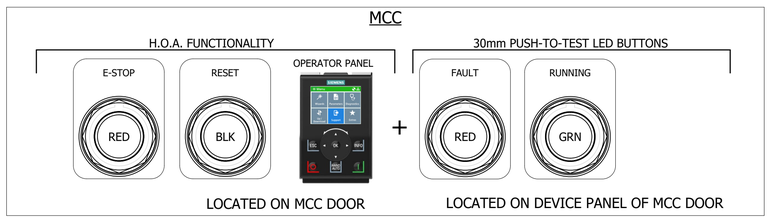
SCADA EXTENSION

Call	Alarms	Rated_HP
StopLoop	Start Fail	PID_Gain
InAuto	Stop Fail	PID_TI
IntegralOff	Start Limit	PID_error
StartFail_SP	Warning	Date_Start
StopFail_SP	Fault	Date_Auto
Starts_SP	Lockout	Date_Called
ProcessVar	Overtemp	Date_Stopped
Speed SP	Overload	Test Mode
PZD_Status	Restart Delay	
PZD_Speed	Low Torque	
PZD_Command	High Disch. PSI	
PZD_Setpoint	Low Suct. PSI	
HOA_Switch	VFD_Setpoint	
Status	VFD_Speed	
Required	VFD_Starts	
Running	VFD_StartsFail	
Called	VFD_StopFail	
Ramping	VFD_MinSpeed	
Ready	VFD_StartSpeed	
Auto	Motor_RPM	
	Motor_Freq	
	Motor_Volts	
	Motor_Amps	
	Motor_Torque	
	Motor_HP	
	Motor_DClink	

BLOCK DIAGRAM REPRESENTATION

NETWORKED VFD, NON-SUBMERSIBLE MOTOR





P&ID REPRESENTATION

TITLE: VFD (Networked) Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I11 OF 24 SHEETS

File Name: 23830-208_Well_5

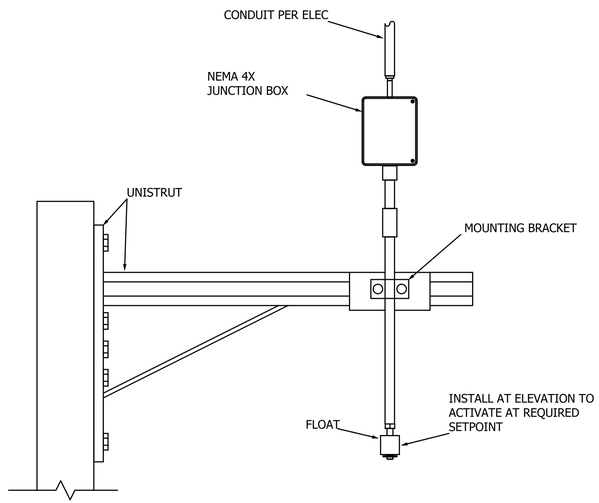
LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 12:38 PM

File Name: 23830-208__Well_5

VERTICAL TOP MOUNT LIQUID LEVEL SWTICH

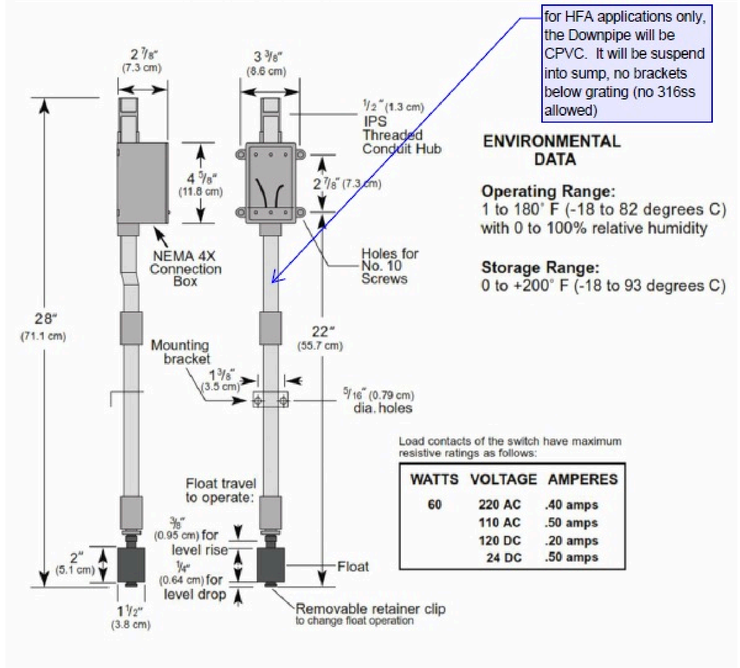
(OPEN VESSEL MOUNT APPLICATION)



NOTES:

VERTICAL TOP MOUNT LIQUID LEVEL SWITCH

(WALL MOUNT APPLICATION)



NOTES:

NOTES:

REVISION	BY	DATE	REV	APPRVL

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sb-inc.com service@sb-inc.com

TITLE: **FLOOD SWITCH DETAIL**

PROJECT: **NEW WELL 5 PUMPING STATION**
VALDEZ, ALASKA

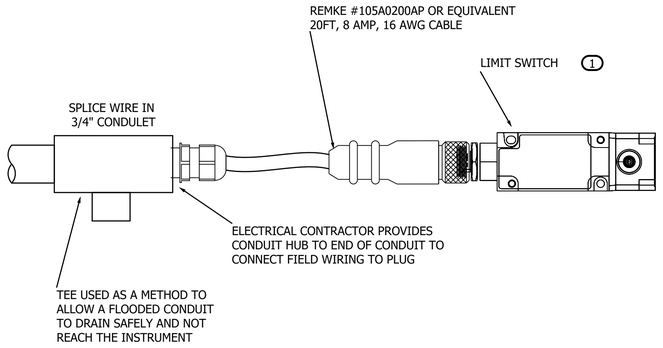
ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6999

BY : JES
DATE : 1/16/2026
SCALE : NTS

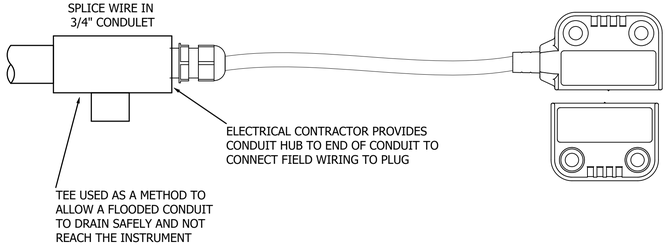
SHEET 12 OF 24 SHEETS

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

LIMIT SWITCH DEVICES



MAGNETIC LIMIT SWITCH



NOTES:

1 FOR STATION DOOR AJAR, USE SIEMENS 3SE03-AR1 LIMIT SWITCH
FOR VAULT / HATCH AJAR, USE SIEMENS 3SE03-AR16P LIMIT SWITCH

NOTES:

NOTES:

APPRVL	REV	DATE	BY	REVISION

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: Intrusion Limit Switch Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

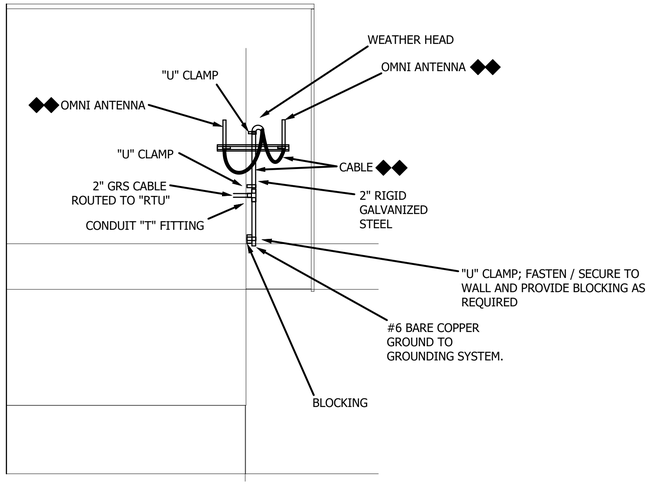
BY : JES
DATE : 1/16/2026
SCALE : NTS

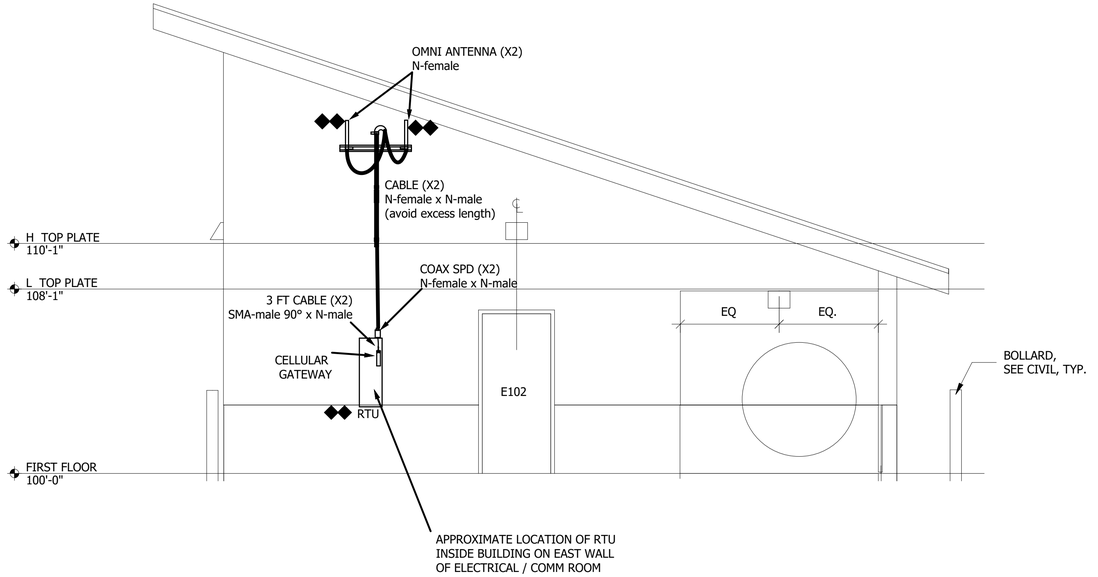
SHEET I13 OF 24 SHEETS

File Name: 23830-208_Well_5

NOTES:

1. EXAMPLE OF BUILDING WITH EXTERIOR MAST FOR CELLULAR ANTENNA. BUILDING IS GENERIC IN NATURE AND INTENDED ONLY TO REPRESENT RECOMMENDED CLEARANCE AND SPACING FOR ANTENNA SYSTEM, AND NOT TO REPRESENT ACTUAL BUILDING DESIGN.
2. MAST AND ANTENNA LOCATION DETERMINED BY CELLULAR NETWORK SIGNAL ANALYSIS
3. MAST IS RECOMMENDED TO AVOID ROOF PENETRATIONS ON RETROFIT APPLICATIONS, ANY ROOF PENETRATION REQUIRES WEATHERTIGHT PROTECTION FOR THE STRUCTURE. RECOMMEND SIDE WALL MOUNTED MAST AND EXTENDING MAST VERTICAL TO CLEARANCES SHOWN ABOVE ROOFLINE.
4. SURGE PROTECTION FOR THE ANTENNA SYSTEM SHALL BE SUPPLIED FOR ALL SYSTEMS WITH OUTDOOR MOUNTED ANTENNA. SURGE UNIT IS LOCATED ON OR ADJACENT TO THE RTU, IN CLOSE PROXIMITY TO THE CELLULAR MODEM.





◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 40 61 00.

APPRVL	REV	DATE	BY	REVISION

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sb-inc.com service@sb-inc.com

TITLE: Station Antenna Installation Detail

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9990

BY: JES
DATE: 1/16/2026
SCALE: NTS

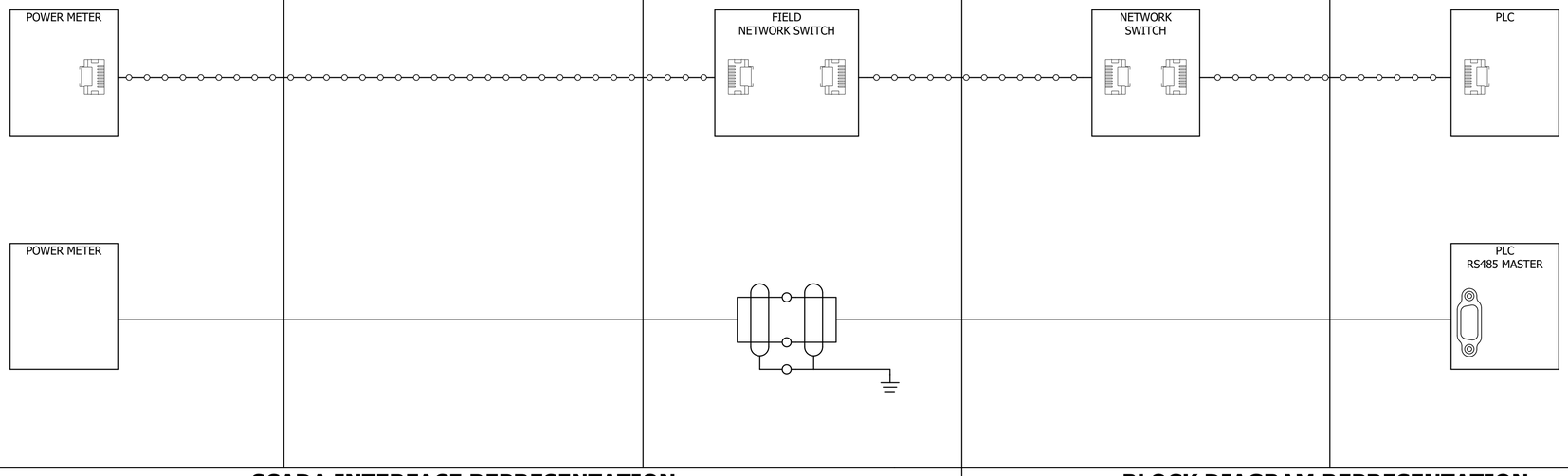
SHEET I14 OF 24 SHEETS

LAST MODIFIED DATE: 01/17/25 5:36 PM LAST MODIFIED BY:

File Name: 23830-208_Well_5

LAST MODIFIED DATE: 01/16/25 3:44 PM LAST MODIFIED BY: E. SIDENQUIST

WIRING DIAGRAM



GENERAL SHEET NOTES:

SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE

SCADA EXTENSION

V_In1
V_In2
V_In3
V_InAvg
V_L12
V_L23
V_L31
V_LLavg
I_1
I_2
I_3
I_avg
kW
Vars_Total
VA_Total
V_unbal
I_unbal
PF
Freq
THD_L12
THD_L23
THD_L31

BLOCK DIAGRAM REPRESENTATION

P&ID REPRESENTATION

REVISION	BY	DATE	REV	APPRVL

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: Power Meter (Networked)

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST MAIN STREET FALLON, NEVADA 89406 (775) 423-5999

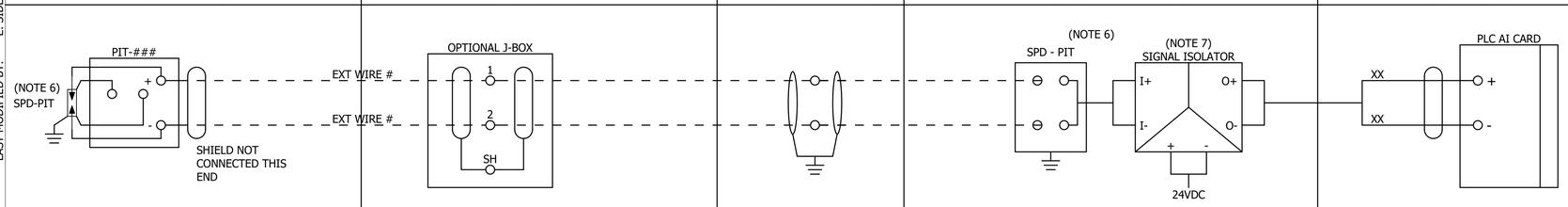
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 15 OF 24 SHEETS

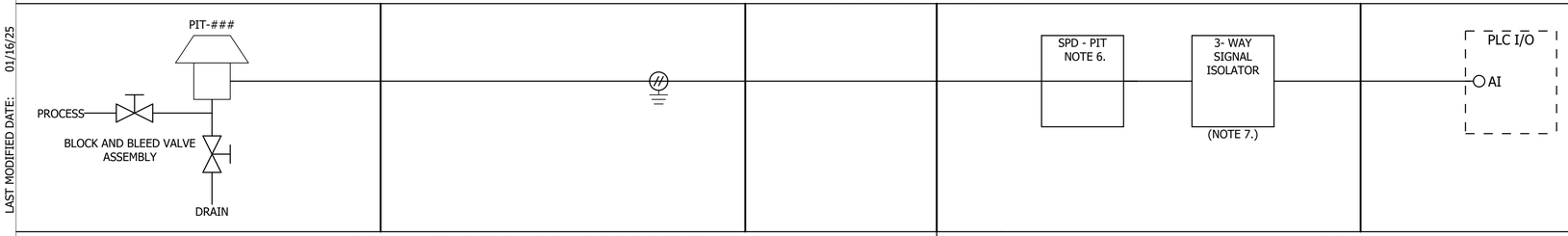
File Name: 23830-208__Well_5

LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM

WIRING DIAGRAM

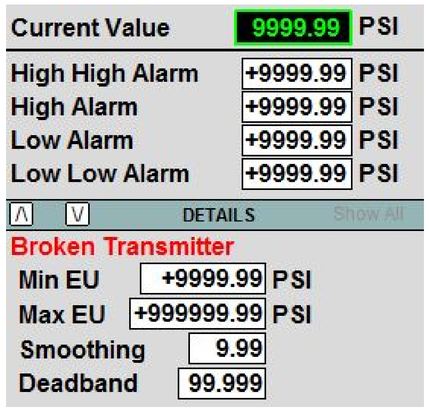


BLOCK DIAGRAM



SCADA INTERFACE REPRESENTATION

SCADA FACEPLATE



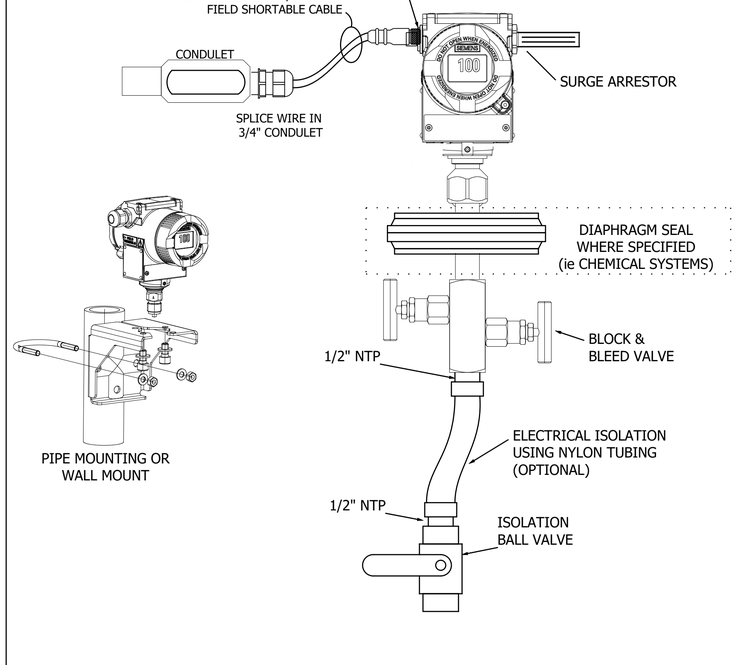
SCADA EXTENSION

RAWVALUE
MINEU
MAXEU
HH_SP
HI_SP
LO_SP
LL_SP
ALARMS
- HIGH-HIGH ALARM
- HIGH ALARM
- LOW ALARM
- LOW-LOW ALARM
- BROKEN TRANSMITTER
- SIGNAL LOSS
- SIGNAL HELD WHILE IN ERROR
- RATE OF CHANGE

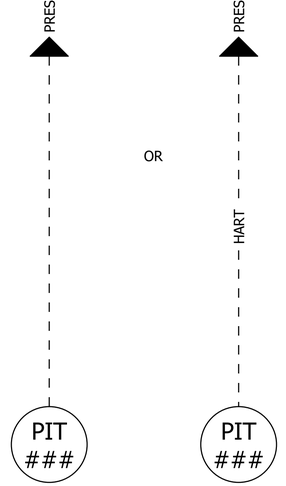
DBAND
SMOOTHING
RATE OF CHANGE EU/SAMPLE
RATE OF CHANGE NUMBER OF SAMPLES
PV_REAL

DETAIL

ANALOG DEVICE TYPICAL FIELD WIRE



P&ID REPRESENTATION



GENERAL SHEET NOTES:

1) PRESSURE OR LEVEL CONTINUOUS MEASUREMENT. INSTRUMENT RANGE SELECTED TO SPAN ZERO TO MAXIMUM PRESSURE IN NORMAL OPERATION. INSTRUMENT PRESSURE LIMIT SHALL BE GREATER THAN MAXIMUM POSSIBLE IN THE PROCESS. BLOCK AND BLEED VALVE SUITABLE FOR PROCESS FLUID. MAY BE CONFIGURED FOR HART DATA IN ADDITION TO 4-20MA ANALOG SIGNAL WHEN TEMPERATURE OR REMOTE CALIBRATION IS SPECIFIED.
2) SUPPLY FUSE CURRENT LIMITING FOR EACH ANALOG UNLESS ANALOG INPUT CARD PROVIDES 2-WIRE PROTECTION.
3) PROCESS CONNECTIONS ROUTED TO PREVENT ENTRAINED AIR AND TO SELF-PURGE WHERE POSSIBLE.
4) WHERE HART PROTOCOL SHOWN, ANALOG INPUT SHALL BE HART COMPATIBLE. NO SIGNAL ISOLATOR SHALL BE REQUIRED. REPEATED ANALOG SIGNALS SHALL BE FROM PLC ANALOG OUTPUT.
5) TRANSMITTERS MOUNTED REMOTELY FROM THE MAIN PROCESS PIPE OR VESSEL SHALL BE SECURED WITH A PIPE OR WALL MOUNT BRACKET. USE NON-METALLIC FLEXIBLE TUBING BETWEEN THE PROCESS AND THE INSTRUMENT.
6) PROVIDE SURGE PROTECTION DEVICE (SPD) AT INSTRUMENT AND CONTROL PANEL TERMINAL BLOCK WHERE INSTRUMENT IS LOCATED IN SEPARATE BUILDING, VAULT OR GROUND PLANE FROM CONTROL PANEL.
7) PROVIDE SIGNAL ISOLATOR WHEN 4-20mA SIGNAL IS ROUTED TO MORE THAN ONE CONTROL PANEL. TWO-WIRE TRANSMITTER IS POWERED BY CONTROL PANEL WITH LONGEST DURATION 24V UPS.

APPRVL	REV	DATE	BY	REVISION

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(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: Gauge Pressure Transmitter

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-5090

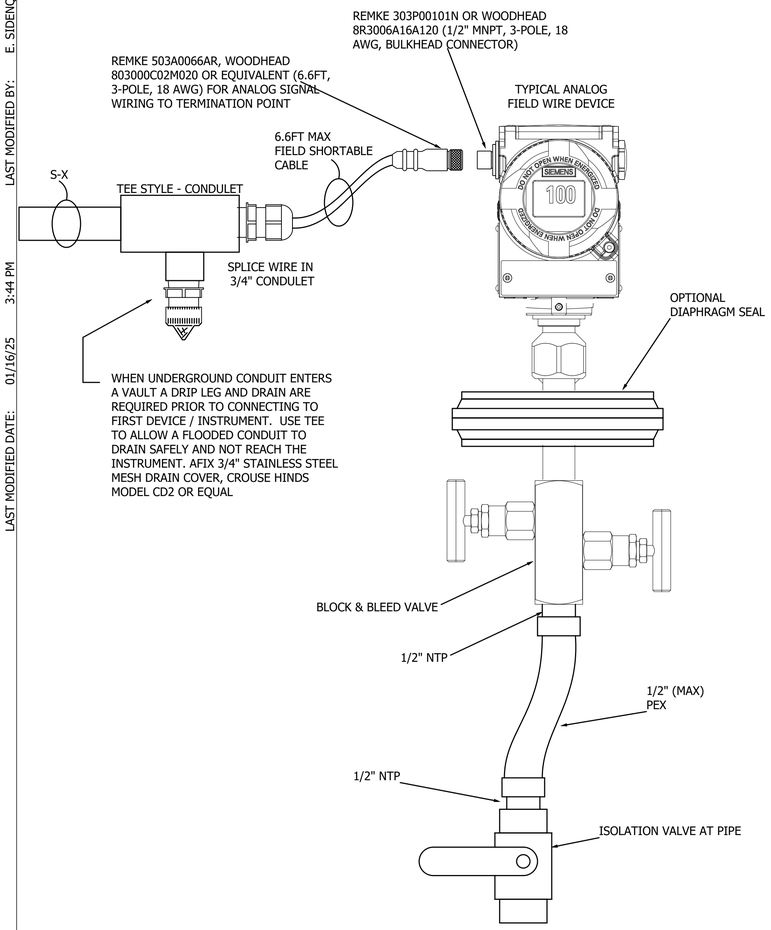
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 16 OF 24 SHEETS

File Name: 23830-208_Well_5

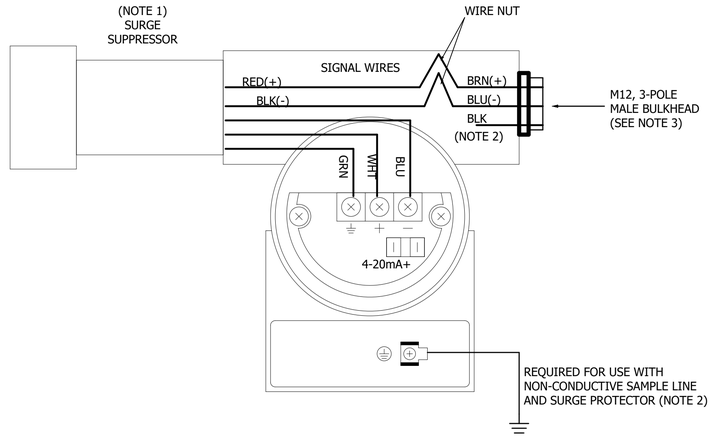
LAST MODIFIED BY: E. SIDENQUIST
LAST MODIFIED DATE: 01/16/25 3:44 PM

PRESSURE TRANSMITTER

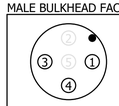


PRESSURE TRANSMITTER DETAIL (CONTINUED)

SURGE PROTECTOR WIRING.
FOR: CITEL TSP15M-P-24D3 SURGE DEVICE



MALE BULKHEAD FACE VIEW

PINS			
3-POLE		1 - BROWN 2 - NOT USED 3 - BLUE 4 - BLACK 5 - NOT USED	ANALOG + ANALOG - NOT USED

NOTES:

1. FOR AREA SUBJECT TO LIGHTNING, NON-CONDUCTIVE SAMPLE LINE IS RECOMMENDED TO MINIMIZE RISK OF DAMAGE.
2. SUPPLY DRIP LEG IN CONDUIT TO PREVENT WATER BUILDUP. USE CONDULET FOR WIRE TRANSITION FROM TWISTED SHIELDED PAIR TO M12 FEMALE CORD.
3. SIEMENS P320 PRESSURE TRANSMITTER WITH INTEGRAL LCD DISPLAY. 7MF90114FA BLOCK AND BLEED VALVE RECOMMENDED TO PROVIDE ISOLATION FROM PROCESS PRESSURE FOR CALIBRATION AND AIR PURGING.

   FOR PROCESS FLUIDS WITH SUSPENDED SOLIDS, UTILIZE DIAPHRAGM SEAL AND OMIT BLOCK AND BLEED VALVE.
4.

NOTES:

1. SURGE PROTECTION OPERATES IN SERIES WITH SIGNAL CONDUCTORS. RECOMMENDED FOR INSTALLATIONS WHERE CONDUCTORS EXTEND TO VAULT OR ADJACENT BUILDING STRUCTURE.
2. BLACK CONDUCTOR IS NOT CONNECTED. WHEN USING OPTIONAL SURGE PROTECTION, INSTALLATION REQUIRES SEPARATE GROUND CONDUCTOR, CONNECTED TO EXTERNAL PORTION OF PRESSURE TRANSMITTER AND BONDED TO ELECTRICAL SYSTEM GROUND
3. M12, 3-POLE MALE BULKHEAD CONNECTOR TYPE 6P / IP67 BRAD WOODHEAD 105000A01F120, REMKE 303P0010N OR EQUAL.

REVISION	BY	DATE	REV	APPRVL

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: Pressure Transmitter Details

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9999

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I17 OF 24 SHEETS

File Name: 23830-208__Well_5

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:52 PM

File Name: 23830-208__Well_5

RTU-801 MAIN CONTROL PANEL

HMI-801
MTP1200
12" OPERATOR INTERFACE
PN

CPU
S7-1512SP-1 PN
PN

ES-801
16-PORT + 4 SFP
NETWORK SWITCH
PN

CRTR-801
CELLULAR GATEWAY
B
1

PRIVATE APN

ELECTRICAL ROOM

MODBUS TCP

MCC-801

POWER
METER
PAC4200
PN
2

CP 1542SP-1
ETH

AUTOMATIC
TRANSFER SWITCH
ATS-801
YS-801E

Q POWER RESET
RO
24VDC

PLC
I/O

YA-801A ON GENERATOR I
YA-801B ON UTILITY I
YA-801C UTILITY AVAILABLE I

GENERATOR
CONTROL PANEL
LCP-821
Eth

YL-821 GENERATOR RUN I
YA-821A GENERATOR FAIL I
YA-821B GENERATOR LOW FUEL I
YA-821C GENERATOR IN AUTO I

GEN
___ KW

24VDC
RO
SD POWER RESET Q

USH-801
ELECTRICAL ROOM
SMOKE DETECTOR I

HORN
START WARNING Q

TEMPERATURE SENSOR
0-140°F IW

OIT-801
SHUTDOWN I

Q SEL RESET
I SEL MANCHESTER CODE
Q SEL RESET
I SEL MANCHESTER CODE

UPS ALARMS I (2)

3A
3A
5A
15A

24VDC 10A
POWER
SUPPLY

24V UPS
PN

BATTERY
BATTERY

24V DIST
CLASS 2
24V DIST
CLASS 2

SURGE
PROTECTOR

GFCI
OUTLET

PANEL ___
CKT-__, 120Vac

◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 40 61 00.

NOTES:

1. CELLULAR GATEWAY PROVIDED BY CITY TO S&B FOR INSTALLATION INTO RTU AT S&B FACILITY
2. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE POWERMETER COMMUNICATION INTERFACE

REVISION	BY	DATE	REV	APPRVL

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE
BLOCK DIAGRAM
AUTOMATION POWER & ANCILLARY SYSTEMS

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5050

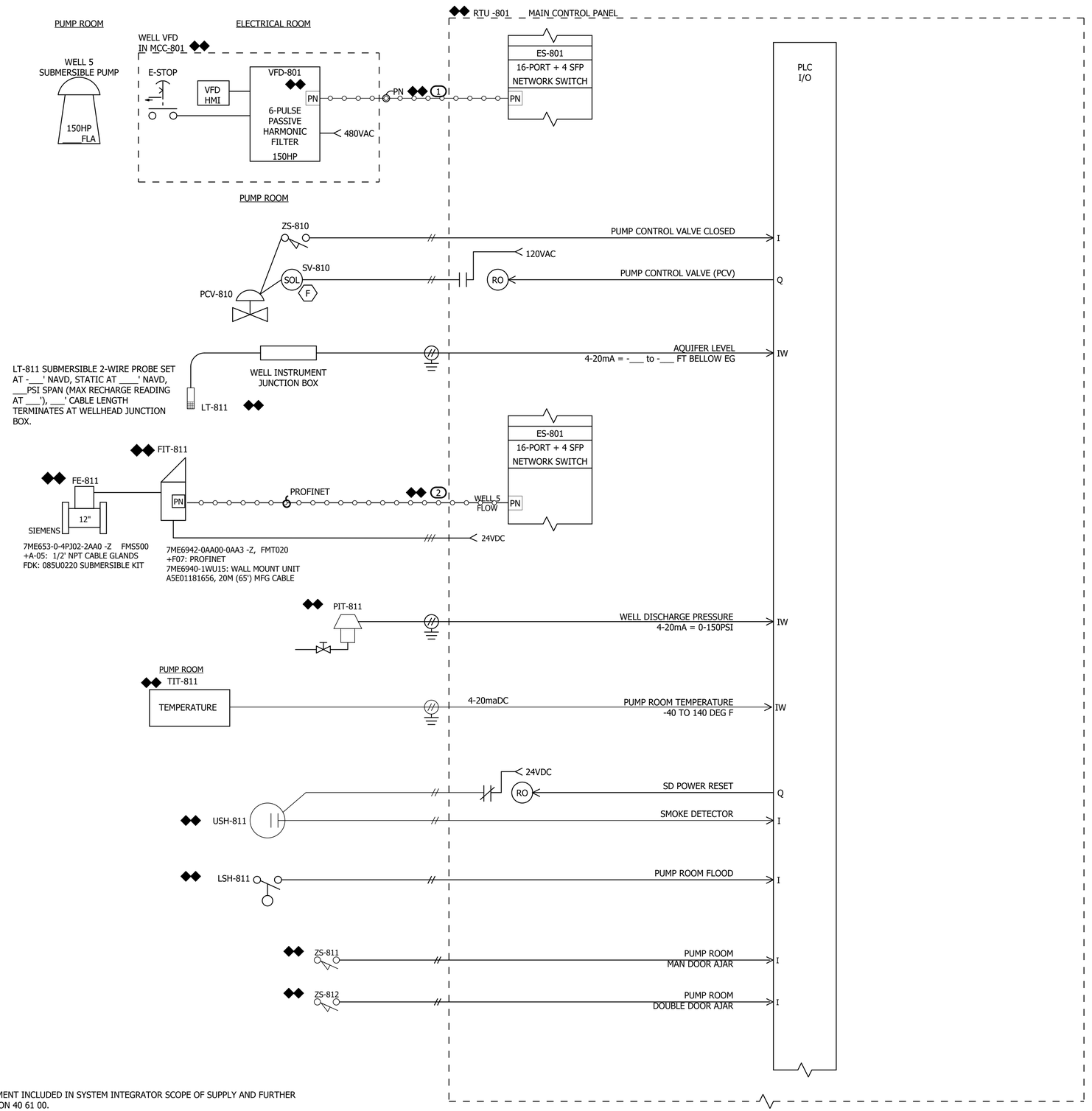
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 18 OF 24 SHEETS

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:53 PM

File Name: 23830-208__Well_5



INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 40 61 00.

NOTES:

1. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE VFD COMMUNICATION INTERFACE
2. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE FLOWMETER COMMUNICATION INTERFACE

REVISION	BY	DATE	REV	APPRVL

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(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

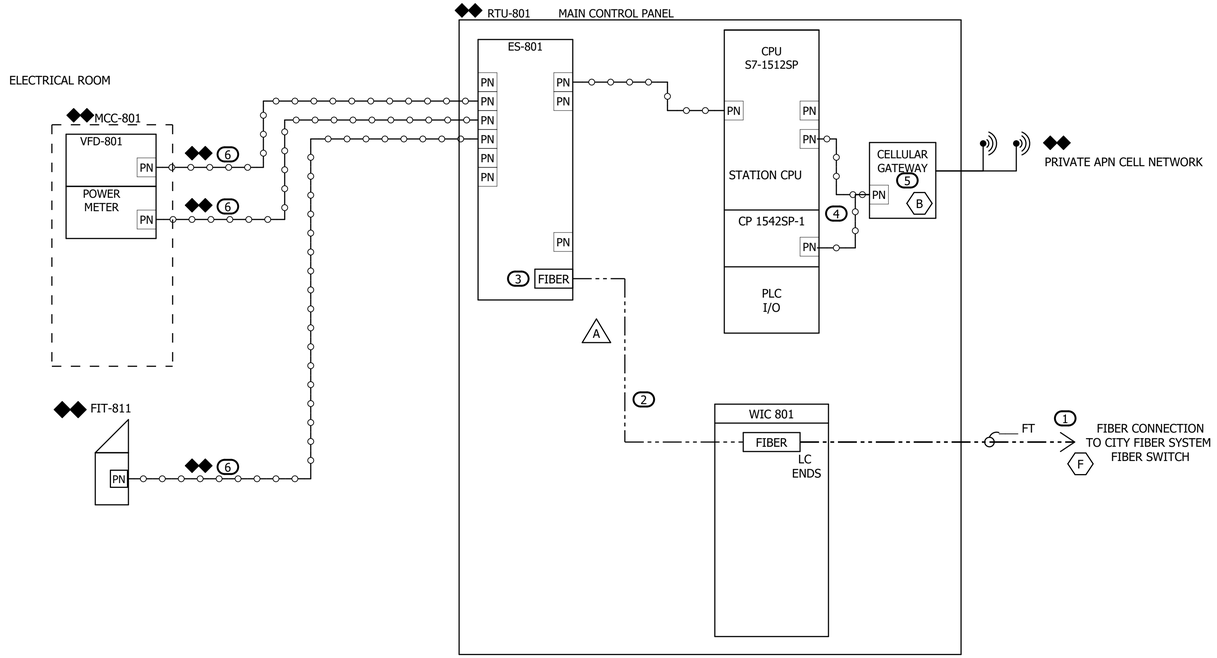
TITLE: RTU BLOCK DIAGRAM
PUMP ROOM
WELL OPERATIONS

PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-0590

BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 19 OF 24 SHEETS



◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 409100.

NOTES:

1. FUTURE PROVISION FOR CITY TO PROVIDE SINGLE MODE FIBER TO NEW WELL 5 BUILDING. FIBER CABLE SHALL BE SUPPLIED BY CITY WITH LC ENDS ON AT LEAST ONE END, USED FOR THE CONNECTION AT THE WELL 5 STATION RTU.
2. FUTURE PROVISION FOR FIBER WIC WITH LC CONNECTIONS AND FIBER PATCH CABLE, 2M, SM, LC TO LC.
3. FUTURE PROVISION LC SFP MODULE SUPPLIED WITH SWITCH IN RTU
4. FUTURE FIBER IS INSTALLED, DISCONNECT CELLULAR FROM PLC AND CONNECT CELLULAR TO CP1542SP-1 CARD
5. CITY PROVIDES S&B CRADLEPOINT CELLULAR GATEWAY FOR INSTALLATION INTO THE RTU AT S&B'S FACILITY IN BELLEVUE WA.
6. SYSTEM INTEGRATOR WILL PROVIDE THE PROFINET CABLE AND QUICK CONNECTORS FOR THE COMMUNICATION INTERFACE

REVISION	BY	DATE	REV	APPRVL

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Stead & Associates
13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
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TITLE
BLOCK DIAGRAM
CONTROL SYSTEM NETWORK DIAGRAM

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET **I20** OF **24** SHEETS

LAST MODIFIED DATE: 01/16/26 3:54 PM LAST MODIFIED BY:

File Name: 23830-208_Well_5

LAST MODIFIED DATE: 01/17/25 3:02 PM LAST MODIFIED BY: E. SIDENQUIST

SAGINAW SCE-36EL3012LPPL ENCLOSURE
PAINTED RAL5015 BLUE
FRONT VIEW

SAGINAW SCE-36EL3012LPPL ENCLOSURE
PAINTED RAL5015 BLUE
LEFT SIDE VIEW

APPRVL	REV	DATE	BY	REVISION

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www.sbinc.com service@sbinc.com

TITLE **WELL 5 BACK PANEL PRESENTATION**

PROJECT **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6000

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET I21 OF 24 SHEETS

File Name: 23830-208_Well_5

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:55 PM

File Name: 23830-208__Well_5

1 RESERVOIR 2 RIO __ {RIO-702}

RIO
IM155-6PN

PN

REMOTE
I/O

ES-702

ETH

ETH

FIBER

WIC-702

FIBER

FT

FIBER CONNECTION
TO WELL 4 RTU

N

LSH-702

RESERVOIR 2

OVERFLOW = 49FT

TANK OVERFLOW

I

VAULT (MANHOLE)

N

LIT-702

4-20mA =0 - 50FT

TANK LEVEL

IW

BASE EL. = ___._F

SIEMENS
7MF0300-1QE01

LSH-702

VAULT FLOOD

I

EUH-703

VAULT
HEATER

120VAC

MIN 50W

MANHOLE

RUN 120VAC POWER FOR EXISTING HEAT LAMP TO RIO PANEL

REPLACE EXISTING TRANSMITTER WITH NEW ONE

RESERVOIR 2

LOCATION OF EXISTING MANHOLE

TEMPERATURE SENSOR
4-20mA = 0-140°F

IW

EUH-702

50W

RO

HEATER CALL

Q

Q

I

PANEL ___
CKT-__, 120Vac
POWER CONNECTION
TO WELL 4

5A

3A

24VDC
POWER
SUPPLY

PN

24V UPS

24V DIST
CLASS 2

BATTERY

BATTERY

SURGE
PROTECTOR

15A

GFCI
OUTLET

NOTES:

1. CONTRACTOR TO WORK WITH CITY PERSONNEL ON INSTALLATION LOCATION OF NEW RIO PANEL NEAR EXISTING MANHOLE

APPRVL	REV	DATE	BY	REVISION

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13200 S.E. 30th St.
Bellevue, Washington 98005
(425) 644-1700 Fax: (425) 746-5312
www.sbinc.com service@sbinc.com

TITLE
WELL 4 / RESERVOIR 2 BLOCK DIAGRAM
RIO PANEL

PROJECT
NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

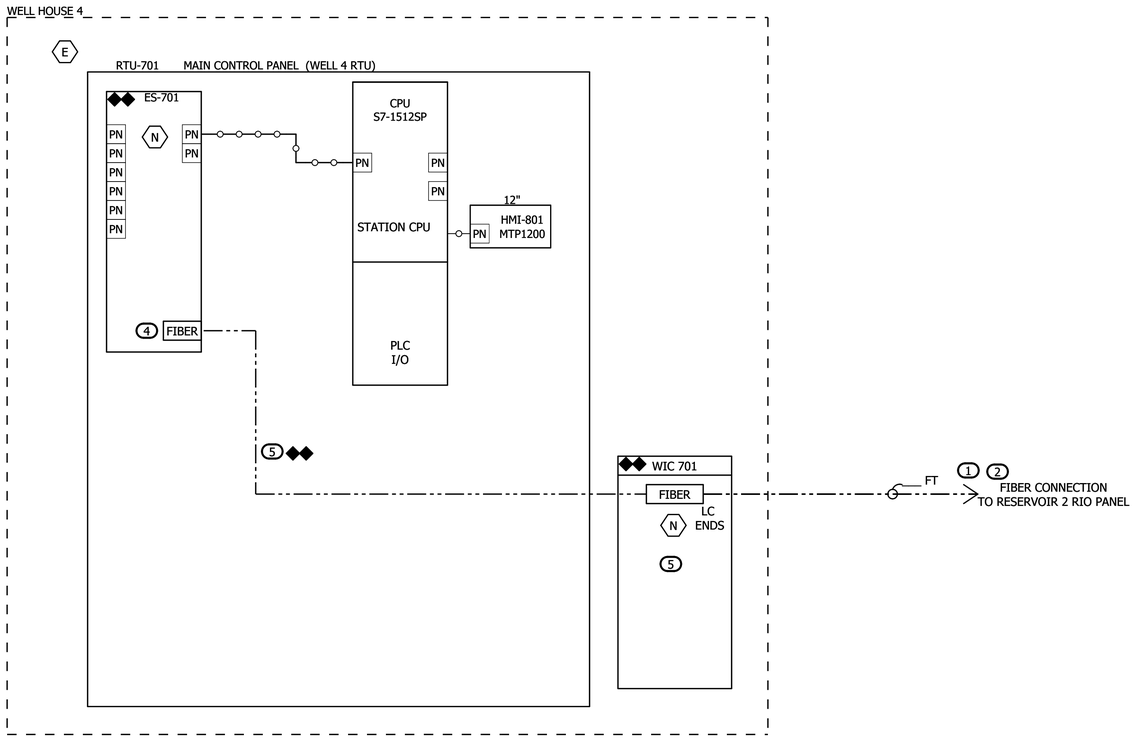
ENGINEERING
5 EAST MAPLE STREET FALLON, NEVADA 89406 (775) 423-5090

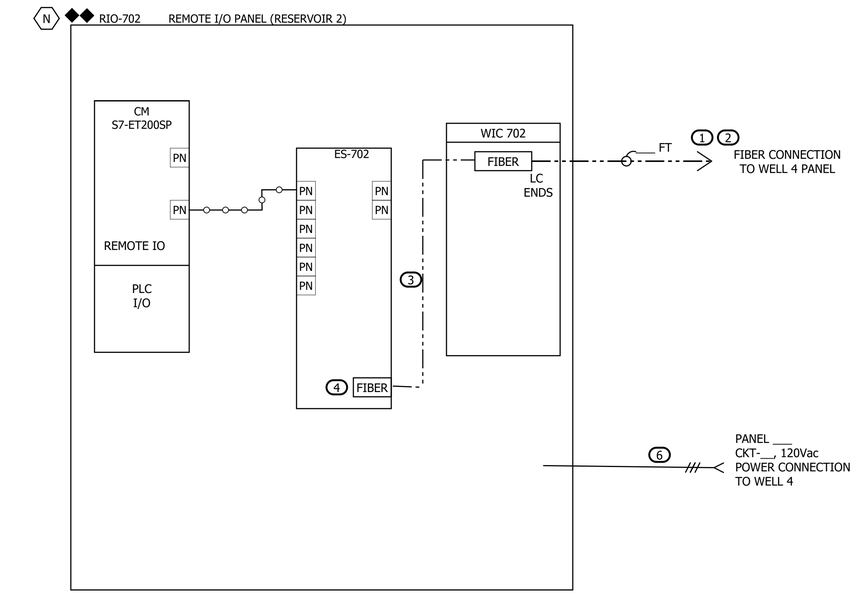
BY: JES
DATE: 1/16/2026
SCALE: NTS

SHEET 22 OF 24 SHEETS

LAST MODIFIED BY:

LAST MODIFIED DATE: 01/16/26 3:43 PM





◆◆ INDICATES EQUIPMENT INCLUDED IN SYSTEM INTEGRATOR SCOPE OF SUPPLY AND FURTHER DEFINED IN SECTION 409100.

FIBER / CABLE SPEC

Micro Armor Fiber™

Micro Armor Fiber™ The Original Stainless Steel Armor

Indoor/Outdoor Plenum Armored Fiber Optic Cable
OM1, OM3, OM4 & Singlemode (2-144 Fiber)

Example of Jacket Construction
Note: Fiber Count will match choice made

General Specifications

Application	Indoor/Outdoor Premise, Duct, Conduits and Patch
Fiber Category	Multimode (OM1, OM3, and OM4) & Singlemode
Fiber Make	YOFC OM1, Corning ClearCurve OM3, OM4 , SM G.652D
Storage	-40 °C to 80 °C (-40 °F to 176 °F)
Installation	-30 °C to 80 °C (-22 °F to 176 °F)
Operation	-40 °C to 80 °C (-40 °F to 176 °F)
Max. Dynamic Tensile Strength	2F-200 N, 6-144F 800N
Max. Static Tensile Strength	2F-100 N, 6-144F 600N
Max. Dynamic Crush Resistance	5000 N
Max. Static Crush Resistance	3000 N
Min. Dynamic Bend Radius	20 x (outside diameter of the cable)
Min. Static Bend Radius	10 x (outside diameter of the cable)
Nominal Outer Diameter	2F-3.0 mm, 4F-4.5mm, 6-24F-6.5m, 48F-10.5mm 72-96F-12mm 144F-13mm
Weight kg/km	2F-13, 4F 30, 6F 55, 12F-45, 24F -55, 48F-150, 72F-150, 96-180, 144-200
Wavelengths/Max. Attenuation	OM1- 850 nm/<3.0dB/km, 1300 nm/<1.0dB/km
	OM3 - 850 nm/<3.0dB/km, 1300 nm/<1.0dB/km
	OM4 -1300 | ≤ 1.0dB/km 850 | ≤ 3.0dB/km
	SM- 1310 | ≤ 0.35dB/kmG1550 | ≤ 0.25dB/km
Maximum Data Rate	OM1-10GB, OM3-4 100GB, SM - 100GB
Fiber core	OM1 62.5/125 um, OM3/4 50/125um, SM 9/125um

NOTES:

1. CONDUIT UG/COM, CONTRACTOR TO PROVIDE 6 STRAND SM FIBER WITH MICROARMOR AND LC ENDS. FIBER SHALL BE LANSHACK PART NUMBER: QT-MA-IO-S-LCU-LCU-20-{ENTER DESIRED CABLE LENGTH IN FEET.}, OR EQUIVALENT. SEE FIBER SPEC PROVIDED ON THIS SHEET
2. NEW FIBER INSTALLED AS PART OF THIS CONTRACT BETWEEN WELL 4 RTU AND RESERVOIR 2 RIO. FIBER CABLE SHALL BE SUPPLIED WITH LC ENDS
3. FIBER WIC WITH LC CONNECTIONS AND FIBER PATCH CABLE, 2M, SM, LC TO LC.
4. LC SFP MODULE SUPPLIED WITH SWITCH IN RTU
5. FIBER WIC WITH LC CONNECTIONS INSTALLED INSIDE WELL HOUSE 4 ON THE WALL NEAR EXISTING RTU BY CONTRACTOR. SM FIBER PATCH CABLE WITH LC TO LC CONNECTIONS 10 METER LONG IS PROVIDED BY SYSTEM INTEGRATOR FOR INSTALLATION BY CONTRACTOR.
6. CONDUIT UG/E, CONTRACTOR TO PROVIDE 120VAC POWER RUN FROM WELL HOUSE 4 TO NEW RIO PANEL

REVISION	BY	DATE	REV	APPRVL

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Stead & Associates
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(425) 644-1700 Fax: (425) 746-9312
www.sbinc.com service@sbinc.com

TITLE: WELL 4 / RESERVOIR 2 BLOCK DIAGRAM
CONTROL SYSTEM NETWORK DIAGRAM

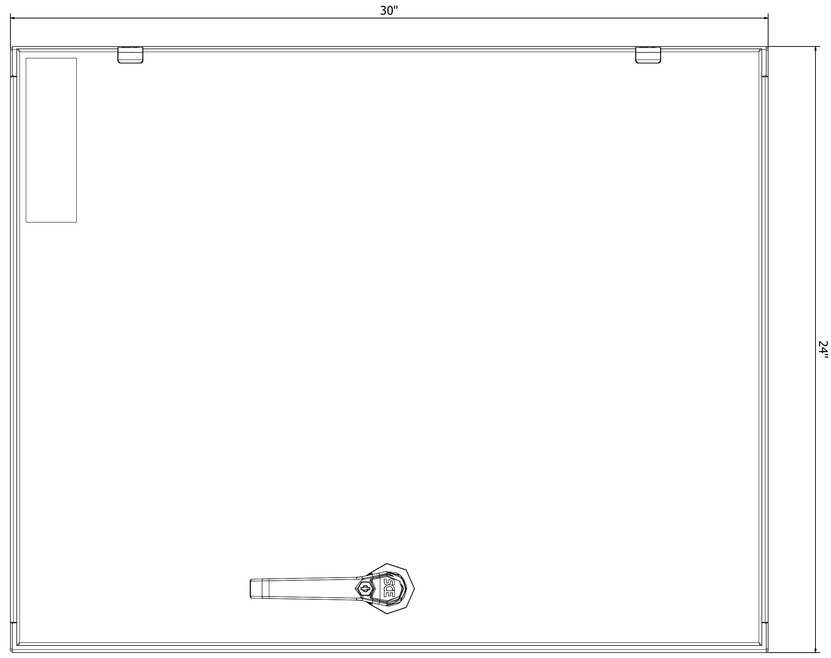
PROJECT: NEW WELL 5 PUMPING STATION
VALDEZ, ALASKA

ENGINEERING
5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-6999

BY : JES
DATE : 1/16/2026
SCALE : NTS

SHEET 123 OF 24 SHEETS

File Name: 23830-208__Well_5



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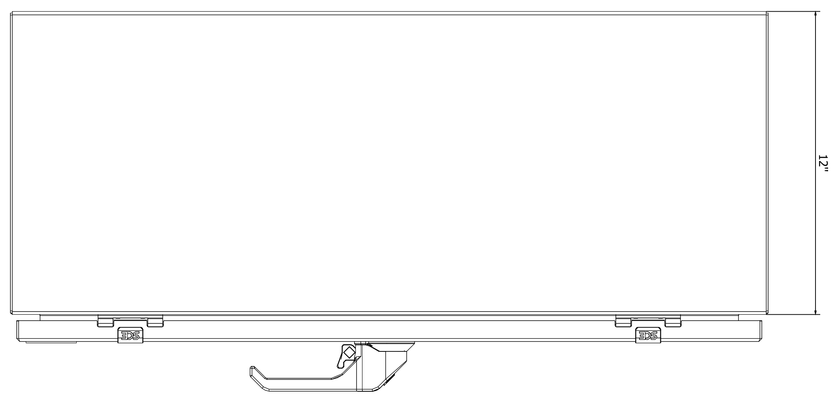
FRONT VIEW



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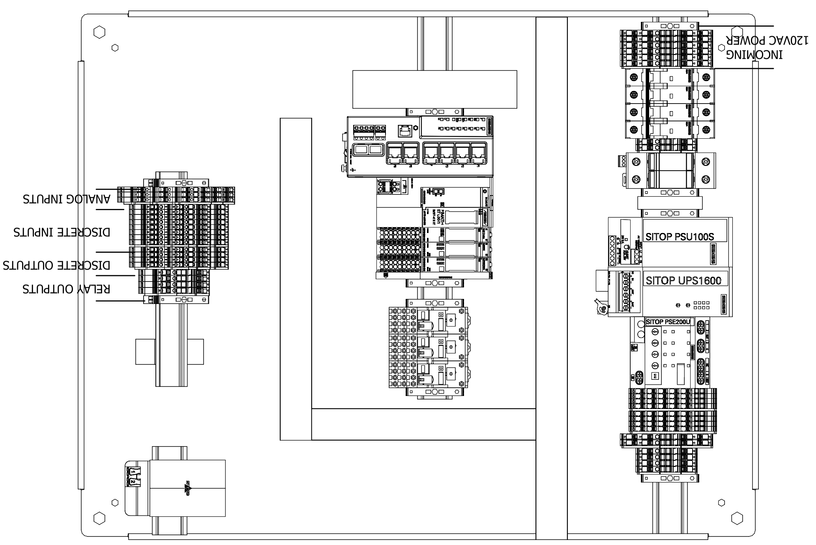


Y ENGINEERING 5 EAST PARK STREET FALLON, NEVADA 89406 (775) 423-9090		TITLE **WELL 4 / RESERVOIR 2 I/O BACK PANEL PRESENTATION**	Stead & Associates 13200 S.E. 30th St. Bellevue, Washington 98005 (425) 644-1700 Fax: (425) 746-9312 www.sb-inc.com service@sb-inc.com
SHEET 24 OF 24 SHEETS BY : JES DATE : 1/16/2026 SCALE : NTS		PROJECT **NEW WELL 5 PUMPING STATION VALDEZ, ALASKA**	JES A 09/26/24 UPDATED ENCLOSURE SIZE APPRVL REV DATE BY REVISION

VALDEZ NEW WELL 5 PUMPING STATION

SUPPLEMENTAL TECHNICAL SPECIFICATIONS

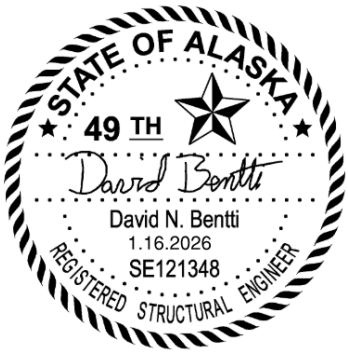
JANUARY 16, 2026

ARCHITECTURAL

CIVIL

ELECTRICAL

MECHANICAL



STRUCTURAL

DAY ENGINEERING

PO BOX 651 • EUREKA, NEVADA 89316 • (775) 293-5395
5 EAST PARK STREET • FALLON, NEVADA 89406 • (775) 423-9090

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX (CONT'D)

SUPPLEMENTAL
TECHNICAL SPECIFICATIONS INDEX (CONT'D)

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. All the construction required to install new groundwater pumping station and transmission main tie-in including all ancillary equipment and infrastructure for a complete replacement project in Valdez, Alaska.

B. Furnish tools, equipment, materials, supplies, and manufactured articles; furnish transportation and services including fuel, power, water, and essential communications; and perform labor, work, or other operations required in accordance with the Construction Documents.

C. The Work shall be complete, and all work, materials, and services not expressly shown or called for in the Construction Documents which may be necessary for the complete and proper construction of the Work in good faith shall be performed, furnished, and installed by Contractor as though originally so specified or shown, at no increase in cost to Owner.

1.02 STREAMLINED SPECIFICATIONS

A. These specifications are written in the streamlined or declarative style utilizing incomplete sentences.

B. Omissions of such words and phrases as "The Contractor shall" "in conformity therewith," "shall be," "as shown on the Drawings," “a”, "an," "the," and "all" are intentional in streamlined sections.

1. Omitted words shall be supplied by inference in the same manner as when a note appears on the drawings.

2. The omission of such words shall not relieve the Contractor from providing all items and work described herein or indicated on the drawings.

1.03 CONTRACT METHOD

A. The work hereunder will be constructed under a single Lump Sum Contract.

1.04 WORK BY OTHERS

A. Work may be conducted at or near the site by other contractors during the performance of the Work under this Contract.

B. Conduct operations to cause a minimum of interference with work of other contractors and cooperate fully with other contractors.

C. Interference with Work on Utilities:

1. Cooperate fully with utility forces of Owner or forces of public or private agencies engaged in relocating, altering, or otherwise rearranging of facilities which interfere with the progress of the Work.

2. Schedule the Work to minimize interference with relocating, altering, or other rearranging of facilities.

1.05 CONTRACTOR'S USE OF PROJECT SITE

A. Contractor's use of project site shall be limited to construction operations, including onsite storage of materials, onsite fabrication facilities, and field offices.

B. Limit use of site to areas defined by Owner and/or construction limits.

1. Limit use of premises for work and storage to allow for work of other contractors and subcontractors. Materials and equipment storage at the sites will be designated by the Owner.

2. Notify Owner if any work necessary to complete the Work is outside the construction limits shown.

C. Owner will have complete control over the use of the site by Contractor. Discuss intended use of site with Owner before starting work.

D. Assume full responsibility for the protection and safe keeping of products stored on the site.

E. Move stored products as directed by the Engineer which interfere with operations of Owner or separate contractors.

F. Obtain and pay for the use of additional storage and work areas needed for operations.

G. Contractor shall maintain reasonable access to private and public driveways and street traffic during construction operations. Use of detours and signage including flag persons may be required.

1.06 PERMITS

A. Obtain all permits required for construction, not already obtained by the Owner.

B. Pay the required fees and acquire all permits required for the construction of the project.

1.07 WORK SEQUENCE

A. Schedule activities to accommodate the overall construction schedule of Owner and coordinate the detailed schedule with Owner.

B. Perform work in an expeditious manner to ensure completion at the earliest possible date, but in no case later than the completion dates to be made available to Contractor by Owner.

C. A construction schedule will be developed by the contractor and will be submitted for review to the owner.

1.08 OWNER AUTHORIZED OVERTIME

A. In the event that Owner orders Work to be done during overtime hours which are not caused by the fault of Contractor, daily time sheets will be required to substantiate Contractor's charges for premium pay.

1.09 COMPLETION OF THE WORK

A. The completion date is the date of the final completion of the project. It is anticipated that the Contract will require approximately 2 years for substantial completion.

B. For Contract purposes, the completion date of the Contract will be deemed to be the date of final completion of the project, including specially scheduled items.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lump sum and unit price base bid description for Contract.

B. Measurement criteria applicable to the price schedule.

C. Defect assessment and non-payment for rejected work

1.02 AUTHORITY

A. Take all measurements and compute quantities. Owner's Representative will verify measurement and quantities.

B. Assist by providing necessary equipment, workers, and survey personnel as required.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities indicated on the Plans are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Owner's Representative determine basis for estimated monthly pay requests only and are not the basis for changes to the total lump sum price.

B. If the actual Work requires more or fewer quantities than those quantities indicated on the Plans, provide the required quantities based on the unit price indicated in the bid. For lump quantities covered under lump sum bid items, quantities shall be covered by the base bid unless those quantities change as a result of a change in the scope of work after award of the Contract.

C. If the actual Lump Sum Work requires a 25 percent or greater change in quantity less than or more than any quantity indicated, Owner or Contractor may claim for a Contract Price adjustment.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement Devices:

1. Weight Scales: Inspected, tested, and certified by the applicable agency Weights and Measures department within the past year.

2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.

3. Metering Devices: Inspected tested and certified by the applicable agency department within the past year.

B. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.

C. Measurement by Area: Measured by square dimension using mean length and width or radius.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

E. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.05 PROGRESS PAYMENTS

A. Payments for materials, machinery or equipment not incorporated into the Work, but delivered and suitably stored at the site, shall only be made where permitted by, and in accordance with, the terms and conditions of the Contract Documents.

1. Title to materials, machinery, and equipment delivered and suitably stored at the site shall immediately vest in and become the sole property of the Owner upon delivery to the site.

2. Notwithstanding such transfer of title, the Contractor shall have the full continuing responsibility to install, protect, and maintain the products in proper condition and promptly repair, replace and make good any damage thereto without cost to the Owner until the Work is fully accepted by the Owner.

3. Transfer of title shall in no way affect Contractor's obligations under the Contract.

B. Where the Contract Documents permit payment for materials stored off the jobsite. Owner shall have discretion either to approve or disapprove payments for such materials, and Contractor shall, in addition to the other requisites of the Contract Documents, make any provisions necessary, including insurance covering loss or damage to the material, to insure and protect Owner's title and right of possession and access to any such materials for which payment is approved by Owner.

C. Payments otherwise due, may be withheld by Owner because of defective work not remedied, claims filed, reasonable evidence indicating probability of filing of claims, failure of Contractor to make payments properly to its subcontractors or for materials, machinery, fuel or labor, or applicable taxes, fees and fringe benefits or reasonable doubt that the Contract can be completed for the balance then unpaid, or for any other breach of this Contract or for any other causes specified in the Contract Documents.

1. If the causes are not removed, on written notice, Owner may rectify the same at Contractor's expense.

2. Owner may offset against any sums due Contractor, the amount of any liquidated or unliquidated obligations of Contractor to Owner, whether or not arising out of this Contract.

D. No payment to Contractor shall operate as an approval of Contractor’s work or material, or any part thereof, or to release Contractor from obligations under this Contract.

E. Format of Payment Applications:

1. Contractor's electronic media driven form including continuation sheets when required.

2. For each item, provide a column for listing each of the following:

a. Item Number.
b. Description of Work
c. Scheduled Values.
d. Previous Applications.
e. Work in Place and Stored Materials under this Application.
f. Authorized Change Orders.
g. Total Completed and Stored to Date of Application.
h. Percentage of Completion.
i. Balance to Finish.
j. Retainage (10%).

F. Preparation of Applications:

1. Present required information on electronic media printout.

2. Execute certification by signature of authorized officer.

3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

4. List each authorized Change Order, including number and dollar amount as for an original item of work.

5. Prepare Application for Final Payment.

G. Submittal Procedures:

1. Submit one digital copy of each Application for Payment.

2. Submit an updated Construction schedule with each Application for Payment if it has been affected by the progress of the current work completed to date.

3. Payment Period: Submit at intervals stipulated in the Agreement, typically every thirty days.

4. Submit with transmittal letter as specified for Submittals in Section 01300.

5. Submit Owner required waivers.

H. Substantiating Data:

1. When Engineer requires substantiating information, submit data justifying dollar amounts in question.

2. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.06 PAYMENT

A. Payment includes: Full compensation for all required labor, materials, tools, equipment, plant, transportation, services, and incidentals; excavation, removal, erection, application, or installation of an item of Work; overhead and profits less retention in the amount of 10 percent and any previous payments.

B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Owner's Representative multiplied by the unit price for Work which is incorporated in or made necessary by the Work.

1.07 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Owner's Representative, it is not practical to remove and replace the Work, Owner will direct one of the following remedies:

1. The defective Work may remain, but the unit price will be adjusted to a new price at the discretion of the Owner.

2. The defective Work will be partially repaired to the instructions of the Owner's Representative and Owner, and the unit price will be adjusted to a new price at the discretion of the Owner.

C. The authority of Owner to assess the defect and identify payment adjustment is final.

1.08 LUMP SUM BASE BID

A. The Lump Sum and Unit Price Base Bid is the total cost for the base bid items, including all labor, materials, and equipment for the scope of work described in Section 01010, Summary of Work.

B. Lump sum and unit price also includes all bonds, insurance, and surety.

C. Contractor agrees to meet all schedules set forth for this project.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01035

MODIFICATIONS PROCEDURE

PART 1 GENERAL

1.01 SUMMARY

A. The Work to be performed may be modified by changes required by Owner and the Contract Amount and/or the Contract Time set forth in the Agreement will be adjusted by written Change Order in accordance with this section.

B. No alterations, increases or decreases shall be made in the Work as shown and specified except on the written order of Owner, and when so made, the value of the Work or materials added or omitted shall be computed and determined by Contractor, subject to the written approval and acceptance by Owner, and the Amount so determined shall be added to or deducted from the Contract Amount.

1. Contractor shall have no claim for additional Work or changed work unless such Work has been done in pursuance of a written order from Owner.

2. Extra Work performed without written order will be at Contractor's expense.

1.02 FIELD ORDERS

A. Owner and Owner's Representative will have authority to order minor changes in the Work not involving an adjustment in the Contract Amount or Time and not inconsistent with the intent of the Construction Documents.

1. Changes shall be affected by written order and shall be binding on Contractor.

2. Contractor shall carry out written order promptly.

1.03 CHANGE ORDER PROCEDURES

A. If a change in the Work is desired, Owner will notify Contractor and provide a written description, in the form of drawings or otherwise, of the desired change.

B. Contractor shall submit to Owner, a firm proposal for any changes in the Contract Amount and/or Time resulting from the proposed change within five days after receipt of the proposed change and shall submit the actual Change Order Request within ten days.

C. Owner shall have thirty days, or such other time as may be agreed upon, in which to accept or reject Contractor's proposal after its submission, and Contractor shall not modify or withdraw the proposal during this period.

D. The cost or credit to Owner resulting from a change in Contractor's work shall be determined in one of the following ways:

1. By mutually agreed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation in accordance with the Construction Documents

(which may be evidenced by Owner's issuance to Contractor of a Change Order for Contractor's firm proposal as described above);

2. By unit prices stated in the Construction Documents or subsequently agreed upon; or

3. On the basis of reasonable costs and savings of those performing the Work attributable to the change; provided, however, that in no case shall contractor's firm proposal described above nor any other method for determining the amount of the change include any cost for:

   a. Materials, labor, machinery, fuel or other expenses not specifically reimbursable as identified in the article, Cost Limitations, below, or

   b. Allowance for overhead and profit in excess of ten percent.

E. Contractor shall, provided a written order signed by Owner is received, promptly proceed with the Work involved.

F. In the event Owner directs Contractor to perform change in the Work by a written order other than a signed Change Order and without agreeing to the Contractor's firm proposal, then Contractor shall proceed to perform the change and the amount of the change shall be determined either under D,2 above (to the extent unit prices may be applied to the Work involved) or under D,3 above, as Owner may elect in its sole discretion, unless a mutually acceptable lump Sum price is subsequently agreed upon.

   1. To the extent Owner elects D,2, the unit price shall be as described in the Contract Documents.

   2. To the extent that D,1 or D,3 is elected, the cost of the Work and any savings shall be determined in accordance with Cost Limitations article, below.

G. In the event of additional Work ordered by Owner, Contractor shall submit labor and timecard sheets, with description of the Work and materials supplied to the Owner's Representative daily. This document shall govern in determining the workers' time and equipment usage involved in time-and-material-based charges, unless later found to be incorrect.

H. If Owner or Engineers disputes the validity or amount of a Change Order Request submitted by Contractor but Owner nevertheless directs Contractor to proceed, Contractor shall promptly proceed with the Work under the Change Order pending resolution of the dispute and expeditiously complete such work.

I. If Contractor wishes to make any other claim for an increase in the Contract Amount, Contractor shall give Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim, but nothing contained herein shall be deemed to permit Contractor to claim damages on account of delays in Contractor's performance of the Work or interference therewith, it being agreed that Contractor's sole remedy shall be to obtain an extension of time as provided in the Construction Documents.

1.04 COST LIMITATIONS

A. Cost shall be limited to the following:

1. Cost of materials, including sales tax and cost of delivery;

2. Cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom;

3. Workers' compensation insurance;

4. Bond premiums;

5. Rental value of equipment and machinery;

6. Additional costs of supervision and field office personnel directly attributable to the change.

B. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to such change.

1.05 CHANGE ORDER REQUEST

A. Change Order Request shall consist of the detailed cost estimate outlining the changes in the Work and detailed documentation justifying proposed changes in time.

1. Compute estimate in accordance with accepted estimating procedures and in accordance with the terms of the Construction Documents.

a. Costs for labor, machinery, fuel and materials shall be at prevailing rates in the Project area.

2. Unless otherwise provided in the Construction Documents, labor costs shall mean wages paid for labor under prevailing wage rates, or under a salary and wage scale agreed upon by Owner and Contractor, and shall include welfare and other benefits, if any, as may be payable with respect thereto in accordance with any applicable salary and wage scale.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01050

FIELD ENGINEERING

PART 1 GENERAL

1.01 WORK INCLUDED

A. This Section specifies the layout and establishment of field boundaries and grades, lines, and elevations for the Work.

1.02 OWNER FURNISHED STAKES

A. The Contractor will provide construction stakes establishing lines and grades for the Work, as follows:

1. As many permanent benchmarks in the vicinity of the Project sites as deemed necessary.

2. Stakes at 100-foot intervals for piping and at structures; stakes placed along offset lines chosen by Contractor.

3. Two stakes, containing horizontal and vertical control, at each structure location.

4. Finish Floor Elevations as required for structures.

5. Building/slab locations (4 corners will be staked).

6. Stakes not delineated above which Engineer may determine are necessary to complete the Work

B. The above construction stakes shall constitute the field control by and in accordance with which Contractor shall execute the Work.

C. After stakes and marks have been set, it shall be responsibility of Contractor to protect the stakes.

D. Should any of the stakes be disturbed by Contractor's operations, the costs for replacing the stakes and marks shall be paid for by Contractor or will be deducted from amounts to become due Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Engineer of any discrepancies discovered.

END OF SECTION

SECTION 01091

REFERENCE STANDARDS

PART 1 GENERAL

1.01 TITLES OF SECTIONS

A. Captions accompanying specification sections are for convenience or reference only and do not form a part of the Construction Documents.

1.02 APPLICABLE PUBLICATIONS

A. When references are made to published specifications, codes, standards, or other requirements, and no date is specified, only the latest specifications standards, or requirements of the respective issuing agencies, which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that standards or requirements may be in conflict with applicable laws, ordinances, or governing codes.

B. No requirements specified or shown on Drawings shall be waived because of any provision of, or omission from, standards or requirements.

1.03 SPECIALISTS ASSIGNMENTS

A. Specification text may require (or imply) that specific work be assigned to specialists or expert entities who must be engaged to perform that work

B. Such assignments are special requirements over which Contractor has no choice or option.

C. These requirements shall not be interpreted so as to conflict with enforcement of building codes and similar regulations governing the Work or to interfere with local union jurisdiction settlements and similar conventions.

D. Such assignments are intended to establish which party or entity involved in specific unit of work is recognized as "expert" for the indicated construction processes or operations

E. Final responsibility for fulfillment of Contract requirements remains with Contractor.

1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Work specified shall conform to or exceed requirements of applicable codes and applicable requirements of documents listed below to the extent that the provisions of such documents are not in conflict with requirements of these Specifications or applicable codes.

B. "Building Code" or "IBC" shall mean the International Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

C. In case of conflict between codes, reference standards, Drawings and other Construction Documents, the most stringent requirements shall govern.

1. Bring conflicts to the attention of Owner for clarification and directions prior to ordering or providing materials or labor.

2. Bid the most stringent requirements.

D. Applicable Standard Specifications:

1. Construct the Work in accordance with requirements of the Construction Documents and the referenced portions of those referenced codes, standards, and specifications listed.

2. Wherever references to "Standard Specifications" are made, the contractual, measurement, and payment provisions therein shall not apply.

E. "Standard Specifications" shall mean the most recent edition of the “City of Valdez Standard Specifications for Public Works Construction”, including all current supplements, addenda, and revisions thereto.

F. "Standard Drawings" shall mean the most recent edition of the “City of Valdez Standard Details for Public Works Construction, including all current supplements, addenda, and revisions thereto.

G. OHSA Regulations for Construction" shall mean Title 29, Pan 1926, Construction Safety and Health Regulations. Code of Federal Regulations (OSHA), including changes and amendments thereto.

H. "OHSA Standards" shall mean Title 29. Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OHSA), including changes and amendments thereto.

I. “AWWA” shall mean American Water Works Association, latest revisions including changes and amendments thereto.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 PRECONSTRUCTION CONFERENCE

A. Prior to commencement of Work at site, a pre-construction conference will be held at a mutually agreed time and place. The conference shall be attended by:

1. Contractor and its superintendent.
2. Principal subcontractors.
3. Engineer.
4. Representatives of Owner.
5. Governmental representatives as appropriate.
6. Others as requested by Contractor, Owner, or Engineer.

B. Unless previously submitted to Owner, bring to the conference a tentative schedule for each of the following:

1. Progress.
2. Procurement
3. Values for progress payment purposes.
4. Shop Drawings and other submittals.

C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

1. Contractor’s tentative schedules.
2. Transmittal, review and distribution of Contractor's submittals.
3. Processing applications for payment.
4. Maintaining record documents.
5. Critical work sequencing.
6. Field decisions and Change Orders.

7. Use of premises, office and storage areas, security, housekeeping, and Owner's needs.

8. Major equipment deliveries and priorities.

9. Contractor's assignments for safety and first aid.

10. Notification and Public Awareness.

D. Engineer will preside at the pre-construction conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

1.02 PROGRESS MEETINGS

A. Schedule and administer regular onsite progress meetings at least weekly and at other times as required by Owner or as required by progress of the Work.

B. Make arrangements for meetings and prepare agenda with copies for participants who preside at meetings.

C. Contractor and all subcontractors active on the site shall be represented at each meeting. Contractor may request attendance by representatives of suppliers, manufacturers and other subcontractors as appropriate to agenda topics for each meeting.

D. Owner's Representative will preside at the meetings, record minutes and distribute copies to participants and those affected by decisions made.

E. Agenda

1. Review minutes of previous meetings.

2. Review of Work in progress.

3. Field observations, problems, and decisions.

4. Identification of problems which impede planned progress.

5. Review of submittals schedule and status of submittals.

6. Maintenance of progress schedule.

7. Corrective measures to regain projected schedules.

8. Planned progress during succeeding work period.

9. Coordination of projected progress.

10. Maintenance of quality and work standards.

11. Other business relating to Work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01300

CONTRACTOR SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedule.

C. Schedule of Values.

D. Shop Drawings.

E. Inspection Certificates.

F. Spare Parts.

G. Mix Designs.

H. Omissions or Errors in Submitted Data.

1.02 SUBMITTAL PROCEDURES

A. Accompany submittals by transmittal using format bound with Construction Documents or substitute form approved by Engineer. Submittals not accompanied by a form, or where all applicable items on form are not completed, will be returned for re-submittal.

1. Use separate transmittal form for each specific item or class of material or equipment for which a submittal is required.

2. Transmittal of shop drawings for various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer’s "package" or are so functionally related that expedience indicates review of the group or package as a whole. Contractor is to provide 5 sets of hard-copy submittals or one digital copy to Engineer for review.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic section number, as appropriate.

C. Identify Project, Contractor, subcontractor or supplier, pertinent drawing and detail number, and specification section number, as appropriate.

D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of Construction Documents.

E. Schedule submittals to expedite the Project and deliver to engineer. Coordinate submission of related items.

F. For each submittal for review, allow 3 to 5 days excluding delivery time to and from Contractor.

G. Identify variations from Construction Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Engineer review stamps.

I. Revise and resubmit, identify all changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

K. Submittals not requested will not be recognized or processed unless they are pertinent to the project.

1.03 CONSTRUCTION SCHEDULE

A. Prepare and submit to Owner for approval, a Project Construction Schedule showing proposed sequence to carry out Work within the Contract Time and showing beginning times and completion times for major items of work

B. Project Construction Schedule:

1. In the form of a time-scaled item-numbered network diagram.

2. Supplement diagram by activity listing used in its preparation and outline, in sufficient detail:

a. Proposed operations.

b. Interrelationships of the various operations.

c. Order of performance so that progress of Work can be evaluated accurately at any time during performance of the Contract.

C. Conform Project Construction Schedule to the following requirements:

1. Time of Completion: Adhere to time specified unless an earlier (advanced) time of completion is requested or agreed to by Owner.

2. Construction Schedule Submittal: Within ten working days after receiving notice of award, furnish to Owner a schedule showing general plan for orderly completion of Work, details of planned mobilization of plant and equipment, sequence of early operations and procurement of materials and equipment.

3. Accepted Construction Schedule: Within five working days after receiving notice of acceptance of schedule furnish to Owner one reproducible and three prints of approved schedule.

4. Contractor's Responsibility: Failure of Construction Schedule to include any element of Work, or any inaccuracy in the Construction Schedule will not relieve Contractor from responsibility for accomplishing Work in accordance with the Contract.

5. Float (Slack) Time:

    a. Amount of time between earliest start date and latest start date or between earliest finish date and latest finish date of activities of Construction Schedule.

    b. No time extensions or delay costs will be allowed for delays on paths of activities containing float time, providing such delay does not exceed the float time, per the latest updated version of the accepted Construction Schedule.

D. Format of Construction Schedule:

1. Time-scale arrow diagram of the Critical Path Method (CPM) type, or a time-scale precedence diagram. Include in Schedule of Values, itemized descriptions, quantities, and values of work included in each activity in the Construction Schedule.

2. Construction Schedule shall provide the following:

    a. Time-scaled cost loaded CPM diagram precedence (activity on node) of activities, coordinated with Owner.

    b. Activity Durations:

        1) Total of actual days required to perform that activity including consideration of weather impact on completion of that activity.

        2) No duration longer than 30 days, with exception of procurement activities, unless otherwise acceptable to Owner.

    c. Sufficient detail to show plan for completion of Work for each stage within time specified.

    d. Milestone activities showing point of completion for each stage of Work.

    e. Dependencies (or relationships) and logic between activities.

    f. Information for material or equipment to be provided as follows:

        1) Material or equipment description.

        2) Duration in days required for preparation and review of Submittals.

        3) Duration in days required for fabrication and delivery

4) Restraints (ties) to activities which will be constrained by delivery date of materials or equipment item.

5) Scheduled delivery dates.

g. Total contract value to be earned from performing each activity shall be the total of labor, material and equipment, including overhead and profit. Any material value assigned shall be actual invoice value of material, without markup. Sum of the value of items in Construction Schedule and Schedule of Values shall equal total contract value.

h. Assign a responsibility code/organization code for each activity, as approved by Owner.

i. Assign at least ten days for development of punch list(s), completion of punch list items, and final cleanup.

E. Acceptance of Construction Schedule will not relieve Contractor of responsibility for accomplishing Work in accordance with the Contract

F. Monthly Updates: Submit an up-to-date Status Report each month to include:

1. Estimated physical percentage complete for each activity in progress.

2. Actual start/finish dates for all activities as appropriate.

3. List of materials and/or equipment delivered for which payment is requested and an original paid invoice verifying cost.

4. Identification of processing errors, if any, on previous update report.

5. Identification of activities which are affected by proposed Change Orders issued during the update period (Network Window).

6. Resolution of conflict between actual work progress and schedule logic. If out of sequence activities developed in schedule due to actual construction progress, submit revisions to schedule logic to conform to current job status and direction.

7. Owner's Representative will review updated information and meet with Contractor each month to ascertain status of Work.

8. Progress payments pursuant to the Agreement will be approved only after receipt of timely, accurately updated Schedule and Schedule of Values and will be based on the update of the Schedule of Values. Contractor and Owner's Representative will jointly review progress and agree upon quantity of work completed prior to Contractors submittal of revised Schedule of Values and invoice.

G. Contract Schedule Revisions:

1. If there are significant changes in plan of construction from that shown in accepted Construction Schedule, as determined by Owner, Contractor shall, within ten working days after receiving notice, submit a revised schedule to Owner for approval.

2. Submitting Project Construction Schedule and updates, if applicable, shall be considered as a necessary portion of Work; therefore, partial payments will not be made until requirement for acceptable schedules has been satisfied.

3. Acceptance of any schedule submitted shall not be construed to assign responsibility of performance or contingencies to Owner, or relieve Contractor of responsibility to adjust forces, equipment, and/or work schedule as may be necessary to ensure completion of Work within prescribed Contract Time period.

1.04 SHOP DRAWING SUBMITTALS

A. Furnish to Engineer for review, five (5) hard-copy prints or one digital copy of each shop drawing.

1. The term "shop drawings" shall include detail design calculations, fabrication and installation drawings, lists, graphs, and operating instructions

2. Unless otherwise required, submit shop drawings a time sufficiently early to allow review by Engineer and to accommodate rate of construction progress under the Contract.

B. Within ten calendar days after receipt of prints Engineer will return prints of each drawing to Contractor with comments noted.

1. It is considered reasonable that Contractor shall make a complete and acceptable submittal by the second submission of drawings.

2. Owner reserves the right to withhold monies due Contractor to cover additional costs of Engineer's review beyond second submission.

C. If three prints of drawing are returned to Contractor marked NO EXCEPTIONS TAKEN, a formal revision of drawing will not be required.

D. If three prints of drawing are returned to Contractor marked MAKE CORRECTIONS NOTED, a formal revision of drawing will not be required.

E. If one print of drawing is returned to Contractor marked AMEND-RESUBMIT or REJECTED-RESUBMIT, Contractor shall revise drawing and resubmit five (5) copies of revised drawing to Engineer for review.

F. Fabrication of an item shall not be commenced before Engineer has reviewed pertinent shop drawings and returned copies to Contractor marked NO EXCEPTIONS TAKEN or MAKE CORRECTIONS NOTED.

1. Revisions indicated on shop drawings shall be changes necessary to meet requirements or Drawings and Specifications and shall not be taken as basis of claims for extra work.

2. Contractor shall have no claim for damages or extension of time due to delay resulting from Contractor's having to make required revisions to shop drawings (unless review by Engineer of drawings is delayed beyond a reasonable period of time and unless the Contractor can establish that Engineer's delay in review actually resulted in delay in Contractor's construction schedule).

3. Review of drawings by Engineer will be limited to checking for general agreement with Specifications and Drawings and shall in no way relieve Contractor of responsibility for errors or omissions contained therein, nor shall such review operate to waive or modify any provision contained in Specifications or Drawings.

G. Engineer's review of shop drawing Submittals shall not relieve Contractor of entire responsibility for correctness of details and dimensions.

1. Contractor shall assume all responsibility and risk for misfits due to errors in Contractor submittals.

2. Contractor shall be responsible for:

a. Dimensions and design of adequate connections and details.

b. Fabricating dimensions.

c. Quantities and Class specifications of materials.

d. Applicable code requirements.

e. Other Contract requirements.

H. Engineer shall have authority to reject any product upon completion of review of suppliers' Submittals in regard to proof of acceptability of the product

1.05 CERTIFICATES OF INSPECTION

A. When specified in individual specification sections, submit inspection certification by appropriate entity to Owner in quantity specified.

B. Certificates shall be acceptable to Owner.

C. Indicate Work conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.06 SPARE PARTS LISTS SUBMITTAL

A. Furnish to Owner three identical sets of spare parts information for instrumentation, mechanical, and electrical equipment.

B. Include current list price of each spare part.

C. Limit list to those spare parts which each manufacturer recommends be maintained by Owner in inventory at the site.

D. Each manufacturer or supplier shall indicate name, address, and telephone number of nearest outlet of spare parts to facilitate Owner in ordering.

E. Cross-reference spare parts lists to equipment numbers designated in Construction Documents.

F. Bind spare parts lists in standard size, 3-ring, loose leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

1.07 MIX DESIGN SUBMITTALS

A. Prepare Portland cement concrete and asphalt concrete mix designs.

1. Determine exact proportions of materials to be used for different parts of Work, in conformance with Drawings and Specifications.

2. Submit to Engineer for review prior to use in Work

B. Samples for mix design shall represent existing stockpile.

1. Mix designs "copied" from previous projects will not be accepted unless the existing stockpile aggregate is tested to assure conformity.

2. Any stockpile additive, binder or cement source location and/or type of material change will require a new mix design.

1.08 OMISSIONS OR ERRORS IN SUBMITTED DATA

A. Pay costs involved in correcting omissions or errors in submitted data, including failure to make timely submittal.

B. Pay costs involved in correcting omissions or errors in execution of correctly submitted information.

C. Costs shall include additional compensation due to Owner and Engineer due to additional services necessitated by the change.

1.09 WARRANTIES

A. Provide all material and equipment warranties to Owner as required by the pertinent Technical Specifications.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality assurance - control of installation.

B. Tolerances.

C. Inspecting and testing laboratory services.

D. Manufacturers' field services and reports.

E. Inspection at place of manufacture.

1.02 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturer's instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Construction Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devises designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Construction Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.04 INSPECTING AND TESTING LABORATORY SERVICES

A. Owner will appoint, employ, and pay for specified services of an independent firm to perform inspecting and materials and compaction testing.

B. The independent firm will perform inspections, tests including compaction testing and other services specified in individual specification sections and as required by Engineer and Owner.

C. Inspecting, testing and source quality control may occur on or off the project site. Perform offsite inspecting or testing as required by Engineer or Owner.

D. Reports will be submitted by the independent firm to Engineer, in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with Construction Documents.

E. Cooperate with independent firm; furnish samples of materials, design mix, equipment tools, storage, safe access, and assistance by incidental labor as required.

1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractors use.

F. Testing and inspecting does not relieve Contractor to perform Work to Contract requirements.

G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by Engineer. Payment for retesting will be charged to Contractor by deducting inspecting or testing charges from the Contract Price.

1.05 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions or surfaces and installation, quality of workmanship, start-up of equipment and test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer 30 days in advance of required observations.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers written instructions.

D. Submit report in duplicate within 30 days of observation to Engineer for information.

1.06 INSPECTION AT PLACE OF MANUFACTURE

A. Products, materials, and equipment shall be subject to inspection by Engineer at place of manufacture.

B. Presence of Engineer at place of manufacture shall not relieve Contractor of responsibility for finishing products, materials, and equipment which comply with requirements of the Construction Documents.

C. Compliance is a duty of Contractor that shall not be avoided by any act or omission on the part of Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01505

MOBILIZATION

PART 1 GENERAL

1.01 DESCRIPTION

A. Mobilization shall include obtaining permits, insurance, taxes, overhead and profit, vehicles, equipment, fuel, moving plant and equipment onto site; furnishing and erecting plants, temporary buildings, and other construction facilities, as required for the proper performance and completion of the Work

B. Mobilization shall include the following principal items:

1. Moving onto the site of materials and equipment required for first month operations including field office for Owner.

2. Installing temporary construction power, wiring, and lighting facilities.

3. Establishing fire protection system.

4. Establishing temporary security system at job site to protect against theft and vandalism.

5. Developing construction water supply.

6. Providing onsite communication facilities.

7. Providing onsite sanitary facilities and potable water facilities as specified. Location of portable toilet facilities must be approved by the City of Valdez prior to placement at the job site.

8. Arranging for and erection of work and storage yard.

9. Obtaining required permits. All permits must be on site at all times during construction operations.

10. Posting OSHA required notices and establishment of safety programs.

11. Having the superintendent at the jobsite full time.

12. Submitting Preliminary Construction Schedule.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01530

PROTECTION OF EXISTING FACILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Protect existing utilities and improvements not designated for removal.

B. Restore damaged or temporary relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation.

C. Verify exact locations and depths of utilities shown and make exploratory excavations of utilities that may interfere with Work.

1. Perform exploratory excavations as soon as practicable after award of Contract and in sufficient time in advance of construction to avoid possible delays to Work.

2. When exploratory excavations show utility location as shown to be in error, notify Engineer. Perform additional potholing as required and pursuant with bid item unit prices.

D. The number of exploratory excavations required shall be sufficient to determine alignment and grade of existing utilities.

1.02 RIGHTS-OF-WAY

A. Access to lands or rights-of-way for the Work will be provided by Owner as shown on the Drawings.

1. Nothing contained in the Construction Documents shall be interpreted as giving Contractor exclusive occupancy of the lands or rights-of-way provided.

2. Additional lands or rights-of-way required for construction operations shall be provided by Contractor at his own expense.

B. Do not enter nor occupy with men, equipment, or materials, any lands outside the rights-of-way or easements shown without meeting the following requirements:

1. Furnish to Owner, prior to use of any other public or private properties by Contractor in performance of Work, written authorization by the property owner for use of such property by Contractor.

2. Prior to acceptance of Work by Owner, furnish Owner with written evidence, acceptable to Owner, releasing Contractor from liability to the property owner for the use of such property by Contractor.

3. Take precautions necessary to preserve private and public property in immediate area of work site.

4. Total liability shall be assumed by Contractor for damage to private and/or public property during the prosecution of Work.

5. Upon completion of Work all private and public property shall be, as a minimum, restored to its conditions existing prior to the commencement of work thereon.

1.03 PROTECTION OF STREET OR ROADWAY MARKERS

A. Do not destroy, remove, or otherwise disturb existing survey markers or other existing street or roadway markers without proper authorization.

B. Start no pavement breaking or excavation until survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration.

C. Notify Engineer of the time and location that work will be done, sufficiently in advance of construction to avoid delay due to waiting for survey points to be satisfactorily referenced for restoration.

D. Survey markers or points disturbed by Contractor without proper authorization by Owner, will be restored by Owner at Contractor's expense after Work has been completed.

1.04 GENERAL RESTORATION OF PAVEMENT

A. Replace paved areas, including asphaltic concrete berms cut or damaged during construction with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit.

B. Temporary and permanent pavement shall conform to the requirements of the Owner of the affected pavement.

C. Pavements subject to partial removal shall be neatly saw-cut in straight lines.

1.05 CONSTRUCTION INTERFERENCES

A. Contractor's responsibilities regarding existing utilities and construction interferences shall be in accordance with City of Valdez Standard Specifications for Public Works' Construction and with the following additional provisions.

B. Construction interference includes:

1. Utility or service connections within the limits of excavation or over-excavation required for the Work

2. Utility or service connections located in the space which will be required by the Work.

3. Utility or service connections required to be disturbed or removed to permit construction as specified under the Contract.

C. Disturb or remove connections only with approval of Owner and following notification to owner of interfering utility or service connection.

D. Promptly reconstruct utility or service connections removed or otherwise disturbed in original or other authorized location in a condition at least as good as prior to such removal or disturbance, subject to the inspection of individual utilities' owners.

E. Contractor's responsibility to remove or replace shall apply even in if damage or destruction occurs after backfilling.

F. Immediately notify owner of utility if service connection damage or destruction occurs or is discovered.

G. During the performance of the Work, the owner of any utility affected by the Work shall have the right to enter when necessary upon any portion of the Work for the purpose of maintaining service and of making changes in or repairs to the utility.

H. Contractor shall not be held responsible for failure to complete the Work on time to the extent that such delay was caused by failure of the owner or of the agency having jurisdiction over the utility or service connection to authorize or otherwise provide for its removal, relocation, protection, support, repair, maintenance, or replacement.

I. Exercise extreme care not to damage existing utilities and/or new and existing facilities which do not physically constitute construction interference.

    1. Use equipment of such weights throughout construction operations so that existing buried utilities and/or new and existing facilities are not damaged by excessive loading.

    2. Contractor shall be responsible for costs of repair and/or replacement of new or existing facilities damaged by construction operations, as determined by Owner.

J. Contact "CALL BEFORE YOU DIG" not less than 48 hours prior to starting any excavation. Notify by telephone and comply with all instructions received; the toll free number is 811.

    1. All utility companies may not be members of the USA System and, therefore, not automatically contacted by the above referenced telephone number.

    2. Contractor shall be responsible for making himself aware of utility company facilities not reported by the USA System and shall bear any and all damages stemming from repair or delay costs or any other expenses resulting from the unanticipated discovery of underground utilities.

    3. Notify the pertinent utilities at least two working days in advance of commencement of work at site, to examine the construction site and mark the location of the utilities' respective facilities. Verify that each utility has responsibly responded to the notification.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01560

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Provide and maintain control over environmental conditions at the construction site and related areas under Contractor's control.

B. Remove physical evidence of temporary facilities upon completion of the Work.

C. Section includes:

1. Dust Control.
2. Water Control.
3. Debris Control.
4. Weed Control.
5. Pollution Control.
6. Explosives and Blasting.
7. Barriers.
8. Protection of Installed Work.
9. Security.
10. Chemicals.
11. Hazardous waste handling and disposal is covered under Specifications Sections 013545, 022600 and 028100.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 DUST CONTROL

A. Provide positive methods and application of dust control materials as necessary to minimize dust from construction operations.

B. Provide positive means to prevent airborne dust from disbursing into the atmosphere. See Article 3.05, this section.

3.02 WATER CONTROL

A. Control surface or groundwater and prevent damage to the Project, the site, and adjoining properties.

B. Furnish, place, and maintain supports and shoring required for the sides of the excavations.

C. Properly dispose of onsite storm drainage water or groundwater and divert offsite drainage to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

D. Contractor shall obtain and keep on site, all permitting required for stormwater pollution prevention or discharging of groundwater during dewatering/construction operations.

3.03 DEBRIS CONTROL

A. Keep all areas under Contractor's control free from extraneous debris; at all times keep work area in a neat, clean, and safe condition.

B. Initiate and maintain a specific program to prevent accumulation of debris at the site, in storage and parking areas, and along access roads and haul routes, as follows:

1. Provide containers for deposit of debris.

2. Prohibit overloading of trucks to prevent spillage on access and haul routes.

3. Perform periodic inspections to enforce these requirements.

C. Schedule periodic collection and disposal of debris and provide additional collection and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

D. If Contractor fails to clean up as provided in Construction Documents, Owner may do so and cost thereof will be charged to Contractor.

3.04 WEED CONTROL

A. Contractor shall ensure vehicles and equipment are clean and free of seeds that could be transported to off-site locations prior to moving equipment or hauling of materials off-site. The Owner's Representative of inspector shall determine if vehicles and equipment are sufficiently clean for transportation.

3.05 POLLUTION CONTROL

A. Prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations, including equipment personnel and emergency measures required to contain any spillage, and to remove contaminated soils or liquids.

1. After obtaining proper approvals, excavate and dispose of contaminated earth offsite, and replace with suitable compacted fill and topsoil. Costs for soils testing shall be borne by the Contractor.

B. Take special precautions to prevent harmful substances from entering public waters.

1. Prevent disposal of wastes, effluents, chemicals or other substances adjacent to washes, or in sanitary or storm sewers.

C. Control atmospheric pollutants to prevent toxic concentrations of chemicals, and to prevent harmful dispersal of pollutants into the atmosphere.

D. This project is located in Valdez, Alaska.

1. Contact the State Health (Air Pollution Control Division) regarding special considerations concerning air quality requirements.

2. Compliance with all rules, regulations, special stipulations and laws pertaining to air quality shall be Contractor's responsibility and the cost thereof for dust control and other air quality control permits shall be considered in the Contract lump sum price.

E. Applications for Operating Permits and for Authority- to- Construct facilities for extracting and processing of onsite materials shall be the Contractor's responsibility.

3.06 EXPLOSIVES AND BLASTING

A. The use of explosives on the Work will not be permitted.

3.07 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide protection for plant life designated to remain. Replace damaged plant life.

C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed Work Control activity in immediate work area to prevent damage.

C. Prohibit traffic from landscaped areas.

3.09 SECURITY

A. Protect work, existing premises, and Owner operations from theft, vandalism, and unauthorized entry.

B. Initiate security program in coordination with Owner's existing security system upon receipt of notice to proceed.

3.10 CHEMICALS

A All chemicals used during project construction or furnished for project operation (i.e., defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification) shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. MSDS Sheets for all chemicals are required to be on site at all times during construction.

1. Use of chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cleaning during progress of the Work and at completion of the Work, as required by conditions of the Contract.

1.02 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws; particularly in regards to hazardous waste materials and proper disposal.

1.03 CLEANING DURING CONSTRUCTION

A. Contractor shall be responsible for Contractor's own waste, debris and cleanup on a regular basis and for maintaining a clean environment

B. After due notice, Owner will clean up areas of Contractor's work not cleaned up and will charge Contractor the cost thereof, which charge will be deducted from payments due or to become due Contractor.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of it at legal disposal areas away from the site.

D. Notwithstanding the conditions stated above, the Contractor shall be solely responsible for the collection and removal of all hazardous material pursuant with the approved Plan and Specifications provided for this project.

E. Contractor shall execute periodic cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and wind-blown debris, resulting from Construction operations under Contractor's control.

F. Should the Work involve flammable or combustible liquids, Contractor shall be responsible for removing and disposing of same from project site.

1.04 FINAL CLEANING

A. Immediately prior to the inspection for substantial completion of the Work, the Contractor shall:

1. Remove Contractor's waste materials and rubbish from the site.

2. Remove all bafflers and other protective devices.

3. Thoroughly clean site to leave it in a rake clean condition, ready for use by Owner.

B. Immediately prior to the final inspection for completion of the project, Contractor shall:

1. Execute final cleaning prior to final inspection.

2. Prior to final completion, conduct an inspection of all work areas to verify that the entire work is clean.

3. Maintain work in a clean condition until the Owner determines the Work and the Project are complete.

4. Promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction.

C. Final acceptance of the Work by Owner will be withheld until Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the Project site.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01730

OPERATING AND MAINTENANCE INFORMATION

PART 1 GENERAL

1.01 DESCRIPTION.

A. Operating and maintenance information shall be provided for all equipment and material and shall consist of the names and addresses of the manufacturer, the nearest representative of the manufacturer, and the nearest supplier of the manufacturer's equipment and parts, as well as the following items of information.

1. Lubrication Information: This shall consist of the manufacturer's recommendations regarding the lubricants to be used and the lubrication schedule to be followed.

2. Control Diagrams: Diagrams shall show internal and connection wiring. All wires shall be marked.

3. Start-Up Procedures: These instructions consist of equipment manufacturer's recommendations for installation, adjustment, calibration and troubleshooting.

4. Operating Procedures: These instructions consist of the equipment manufacturer's recommended step-by-step procedures for starting, operating, and stopping the equipment under specified modes of operation.

5. Preventive Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the equipment.

6. Overhaul Instructions: These instructions consist of the manufacturer's directions for the disassembly, repair and reassembly of the equipment and any safety precautions that must be observed while performing the work.

7. Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Owner and any special storage precautions which may be required.

8. Spare Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Owner and any special storage precautions which may be required

9. Specific Information: When items of information not included in the above list are required, they will be provided as described in the specification for the equipment.

1.02 TRANSMITTAL PROCEDURE

A. Two copies of the specified operating and maintenance information shall be provided. The information shall be organized in the binders in numerical order by the specification number assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information.

B. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

1.03 PAYMENT

A. Monies retained from progress payments made to the Contractor will not be released until acceptable operating and maintenance information is delivered to the Engineer for Owner.

1.04 FIELD CHANGES

A. Following the acceptable installation and operation of an equipment item, the item's instructions and procedures shall be modified and supplemented by the Contractor to reflect any field changes or information requiring field data.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contractor's One Year warranty.

B. Product and Service Warranties.

C. Preparation and submittal.

D. Time and schedule of submittals.

1.02 CONTRACTOR'S ONE YEAR WARRANTY

A. Unless otherwise provided, materials and equipment incorporated into Work shall be new and, where not specified, of the most suitable grade of the respective kinds, for the intended use, and workmanship shall be in accordance with construction practices acceptable to Owner.

B. Unless otherwise provided, warrant equipment, materials, and labor furnished or performed under this Contract against defects in design, materials and workmanship (unless furnished by Owner), for a period of twelve months (unless longer guarantees or warranties are provided for elsewhere in Construction Documents in which case the longer guarantees or warranties shall prevail) after final acceptance, regardless of whether furnished or performed by Contractor or subcontractors of any tier.

1. Upon receipt of written notice form Owner of any defect in equipment, materials, or labor during the applicable warranty period, due to defective design, materials or workmanship, the affected items or parts thereof shall be redesigned, repaired or replaced by Contractor at a time acceptable to Owner.

C. Perform tests Owner may require to verify that redesign, repairs and replacements comply with requirements of Contract.

1. Costs incidental to such redesign, repair, replacement and testing, including the removal necessary to gain access, shall be borne by Contractor.

D. Warrant redesigned, repaired or replaced work against defective design, materials and workmanship for a period of twelve months from and after date of acceptance thereof.

1. Should Contractor fail to promptly make the necessary redesign, repair, replacement and test, Owner may perform or cause to be performed the same at Contractor's expense.

2. Contractor and its surety or sureties shall be liable for the satisfaction and run performance of the warranties as set forth herein.

1.03 PRODUCT AND SERVICE WARRANTIES

A. Warranty to Owner:

1. That materials and equipment furnished will be of good quality and new unless otherwise required or permitted by Construction Document.

2. That Work will be free from defect not inherent in the quality required or permitted.

3. That Work will conform to requirements of Construction Documents.

B. Work not conforming to requirement, including substitutions not properly approved and authorized, may be considered defective.

C. Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

D. If required by Owner, furnish satisfactory evidence as to the kind and quality of materials and equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FORM OF SUBMITTALS

A. Bind in commercial quality 8-1/2 x 11-inch three D side ring binders with durable plastic covers.

B. Cover: identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

C. Table of Contents: Neatly typed, in sequence of Table of Contents of Project Manual, identifying each item with number and title of specification section in which specified, and name of Product or work item.

D. Separate each warranty of bond with index tab sheets keyed to the Table of Contents listing.

1. Provide full information, using separate typed sheets as necessary.

2. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3.02 PREPARATION OF SUBMITTALS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, manufacturers, and suppliers within 10 days after completion of the applicable item of work.

1. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain run information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

3.03 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

B. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

C. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

3.04 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

SECTION 01800
GEOTECHNICAL DATA

1.0 General

A. The geotechnical report described below was the basis of design for the Project.

B. The report is not part of the Contract Documents and is made available for information only. The use of information contained in the geotechnical report does not relieve the Contractor from complying with the provisions of Article 4.02 of the General Conditions.

C. Neither the City of Valdez nor the Engineer assumes responsibility for conclusions or interpretations made by a Contractor based on the information contained in the geotechnical report.

D. No conclusions or interpretations based on the information contained in the geotechnical report will relieve a Contractor from fulfilling the terms of the Contract.

2.0 Geotechnical Report

A. A geotechnical report was developed by Shannon and Wilson in March 2021. A copy of that report is attached herewith for review. The report includes trenching, shoring, dewatering and includes the new sewer lift station site but should not be considered representative of the entire trenching/excavation work.

3.0 Differing Subsurface Conditions

A. Contractors shall account for potentially differing subsurface conditions based on results from excavations during construction operations.

4.0 Pipe Bedding and Backfill

A. High Ground Water: In areas of construction at or below the groundwater level, complete conformance to the plans and specifications shall be required (Class C required for Bedding).

B. No Ground Water: In areas where no ground water is encountered, processed/screened select native material may be used for pipe embedment/bedding with the following limitations:

1. Excavated native material is screened to ensure 100% of the material passes a ¾" sieve. (material larger than ¾" will be encountered in the native material and will not be acceptable to be used as bedding material unless it is screened).
2. Excavated native material that is not screened may only be utilized as trench backfill material from top of bedding to bottom of pavement section (bottom of Type 2 Aggregate Base).

5.0 Groundwater Conditions

A. Seasonal fluctuation on soil moisture content and groundwater levels should be anticipated depending on precipitation, irrigation, runoff conditions and other factors. Seasonal saturation of near-surface soil should be anticipated.

B. Temporary dewatering measures may be required for all trenching operations and/or building footings.

C. Water encountered in excavations shall be disposed of by the Contractor at Contractor's expense.

D. Contractor shall insure that dewatering operations have the proper BMPs installed prior to starting excavations and do not cause erosion and sediment discharge, damage to adjacent properties, or damage the subgrade soils at the bottom of excavations.

E. Contractor shall comply with all state and federal regulations regarding discharging water pursuant with EPA guidelines.

F. Contractor shall submit a Dewatering Plan to the City and Engineer for approval prior to commencing dewatering operations.

END OF SECTION

GEOTECHNICAL ENGINEERING REPORT

SHANNON AND WILSON
MARCH 2021

SECTION 01870
TRAFFIC MAINTENANCE AND SAFETY

1.0 GENERAL

The Contractor shall conduct the Work in such a manner as will obstruct and inconvenience traffic as little as possible. Existing traveled roads and their adjacent streets within the work area shall be kept open and in a good, dust free and safe condition for traffic at all times. The Contractor shall remove any material or debris on a daily basis resulting from or caused by operations and repair any damage which may result from operations.

The Contractor shall continually provide access to businesses, parking lots, residences, garages and farms. When access must be temporarily denied due to construction operations, such as installation of a buried pipeline directly in front of a driveway, the Contractor shall notify the property owner, or responsible party, of such closure not less than 24 hours in advance of closure. The notification must be in writing with a copy to the Resident Project Representative and include an estimated duration of the closure.

The Contractor shall at all times during the progress of the Work provide, erect and maintain all the necessary barricades, danger signals, temporary striping and signs, provide a sufficient number of flaggers and take all the necessary precautions for the protection of the Work and safety of the public. Illuminate barricades and obstructions at night with reflectorized signs and lights from sunset to sunrise.

The Contractor shall keep all roads open to two way traffic unless otherwise approved by the Engineer. If the roadway is not sufficiently safe to maintain two way traffic, one way traffic will be allowed. The Contractor shall abide by the terms and conditions stipulated in the approved ADOT permits and have a copy of the permit on the premise during construction operations withing ADOT Right-of-Way.

2.0 TRAFFIC CONTROL PLAN

The Contractor will be required to conform with a traffic control plan at all times while working within the public right of way. The traffic control plan shall be in accordance with *Part VI Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations*, latest edition, as prepared by the U.S. Department of Transportation Federal Highway Administration. Traffic control plan shall be American Traffic Safety Services Association (ATSSA) Certified.

The traffic control plan must be submitted to the Engineer and the governmental agency having jurisdiction over the road for approval prior to construction commencing. The Contractor must submit the traffic control plan sufficiently in advance of construction to allow ample time for review and approval

3.0 DETOURS

The Contractor may request detouring thru traffic in those work areas where it is impractical or impossible to safely maintain traffic. Any detour requests must be approved by the Engineer and the governmental agency having jurisdiction over the road to be detoured and the detour route. Any allowed detours will be subject to the following conditions:

1. Maintaining the detour in good condition.
2. Providing and maintaining the detour marking signs.
3. When the detour is no longer necessary, repair the detour route to original or better condition.

4.0 TEMPORARY TRENCH ROAD PATCHES

The Contractor shall replace all removed paving daily with an approved premix (cold patch) or compacted road base if coned off to prevent traffic from accessing work area and `shall place the final trench patch as soon as practical or as directed by the governmental agency having jurisdiction over the road. The Contractor will be responsible for maintaining the temporary patch until such time as the permanent pavement patch is in place. Any settlement or irregularities which develop in the temporary patch shall be corrected immediately.

All perpendicular street crossings shall receive temporary patches.

All other paved areas along the pipeline alignments not mentioned will require temporary patches.

5.0 EMERGENCY AGENCY NOTIFICATION

The Contractor shall notify police, fire and ambulance agencies when traffic patterns are to be altered due to construction operations. Such notifications shall be in writing with a copy to the Engineer and submitted at least 24 hours in advance of construction commencing.

6.0 CLEANUP

During periods when the Contractor is not working and at least daily, lanes open for traffic must be cleared of dirt, debris and all other material. Barricades and flashers shall be placed sufficiently close together so that there is no question about the required routes for traffic.

END OF SECTION

SECTION 072100

BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
- **1.** Extruded Polystyrene perimeter foundation and slab
- **2.** Polyisocyanurate rigid insulation at exterior furred walls
- **3.** Blown in Batt Fiberglass at roof and exterior walls.
- **4.** Spray Applied Urethane foam for sealing window, doors, and rim joists
- **5.** Vapor retarders.

B. Related Sections include the following:
- **1.** Division 6: Section “Rough Carpentry” for Plywood specification
- **2.** Division 7 Section : “Air Barrier”
- **3.** Division 9 Section "Gypsum Board Assemblies" for installation in wall assemblies
- **4.** Division 15 Section "Mechanical Insulation."

C. Minimum Thermal Resistance values of construction assemblies (R value)
- **1.** Provide a minimum of R-21 batt insulation in 6” Exterior Wall Assemblies- fill entire void where shown on Wall Assemblies, Sections and Details.
- **2.** Provide a minimum of R-49 Insulation at all Roof Assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Layout showing orientation of laminated composite polystyrene wall panels to metal stud framing, windows, thicknesses, fastener spacings, and patterns for mechanically fastening panels.
- **1.** Delegated design submittal to include structural calculations for wall panels accounting for wind loading pressure values in structural drawings

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.

B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method

indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface-Burning Characteristics: ASTM E 84.
2. Fire-Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.
4. Cover plastic and foam plastics with non-combustible surface typically.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FOAM-PLASTIC BOARD INSULATION, BELOW GRADE FOUNDATION WALLS, SLABS

A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Available Manufacturers:
1) InsulFoam
2) DiversiFoam Products.
3) Dow Chemical Company.
4) Owens Corning.
5) Pactiv Building Products Division.
2. Type VI, 1.80 lb/cu. ft. (Under Slab, Exterior Foundation walls)

B. Molded-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Available Manufacturers:

a. InsulFoam Products
b. DiversiFoam Products.
c. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.

2. Expanded Polystyrene (EPS)
a. Type II, 1.5 lb/cu. ft. (Insulation at Wall)
b. HD Composite (Insulation at roof)

2.3 POLYISOCYANURATE FOAM-PLASTIC BOARD INSULATION, USE ABOVE GRADE ON PERIMETER CONCRETE WALL

A. Polyisocyanurate Board Insulation, Foil Faced: ASTM C1289, foil faced, Type I, Class 1 or 2.
1. Available Manufacturers:
a. RMax Insuation
b. Johns Manville
c. Carlisle SynTec Systems
d. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.

2.4 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
2. Installation of both roof and wall panels
3. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
a. Plastic Foam Adhesives: 50 g/L.
b. Multipurpose Construction Adhesives: 70 g/L.
c. Fiberglass Adhesives: 80 g/L.

2.5 BLOWN IN GLASS-FIBER INSULATION

A. Basis of Design: Certainteed, Optima

B. Other Acceptable Manufacturers:
1. Knauf
2. Guardian Building Products, Inc.
3. Johns Manville.
4. Owens Corning.

C. Blown in Unfaced, Glass-Fiber Blanket Insulation: ASTM C764,Type I; with maximum flame-spread and smoke-developed indexes not more than 5, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.

2. Recycled Content: Provide thermal insulation with recycled content so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 60 percent.

3. Rapidly Renewable Content: Provide thermal insulation with not less than 4 percent.

4. Provide wall insulation full-thickness of stud cavity unless indicated otherwise.

5. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates. 1. Adhesives shall have a VOC content of [70] g/L or less.

2.6 VAPOR RETARDERS

A. Polyethylene Vapor Retarders:

1. Covered applications at Walls and Roof: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.

2. Exposed applications at walls and soffits: 6 mil, laminated, fire retardant. ASTM E 1745, Class A Flame spread, ASTM E 84, meets or exceeds NFPA 701, White.

3. Underslab and Crawlspace: Laminated, fiber reinforced, ASTM E 1745, 10 mils thick, with maximum permeance rating of 0.03 perm.

a. Basis of Design: Raven Industries, Vaporblock 10

1) Substitutions per 01600

4. Roof Assemblies

a. VapAir Seal 725TR Air/Vapor Barrier - a 40-mil composite consisting of 35-mils of self-adhering rubberized asphalt laminated to a 5-mil woven polypropylene film.

b.

B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

C. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

D. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.

2.7 AUXILIARY INSULATING MATERIALS

A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.

B. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

C. Spray applied urethane insulation for insulating rim joists and sealing around windows, doors, and other openings:

1. Any qualified manufacturer

2. Any qualified installer

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

C. Install laminated wall panels with both urethane adhesive and mechanical fastinsulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

D. Extend insulation in thickness indicated to envelop entire area to be insulated. Blow In Insulation tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

E. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

F. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
1. If not otherwise indicated, extend insulation a minimum of 48 inches (1219.2 mm) below exterior grade line.

B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

C. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.

D. Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.

3.5 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

C. Set vapor-retarder-faced units with vapor retarder to warm side and in locations indicated within construction, unless other directed otherwise.

1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

D. Install blown in batt insulation in cavities formed by framing members according to the following requirements:

1. Completely fill cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.

2. When installing acoustic glass fiber blanket insulation, place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

3. Maintain 3-inch(76-mm) clearance of insulation around recessed lighting fixtures.

4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

5. For metal-framed wall cavities where cavity heights exceed 96 inches(2438 mm), support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.

3.6 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Glass-Fiber Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.

4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:

a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

6. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.

a. Exterior Walls: Set units with facing placed toward interior of construction

b. Interior Walls: Set units with facing placed toward areas of high humidity

C. Loose-Fill Insulation: Apply according to ASTM C 1015 and manufacturer's written instructions. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.

1. For cellulosic-fiber loose-fill insulation, comply with CIMA's Bulletin #2, "Standard Practice for Installing Cellulose Insulation."

D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Loose-Fill Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.

2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.7 INSTALLATION OF VAPOR RETARDERS

A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives, sealants, or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

1. Extend vapor retarder into window, door, vent and any other penetrations in exterior envelope and lap under air infiltration barrier. Seal vapor retarder against framing.

2. Seal Vapor retarder against steel decking. When sealing perpendicular to steel decking fill voids in decking flutes with closed cell spray applied urethane insulation to complete the membrane.

3. Lap vapor retarder a minimum of 6” with continuous sealant at lap joint.

B. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape or sealant according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

C. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder. For penetrations that are concealed, provide manufactured gaskets or fill penetration with approved fire stopping.

E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder. Contractor to call for inspection / review of vapor retarder and insulation a minimum of 24 hours prior to installation of gwb.

3.8 PROTECTION

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210

SECTION 07 25 00

WATER RESISTIVE AIR BARRIER MEMBRANE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Supply labor, materials and equipment for a mechanically attached water-resistive vapor permeable air barrier membrane system, suitable for open joint cladding where designs allow for permanent UV exposure.

B. Product is to be part of tested wall assembly meeting NFPA 285.

C. Complete Work as shown on the Drawings and specified herein to bridge gaps and seal the water-resistive vapor permeable air barrier membrane against air leakage and water intrusion.

1. Rainscreen Wall Assembly meeting requirements of NFPA 285
4. Seismic and expansion joints
5. Openings and penetrations of window and door frames, store front
6. Piping, conduit, duct and similar penetrations
7. Screws, bolts and similar penetrations
8. All other air leakage pathways in the building envelope

C. Install primary water-resistive vapour permeable air barrier, flashings, lap integrated seam tapes, sealants, and all related accessories as required by the manufacturer to achieve a continuous air barrier assembly.

2.1 RELATED SECTIONS

A. Section 07 60 00 Flashing

3.1 REFERENCE STANDARDS

A. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.

B. ASTM International (ASTM):

1. ASTM D 828 - Test Method for Tensile Properties of Thin Plastic Sheeting
2. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials
3. ASTM E 96/E 96M - Test Methods for Water Vapor Transmission of Materials
4. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
5. ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials

C. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

4.1 SUBMITTALS

A. Product Submittal including current product data sheets, details and installation instructions for the mechanically attached water-resistive vapor permeable air barrier membrane components and accessories.

B. Submit samples of the following:

1. Manufacturer's sample warranty

5.1 QUALITY ASSURANCE

A. Single Source: Water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source membrane system to ensure total system compatibility and integrity.

B. Manufacturer Qualifications

1. Manufacturer of specified products listed in this Section to have minimum 8 years of continued experience in the manufacture and supply of highly vapor permeable water resistive air barrier products successfully installed in similar project applications.

2. Manufacturer of specified products listed in this Section to have experienced in-house technical and field observation personal qualified to provide expert technical support.

C. Fire Performance Characteristics: Provide water-resistive, vapor permeable air barrier meeting the following fire-test characteristics.

1. Surface-Burning Characteristics: ASTM E 84

2. Flame spread index: 25 or less

3. Smoke developed index: 450 or less

6.1 DELIVERY, STORAGE AND HANDLING

A. Refer to current Product MSDS and/or Product Data Sheets for proper storage and handling.

B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.

C. Store roll materials flat or on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.

7.1 COORDINATION

A. Deliver materials to the job site in undamaged and original packaging indicating the name of the ensure continuity of the water-resistive vapour permeable air barrier system throughout the scope of this section.

8.1 SUBSTITUTIONS

A. Submit request for alternates in accordance with Section 01 60 00 – Product Requirements.

B. Submission to include:

1. Evidence that alternate materials meet or exceed performance characteristics of specified Product requirements as well as documentation from an approved independent testing laboratory certifying the minimum physical dimensions, tensile strength, fire burning characteristics, vapor permeance and air leakage rates of the water-resistive vapour permeable air barrier membrane.

2. Manufacturer’s complete set of details for water-resistive vapour permeable air barrier membrane system showing a continuous plane of water and air tightness throughout the building enclosure.

3. Manufacturer of alternate materials has experienced in-house technical and field observation personal qualified to provide expert technical support

9.1 WARRANTY

A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fails due to material defects within 20 years of the date of Purchase.

PART 2 - PRODUCTS

1.01 MATERIALS

A. Primary self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source to ensure total system compatibility and integrity.

B. Basis of Design Product Selection:

1. Primary self-adhered air barrier sheet membrane shall be WrapShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet by VaproShield, a zero VOC self-adhered vapor permeable air barrier sheet membrane consisting of multiple layers of UV stabilized spun-bonded polypropylene having the following properties:

a. Color: Orange with allowable UV exposure for 180 days total before being covered by cladding

b. Air Leakage: < 0.01 cfm/sq.ft. when tested in accordance with ASTM E 2178

c. Water Vapor Permeance tested to ASTM E 96 Method B: 50 perms

d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage

e. Tensile Strength tested to ASTM D 828: 44.8 lbf/inch (68 N/mm), machine direction; 25 lbf/inch (37.3 N/mm), cross-machine direction

f. Application Temperature: Ambient temperature must be above 20 degrees F

g. Surface Burning Characteristics tested to ASTM E 84: Class A, Flame-spread index of less than 10, Smoke-development index of less than 15

h. Physical Dimensions: 0.026 inches (0.65 mm) thick and 59 inches (1.5 m) wide and 8.26 oz per sq. yd.

C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE

1. Self-adhered air barrier transition and flashing membrane shall be RevealFlashing SA™ by VaproShield, a zero VOC self-adhered water-resistive vapor permeable membrane having the following properties:

   a. RevealFlashing SA™ Black: 11-3/4 inches or 19 2/3 inches wide x 164 feet long

   b. Air Leakage: < 0.0000263 cfm/sq. ft. @ 75 Pa (0.000134 L/s/m sq @ 75 Pa) when tested in accordance with ASTM E 2178

   c. Water Vapor Permeance tested to ASTM E 96 Method B: 50 perms ($2875 ng/Pa.s.m^2$)

   d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage

F. VAPROLIQUI-FLASH VAPOR PERMEABLE WATER RESISTIVE FLASHING

1. Window/door flashing and other penetrations shall be VaproLiqui-Flash by VaproShield, a liquid-applied vapor permeable air barrier flashing material with

vapor permeance and resistance to air leakage properties compatible with the primary air barrier membrane.

2.02 PENETRATION SEALANT

A. Provide sealant for penetrations as recommended by manufacturer and as specified under Division 07 Section: Sealants. Appropriate sealants shall be Dow 758 or VaproLiqui-Flash.

PART 3 EXECUTION

3.01 GENERAL

A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify architect in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.

B. All surfaces must be sound, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water resistive air barrier flashings. Fill voids, gaps in substrate to provide an even surface. Strike masonry joints full-flush.

C. Minimum application temperature self-adhered membrane flashings to be above 20 degrees F (minus 6.0 degrees C).

D. Ensure all preparatory Work is complete prior to applying primary water-resistive weather barrier membrane.

E. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.

D. Install air barrier in accordance with manufacturers written installation instructions.

3.02 COORDINATION OF SELF-ADHERED VAPOR PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

A. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or substrate.

B. Complete detail Work around corners, wall openings, building transitions and penetrations prior to field applications.

C. Install self-adhered vapor permeable air barrier sheet over the outside face of exterior sheathing board or substrate, measure and pre-cut into manageable sized sheets to suit the application conditions.

D. Install self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential overlapping weatherboard method starting at bottom or base of wall and working up.

E. Stagger all end lap seams.

F. Roll installed membrane with roller to ensure positive contact and adhesion with substrate.

3.03 BUILDING TRANSITION CONDITIONS

A. Tie-in to all adjacent materials, weather barrier sheeting, foundation walls, and at the interface of dissimilar materials with self-adhering air barrier transition and flashing membrane.

B. Align and position self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap on to substrates.

C. Ensure minimum 3 inch overlap at side and end laps of membrane.

D. Roll membrane and lap seams with roller to ensure positive contact and adhesion.

3.04 WINDOW, DOOR AND OTHER WALL OPENINGS

A. To avoid waste, predetermine best method and sequence to the install self-adhered air barrier transition and flashing membrane around window or wall openings subject to the opening size and installation of window, door or louver type.

B. Wrap self-adhered air barrier transition and flashing membrane into wall openings to cover sill, jambs and head. It is not required to install continuous sheets through corners.

C. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll Lap seams to ensure adhesion. Provide lap seams to shed water.

D. Install preformed self-adhered corner flashing membrane into corners over flashing membrane.

E. Subject to window installation requirements, install preformed sill pan system and seal to installed self-adhered air barrier window flashing membrane with sealant.

F. Install windows in accordance with window manufacturer's details and cover nail flange with flashing tape. Install flashing tape along jamb and across head flanges of window and seal to installed self-adhered air barrier transition membrane. Roll tape to ensure positive contact to substrate. Seal exposed leading edge of tape.

G. For windows without nail flange, install specified aluminized tape around perimeter of opening to accommodate placement of backer rod and sealant between window frame and self-adhered vapor permeable air barrier membrane.

3.05 MECHANICAL EQUIPMENT PENETRATIONS

A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of self-adhered vapor permeable air barrier membrane.

B. Electrical services penetrating the wall assembly and self-adhered vapor permeable air barrier membrane must be placed in appropriate conduit and secured solid into position.

C. Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.

D. For straight sided penetrations, cut and fit self-adhered vapor permeable air barrier to accommodate sleeve, install specified single sided flashing tape to seal the air barrier membrane to ductwork or preformed flange sleeve.

E. For pipe penetrations, refer to manufacturer's standard details.

3.06 VERTICAL APPLICATIONS

A. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and miss-alignment of subsequent applications.

B. Measure and pre-cut into manageable sized self-adhered sheets to suit the application conditions.

C. Hang self-adhered sheets over wall and extend down to lowest point of wall. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.

D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.

E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

F. Install subsequent sheets of self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with roller to ensure contact and adhesion.

3.07 HORIZONTAL APPLICATIONS

A. For horizontal applications, align sheets and begin installation of water-resistive weather barrier at bottom or lowest point of wall.

B. To avoid wrinkles and miss-alignment of subsequent applications it is recommended to pre-mark or "Snap" a level line to work from. Measure and pre-cut into manageable sized sheets to suit the application conditions.

C. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.

D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at all side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.

E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

F. Install subsequent sheets of self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with roller to ensure contact and adhesion.

3.08 BATTENS AND VENTILATION STRIPS FOR RAIN SCREEN CLADDING SYSTEMS

A. Provide and install specified battens and ventilation strips under cladding systems.

B. Install horizontal starter strip or vent strip at base of wall, vertical battens and top vent strip, secure into solid backing ready for installation of cladding system.

C. Coordinate spacing of battens and vent strips to accommodate cladding system.

3.12 PROTECTION

A. Protect wall areas covered with primary water-resistive vapor permeable air barrier from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.

B. Review condition of water-resistive weather barrier prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.

C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed primary water-resistive weather barrier installations.

D. Remove and replace water-resistive vapor permeable air barrier affected by chemical spills or surfactants.

END OF SECTION 07 25 00

SECTION 07412

STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes standing-seam metal roof panels.

B. Related Sections:

1. Section 07 42 93 “Soffit Panels” for metal panels used in horizontal soffit applications.

2. Section 0720 "Metal Flashing and Trim" for metal panels used for transitions, eave, fascia, and ridge applications.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at the Alaska State Fair Livestock Pavillion

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural modifications at existing upper roof during and after roofing.
6. Review flashings, special details, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for existing and new metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

2. Delegated Design Submittal for calculation of panel clip fastening: Submit calculations of clip fasteners signed by Structural Engineer licensed in the State of Alaska.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches .

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockup of typical roof area include, ridge, rake and eave flashing and accessories; approximately 48 inches x length of panel by full thickness, including attachments**,** structural underlayment, and accessories. Mock-Up can remain in place as part of work once approval has been given by Engineer and Architect.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components for a period of three years from the time of substantial completion of metal panel systems that fail in materials or workmanship.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Twenty years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: For wind loads, no greater than 1/240 of the span.

B. Air Infiltration: Air leakage of not more than when tested according to ASTM E 1680 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: **UL 90**

F. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

1. Fire/Windstorm Classification: Class 1A- 1**05**.

G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 140 deg F

2.2 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Magic Metals, Inc. PROPANEL, 22 GA., 16” wide panel or comparable product by one of the following:

a. Advanced Architectural Products.
b. AEP Span; a BlueScope Steel company.
c. Architectural Building Components.
d. Architectural Metal Systems; a Nucor company.
e. CENTRIA Architectural Systems.
f. Magic Metals, Inc.
g. Metal Sales Manufacturing Corporation.
h. Morin; a Kingspan Group company.
i. Petersen Aluminum Corporation.
j. Ryerson, Inc.
k. Ultra Seam, Inc.
l. Union Corrugating Company.
m. VICWEST.

2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, coating designation, coating designation; structural quality. Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.

a. Nominal Thickness: 0.034 inch (22 Gauge)
b. Exterior Finish: Two-coat fluoropolymer
c. Color: As selected by Architect from manufacturer's full range.

3. Clips: One-piece fixed and Two-piece floating to accommodate thermal movement.

a. Material: 0.064-inch- nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.

4. Panel Coverage: 16 inches
5. Panel Height: 1.5 inches – 2 inches

2.3 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Sub-framing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, coating designation unless otherwise indicated. Provide galvanized steel sections as indicated on structural drawings for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide formed pre-finished flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.4 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.5 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
a. Provide custom paint color for Flashings and trims to match existing
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil .

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install new sub-framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 Structural Drawings, and metal panel manufacturer's written recommendations. (Coordinate any manufacturer recommendations with structural drawings)

3.3 METAL PANEL INSTALLATION

A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at each purlin with fasteners as provided by approved engineered calculations.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.

3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
4. Watertight Installation:

   a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
   b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
   c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

H. Roof Curbs: Install flashing around bases where they meet metal roof panels.

I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.5 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07412

SECTION 07 42 13

FORMED METAL PANEL SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concealed-fastener, lap-seam metal wall panels. (Exterior application – Exterior wall panels)

1.2 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

1. Exposed-fastener, metal wall panels.

2. Concealed fastener, metal soffit panels.

3. Manufacturers original printed color sample

B. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below:

1. Metal Panels—each type: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For [exposed-fastener, lap-seam metal wall panels] [concealed-fastener, lap-seam metal wall panels] [metal liner panels], for tests performed by a qualified testing agency.

C. Sample Warranties: For special warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to be included in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by the manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.7 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.8 COORDINATION

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
    a. Structural failures including rupturing, cracking, or puncturing.
    b. Deterioration of metals and other materials beyond normal weathering.

2. Installation warranty Period: Two years from date of Substantial Completion.

B. Manufacturer’s Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Products:

1. Basis of Design Products:
   a. Vertical Metal Siding: AEP Span Box Rib (1-1/2" profile depth); 22 gauge
      1) Widths: 36" coverage—vertical orientation, exposed fastener
      2) Patterning and extent described on Exterior Elevations
      3) Color: Regal Blue or Architect approved eq.
   b. Metal Soffit Panels: AEP Span Flush Panel Metal Siding; (1" profile depth); 22 gauge
      1) Widths: 12" coverage—exposed fastener
      2) Reference Reflected Ceiling Plan for type and orientation
      3) Color: Old Town Grey

B. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: As indicated on Drawings.

2. Deflection Limits: For wind loads, no greater than 1/240 of the span.

C. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E283 at the following test-pressure difference:

1. Test-Pressure Difference: 1.57 lbf/sq. ft.

D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:

1. Test-Pressure Difference: 2.86 lbf/sq. ft.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces

F. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
   a. Nominal Thickness: 0.028 inch
   b. Exterior Finish: Three-coat fluoropolymer

2.2 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645, cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.

2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or pre-molded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, end walls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.

3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.3 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
   a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.4 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.

2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
   a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF METAL PANELS

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.

2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.

3. Install screw fasteners in predrilled holes.

4. Locate and space fastenings in uniform vertical and horizontal alignment.

5. Install flashing and trim as metal panel work proceeds.

6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.

8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.

1. Lap ribbed or fluted sheets one full rib. Apply panels and associated items true to line for neat and weathertight enclosure.

2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.

3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.

4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.

5. Flash and seal panels with weather closures at perimeter of all openings.

E. Watertight Installation:

1. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels; and elsewhere as needed to make panels watertight.

2. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

3. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

07 42 13

SECTION 07 60 00

METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:
1. Exposed trim.
2. Edge flashing.
3. Window/door flashing.
4. Misc. Flashing
5. Exterior Louvers

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.4 SUBMITTALS

A. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

B. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

A. Galvanized Steel Sheet at cavity wall: ASTM A 526/A 526M, G 90, commercial steel, or ASTM A 527/A 527M, G 90, lock-forming quality, hot-dip galvanized steel sheet(24 GA.)

B. Coil-Coated Galvanized Steel Sheet: Zinc-coated, commercial-quality steel sheet complying with ASTM A 755/A 755M, G 90 coating designation, coil coated with high-performance fluoropolymer coating; not less than 0.0336 inch thick.

1. High-Performance Organic Coating: Fluoropolymer two-coat system with fluoropolymer coat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

2. Color and Gloss: As selected from full range of manufacturer's standard colors.

a. Sheet metal is to match color of surrounding material.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

B. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."

C. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

2.3 FABRICATION, GENERAL

A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

E. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Exposed Trim (including flashing and trim around louvers and escutcheons) – Match color of surrounding metal surfaces. If surrounding surfaces are not comprised of painted metal surfaces verify color with Architect: Fabricate from the following material:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.

C. Fascia, Window trims, soffit trims, misc. flashings: Shop-fabricated, prefinished metal coping system:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.
2. Finish: Two Coat Fluoropolymer coating.
3. Color: Match color of surrounding metal surfaces
4. Accessories: Provide minimum 3” cleats at 24” o.c.

D. Counter Flashing: Fabricate from the following material:

1. Coil-Coated Galvanized Steel Sheet: 24 gauge, unless indicated otherwise.
2. Finish: Two coat Fluoropolymer coating.
3. Color: Match color of surrounding metal surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's

"Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Color: Sheet Metal flashing is to match surrounding wall surface. Architect to approve sheet metal colors and locations for each color utilized.

C. Install exposed sheet metal Work that is without oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

D. Windows: Provide wind cleats as required to secure flashing. Minimum 32” o.c. unless engineering calculation is provided increasing width between wind cleats

E. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints.

G. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Bed flanges of Work in a thick coat of roofing cement where required for waterproof performance.

3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

C.

END OF SECTION 07 60 00

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the following applications:

1. Exterior joints in the following vertical surfaces and horizontal non-traffic surfaces:
a. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
b. Joints at siding materials as indicated
c. Other joints as indicated

B. Related Sections include the following:
1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Single-Component Non sag Polysulfide Sealant :

1. Products:
   a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
   b. Polymeric Systems Inc.; PSI-7000.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
   a. Use O Joint Substrates: galvanized steel, wood.

C. Multicomponent Nonsag Neutral-Curing Silicone Sealant:

1. Products:
   a. Dow Corning Corporation; 756 H.P.
2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
   a. Use O Joint Substrates: galvanized steel.

D. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:

1. Products:

a. Pecora Corporation; 898.
b. Tremco; Tremsil 600 White.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
a. Use O Joint Substrates: galvanized steel.

E. Multi-component Non sag Urethane Sealant:

1. Products:
a. Sika Corporation, Inc.; Sikaflex - 2c NS TG.
b. Sonneborn, Division of ChemRex Inc.; NP 2.
c. Tremco; Vulkem 227.
d. Tremco; Vulkem 322 DS.
2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G**,** A, and, as applicable to joint substrates indicated, O Joint Substrates: (galvanized steel, wood).

2.4 LATEX JOINT SEALANTS

A. Latex : Comply with ASTM C 834, Type P, Grade NF.

B. Products:

1. Pecora Corporation; AC-20+.
2. Sonneborn, Division of ChemRex Inc.; Sonolac.
3. Tremco; Tremflex 834.

2.5 PREFORMED TAPE SEALANTS

A. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Tape Sealant: Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 1, for applications in which tape acts as the primary sealant.
2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

2.6 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.

b. Masonry.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.

b. Glass.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

D. Tooling of Non sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

E. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated

joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

SECTION 08 11 03

STANDARD STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
- **1.** Standard hollow-metal steel doors.
- **2.** Standard hollow-metal steel frames.

B. Related Sections include the following:
- **1.** Division 7 Section “Insulation” for urethane insulation at exterior hollow metal units.
- **2.** Division 7 Section “Sealants” for continuous sealant around door frames.
- **3.** Division 8 Section "Glazing" for glazed lites in standard steel doors and frames.
- **4.** Division 8 Sections for door hardware for standard steel doors.
- **5.** Division 9 painting Sections for field painting standard steel doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, core descriptions, label compliance and finishes for each type of steel door and frame specified.

B. Shop Drawings: In addition to requirements below, provide a schedule of standard steel doors and frames using same reference numbers for details and openings as those on Drawings:
- **1.** Elevations of each door design.
- **2.** Details of doors, including vertical and horizontal edge details.
- **3.** Frame details for each frame type, including dimensioned profiles.
- **4.** Details and locations of reinforcement and preparations for hardware.
- **5.** Details of each different wall opening condition.
- **6.** Details of anchorages, accessories, joints, and connections.
- **7.** Details of glazing frames and stops showing glazing.
- **8.** Details of conduit and preparations for electrified door hardware and controls.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

B. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

C. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Amweld Building Products, LLC.
2. Benchmark Doors; a division of General Products Co., Inc.
3. Ceco Door Products; an ASSA ABLOY Group Company.
4. CURRIES Company; an ASSA ABLOY Group Company.
5. Deansteel Manufacturing, Inc.
6. Fleming Door Products Ltd.; an ASSA ABLOY Group Company.
7. Kewanee Corporation (The).
8. Mesker Door Inc.
9. Pioneer Industries, Inc.
10. Republic Builders Products Company.
11. Steelcraft; an Ingersoll-Rand Company.
12. Timely Frames

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A60 (ZF120) zinc-iron-alloy (galvannealed) coating designation.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class A coating; mill phosphatized.

E. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

F. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.

H. Glazing: Comply with requirements in Division 8 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD STEEL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.

1. Design: Flush panel and Flush panel w/ Relites

2. Core Construction

a. (Interior Doors): Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core that produces doors complying with ANSI A250.8.

b. (Exterior Doors) Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than R-11.

1) Locations: Exterior doors and interior doors where indicated.

2) Standard Vertical Steel-Stiffener Core: Minimum 22 gage steel-stiffeners at 6 inches on-center construction attached by spot welds spaced not more than 5" on centers. Spaces between stiffeners filled with fiberglass insulation (minimum density 0.8#/cubic ft.).

3) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch) thick steel, Model 2 (Fully welded, seamless face and edges). (SDI-100)

4) Polyurethene core.

3. Vertical Edges for Single-Acting Doors: Beveled edge.

a. Beveled Edge: 1/8 inch in 2 inches.

4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.
5. Top and Bottom Edges: Closed with flush or inverted 0.0747-inch thick end closures or channels of same material as face sheets.
6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum
2) 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2 (Fully welded, seamless face and edges).

1. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with ANSI/SDI A250.6 and the following minimum sizes:
2. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
4. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0. 1046 inch thick.
5. All Other Surface-Mounted Hardware: Minimum 0.1046 inch thick.

C. Exterior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1) Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty),
2) 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2 (Fully welded, seamless face and edges) minimum. SDI A60
3) Thermal Performance test: SKI 113

2. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with ANSI/SDI A250.6 and the following minimum sizes:
3. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
4. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
5. Lock Face, Closers, and Concealed Holders: Minimum 0. 1046 inch thick.
6. All Other Surface-Mounted Hardware: Minimum 0.1046 inch thick.
7. Polyurethene foam core

D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD STEEL FRAMES

A. General: Comply with ANSI A250.6 and with details indicated for type and profile.

B. Interior Frames: Fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.

1. Fabricate frames with mitered or coped and welded face corners and seamless face joints , unless otherwise indicated.

2. Frames for Level 2 Steel Doors: 18 gauge, 0.0478-inch thick steel sheet, unless otherwise indicated.
3. Frames for Borrowed Lights: 0.042-inch thick steel sheet, unless otherwise indicated.
4. Basis of Design: Timely Knock-down frames
   a. Casing: TA-8 Steel Casing,
   b. Color: Charcoal (CC401)

C. Exterior Frames: Thermally Broken frames fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.
1. Provide exterior door frames with thermal performance in accordance with ASTM C1363 and tested for resistance to air infiltration in accordance with ASTM E283
2. Fabricate frames with mitered or coped and welded face corners and seamless face joints , unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 16 guage, 0.0598-inch thick steel sheet, unless otherwise indicated.
4. Frames for Borrowed Lights: 0.042-inch thick steel sheet, unless otherwise indicated.
5. Fill void in frames with low expansion foam – coordinate with electronic door hardware.

D. Hardware Reinforcement: Fabricate reinforcement plates from same material as frames to comply with the following minimum sizes:
1. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch thick.

E. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.

F. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

G. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

H. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.5 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed. Moldings shall be flush with door surface.

B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch high, unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.

2.6 FABRICATION

A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Standard Steel Doors:.
- **1.** Glazed Lites: Factory cut openings in doors.

C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
- **1.** Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
- **2.** Sidelight Frames: Provide closed tubular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
- **3.** Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
- **4.** Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
- **5.** Jamb Anchors: Provide number and spacing of anchors as follows:
  - **a.** Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - **1)** Three anchors per jamb up to 60 inches in height.
    - **2)** Four anchors per jamb from 60 to 90 inches in height.
    - **3)** Five anchors per jamb from 90 to 96 inches in height.
    - **4)** Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.
    - **5)** Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
- **6.** Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
  - **a.** Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - **b.** Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."
- **1.** Reinforce doors and frames to receive non-templated mortised and surface-mounted door hardware.
- **2.** Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of doors and frames.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.7 STEEL FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
1. Finish standard steel door and frames after assembly.

B. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

D. Shop applied Paint Finish per Specification Section 09900 Interior Painting:
1. Colors: As selected from Manufacturers Full Color range
2. Note separate colors for exterior doors and frames.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory.

B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Standard Steel Frames: Install standard steel frames for doors, sidelights, borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

b. Install frames with removable glazing stops located on secure side of opening.

c. Install door silencers in frames before grouting.

d. Remove temporary braces necessary for installation only after frames have been properly set and secured.

e. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

f. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.

4. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

e. Frame doors with 1 18 ga. king stud and 1 18 ga. trimmer minimum at each jamb door. Weld studs at door jambs together. Refer to drawings for additional detailing information.

C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.

b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.

c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.

d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

2. Smoke-Control Doors: Install doors according to NFPA 105.

D. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

E. Perimeter Insulation and sealing: Comply with installation requirements in Division 7 Section "Insulation" and with standard steel door and frame manufacturer's written instructions.

1. Install spray applied urethane within internal cavity of thermally broken frames prior to installation. Protect exposed face of frames from exposure to and contact with urethane insulation. Trim excess from frame prior to installation.

2. After frame is installed and anchored with face mounted, dimpled anchors, fill remaining void around frame with spray applied urethane, protecting exposed face of frame.

3. Seal around frame with continuous sealant on both sides of frame in accordance with Specification section 8 “Sealants”.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.

C. Finish-Coat Touchup: Carefully install door and relite frames to avoid damage to the frames. Touch up any damaged frames with Manufacturer provided paint matching Factory Installed powder coat finish.

D. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 08 11 03

SECTION 08 53 13

VINYL WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes vinyl-framed windows.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for vinyl windows.

B. Shop Drawings: For vinyl windows.

1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Product Schedule: For vinyl windows. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and Installer.

B. Product Test Reports: For each type of vinyl window, for tests performed by a qualified testing agency.

C. Sample Warranties: For manufacturer's warranties.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating vinyl windows that meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace vinyl windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet performance requirements.
b. Structural failures including excessive deflection, water leakage, and air infiltration.
c. Faulty operation of movable sash and hardware.
d. Deterioration of materials and finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Glazing Units: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain vinyl windows from single source from single manufacturer.

B. Basis of Design Product: Jeldwen Premium
1. Glazing: Low E, 366, Argon
2. U Value: .027 or lower
3. SHGC: 0.24 or lower
4. VT: 0.55 or higher
5. Finish: Dark Bronze Exterior, White or Grey interior

2.2 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: **CW**
2. Minimum Performance Grade: **50**

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor as indicated on Drawings

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC as indicated on Drawings

E. Sound Transmission Class (STC): Rated for not less than 30 STC when tested for laboratory sound transmission loss according to ASTM E90 and determined by ASTM E413.

F. Windborne-Debris-Impact Resistance: Capable of resisting impact from windborne debris based on testing glazed windows identical to those specified, according to ASTM E1886 and testing information in ASTM E1996 and requirements of authorities having jurisdiction.

2.3 VINYL WINDOWS

A. Operating Types: Provide the following operating types in locations indicated on Drawings:
   1. Fixed.

B. Frames and Sashes: Impact-resistant, UV-stabilized PVC complying with AAMA/WDMA/CSA 101/I.S.2/A440.

   1. Finish: Integral color**,** as indicated on Drawings
      a. Interior Color: White
      b. Exterior Color: Dark Bronze
   2. Gypsum Board Returns: Provide at interior face of frame.

C. Glass: Clear annealed glass, ASTM C1036, Type 1, Class 1, q3.

   1. Kind: Fully tempered where indicated on Drawings

D. Insulating-Glass Units: ASTM E2190.

   1. Glass: ASTM C1036, Type 1, Class 1, q3.

      a. Tint: Clear
      b. Kind: Fully tempered where indicated on Drawings

   2. Lites: Two
   3. Filling: Fill space between glass lites with argon.
   4. Low-E Coating: Pyrolytic on second surface or Sputtered on second surface

E. Windborne-Debris-Impact-Resistant Insulating-Glass Units: ASTM E2190 with two lites and complying with impact-resistance requirements in "Window Performance Requirements" Article.

   1. Exterior Lite: ASTM C1036, Type 1, Class 1, q3.

      a. Tint: Clear
      b. Kind: Fully tempered.

   2. Interior Lite: ASTM C1172 clear laminated glass with two plies of float glass.

      a. Float Glass: As required by performance requirements indicated.
      b. Interlayer Thickness: 0.090 inch or as required by performance requirements indicated

   3. Filling: Fill space between glass lites with argon.
   4. Low-E Coating: Pyrolytic on second surface or Sputtered on second surface

F. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal

   1. Dual Glazing System:

a. Interior Lite: Glass
b. Exterior Lite: Insulating-glass unit

G. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range

H. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.4 ACCESSORIES

2.5 FABRICATION

A. Fabricate vinyl windows in sizes indicated. Include a complete system for installing and anchoring windows.

B. Glaze vinyl windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Mullions: Provide mullions and cover plates, compatible with window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units. Provide manufacturer's standard finish to match window units.

E. Hardware: Mount hardware through double walls of vinyl extrusions or provide corrosion-resistant reinforcement.

F. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.

C. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION
08 53 13

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Work under this section includes the complete door hardware requirements for the project. Quantities listed are for the Contractor's convenience only and are not guaranteed. Items not specifically mentioned, but necessary to complete the work shall be furnished, matching the items specified in quality and finish.

B. Related Sections:
1. Division 8 Section “Standard Steel Doors and Frames”

1.2 REFERENCES

A. Standards: Current edition at date of bid.
1. ADAAG - Americans with Disabilities Act, “Accessibility Guidelines for Buildings and Facilities”
2. ANSI/BHMA A156.18 - Materials and Finishes
3. Underwriters Laboratories - Building Materials Directory
4. UL 10C - Underwriters Laboratories, “Positive Pressure Fire Tests of Door Assemblies”.
5. ICC/ANSI A117.1 - “Accessible and Usable Building and Facilities”

B. Codes:
1. International Building Code

1.3 SUBMITTALS

A. General Requirements: Submittals shall be in accordance with Division 1 “Submittal Procedures”.

B. Product Data: Submit manufacturer's data for each item of finish hardware.

C. Hardware Schedule: Submit a detailed Door Hardware Schedule.
1. The submitted Door Hardware Schedule shall indicate the complete designation of every item required for each door or opening.
2. Furnish cover sheet listing title of project as shown on the Contract Documents, name, address, phone and fax numbers of Owner, Architect, Contractor, and Supplier, name of Certified Hardware Consultant, and date of submittal.
3. List each opening individually under separate headings in the same order as the door schedule. Do not group like or similar doors under a single heading. Do not continue headings on separate pages.
4. Each heading shall indicate opening location, handing, degree of opening, door size, type, fire rating, and Door and Frame material.
5. Indicate product Manufacturer and incorporate cross-reference to symbols used in Article 2.11 Hardware Groups.

6. Include an index indicating door, heading, and page numbers and locking function for each opening.
7. Locations shall be included and miscellaneous hardware items.
8. A cross reference for abbreviations or symbols used shall be included.
9. Schedules in coded or horizontal format are unacceptable.
10. Submittals not conforming to these requirements will be returned without review, for re-submittal. Following is an example of the required format:

1 Sgl. Door #104 - Reception 100 to Office 104 LH 90º
HW-2 3-0 x 7-0 x 1-3/4" x 20 Minute x Type C SC WD x HMF
3 Each Butts MC TA2714 US26D (652) 4.5 x 4.5 x 1/2MS
1 Lockset SC L9070R 06L 630 LH
1 Door Closer LCN 4041 Alum./689 x Hinge Face Mtg. x STB
1 Kick Plate TI B4EKP - 10 x 34.5 - US32D x B4E x CTSK
1 Wall Stop TR 1270CX-SV US26D (626)
1 Set Gasket PE S88D - 17' per Set

11.
12. Processing: Hardware schedules will not be reviewed by the Architect until they have been reviewed and approved by Contractor.
13. Revisions: The Door Hardware Submittal shall be kept current throughout the project duration. Revisions incorporated shall be submitted in accordance with the above requirements. Submit only cover sheet and revised pages. Clearly identify changes from previous submittal content.

D. Samples: If requested by the Architect, submit one (1) sample of each exposed hardware category, finished as required, and tagged with full description for coordination with the hardware schedule. Samples will be reviewed, by the Architect, for design and finish only, compliance with other requirements is the responsibility of the Contractor. Units which are acceptable and remain undamaged through submittal procedures may be used on the project.

E. Color Samples: Submit set of color charts and physical samples of each product requiring color selection.

F. Key Schedule: Upon completion of the Key meeting specified under Paragraph 2.13 C., submit Two (2) copies of a key schedule indicating the complete project key system for approval. Obtain approval prior to proceeding with lock portion of the project.

G. Operations and Maintenance Data.
1. Submit Maintenance and Operations Manuals under the provisions of Division 1 "Submittal Procedures".
2. Manuals shall contain final copy of the Finish Hardware Submittal, Product Data, Parts Lists and Diagrams, Key Schedule, Installation Instructions, and Warrantees.

1.4 QUALITY ASSURANCE

A. Supplier:
1. Finish hardware shall be supplied by a recognized Door Hardware supplier who has been furnishing hardware in the same area as the project for a period of not less than five (5) years.
2. Factory direct, authorized, and stocking distributor of the Exit Devices, Locksets and Door Closers.
3. Employ an Architectural Hardware Consultant, certified by the Door and Hardware Institute.

B. Source: Obtain each kind of Hardware (Butts, Locksets, Exit Devices, Door Closers, etc.) from only one manufacturer.

C. Installer: Finish hardware shall be installed only by experienced tradesmen in compliance with trade union jurisdictions, either at the door and frame fabrication plant or at the project site.

D. Templates: Furnish hardware templates for each fabricator of doors, frames and other work to be factory prepared for the installation of hardware. Upon request, check the shop drawings of such other work to confirm that provisions will be made for the proper installation of hardware.

E. Regulatory Requirements:

1. Comply with applicable local and state current building codes.

2. Hardware for fire-rated openings shall also be in compliance with fire building codes applicable to the district in which the building is located. Provide only hardware which has been tested and listed by "UL" for the types and sizes of doors required, and which complies with the requirements of the door and door frame labels. Provide Door Closers, Automatic self latching bolts, coordinators, gasketing, and astragals if required to conform to label requirements.

3. Comply with the requirements of ICC/ANSI A117.1, Accessible and Usable Building and Facilities.

1.5 PRODUCT HANDLING AND STORAGE

A. Packaging: Each item or package is to be separately tagged with identification related to the final hardware schedule. Complete installation instructions shall be included in the packages.

B. Storage: Provide a dry locked room at the jobsite for the storage of the hardware.

1.6 WARRANTY

A. Finish hardware shall be guaranteed against defects in workmanship and operation for a period of one year, backed by a factory guarantee of the hardware manufacturer. The following products shall be guaranteed for periods beyond one year:

1. Locks – Two Years

2. Door Closers – Ten Years

3. Panic Devices – Three Years

1.7 MAINTENANCE

A. Furnish the following extra materials, which shall be delivered directly to the Owner prior to substantial completion.

1. One set of Special Tools required for installation and adjustment.

2. Extra Hardware:

3. Quantity Description Factory Number

4. Six (6) Interchangeable Core Padlocks _____

5. Two (2) Locksets _____

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturers: Products may be furnished by the manufacturers listed under “As Specified” below, or equivalent products of type, grade, design, and function from manufacturers listed under “Acceptable Substitutions”.

Product	As Specified	Acceptable Substitutions
Butt Hinges	McKinney (MC)	Bommer, Hager
Stainless Steel Continuous Hinges	Stanley (ST)	Stanley
Locksets and Latchsets	Best (BE)	None
Cylinders and Keying	Best (BE)	None
Exit Devices	Precision (PR0	None
Door Closers	Stanley (STH)	None
Kick & Mop Plates	Trimco (TR)	Tice, Rockwood
Wall and Floor Stops	Trimco (TR)	Rockwood
Overhead Stop and Holders	ABH Manf. (ABH)	GJ, Rixson
Weatherstrip & Thresholds	Pemko (PE)	National Guard, Reese
Silencers	Trimco (TR)	Rockwood

2.2 FINISH

A. General: Unless specifically indicated otherwise, provide architectural hardware in the following finishes.

1. Finish in general shall be: US15D, Satin Nickel Plated (BHMA 619), unless otherwise approved.

2.3 BUTT AND CONTINUOUS HINGES

A. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1

2. Provide five knuckle, ball bearing hinges

B. Quantity (per Leaf):

1. Door openings up to 60”: 2 each.

2. Door openings 60 to 90”: 3 each.

3. Doors over 90”: Furnish one additional for each 30" increment or fraction thereof.

C. Sizes:

1. 1-3/4" Exterior & Vestibule Doors: 5 x 4-1/2"

2. 1-3/4" Interior Doors up to and including 36": 4-1/2 x 4-1/2"

3. 1-3/4" Interior Doors over 36": 5 x 4-1/2"

D. Width of Hinges shall be as required to clear projecting trim or other conditions to allow maximum degree of opening.

E. Butt Hinges shall have non-removable pins (NRP - Set Screw in Barrel).

F. Hinges shall have Flat Button Tips.

G. For unusual size or weight doors, furnish type, size and quantity recommended by the hinge manufacturer.

2.4 LOCKSETS AND CYLINDERS

A. Lever Design: Furnish all Lever Handle Locksets and Latches in 06L Design. Provide solid cast levers without plastic inserts.

B. Backset: 2-3/4”

C. The Locksets and Latchsets shall be listed with Underwriters Laboratories for A label and lesser class doors.

D. Cylinders:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1.

2. Provide 7 Pin “Full Sized” Key Removable Interchangeable Cores: **COV utilizes the Best 9K 7-pin core system.**

3. Provide appropriate cylinder type, length, collars, and cam type to operate specified Locksets and Exit Devices.

4. Provide Curved Lip Strikes with adequate projection to protect door trim. Provide flat, flush lip strikes for pairs of doors with overlapping Astragals.

5. Provide manufacturers standard wrought or plastic strike boxes.

2.5 DOOR CLOSERS

A. Drop Plates: Furnish drop plates where doors have insufficient height top rails, or where Regular Arm Door Closers are used in conjunction with Concealed Overhead Stops.

B. Provide special closer mounting as required where interference with weatherstrip or sound seals occurs.

C. Furnish cold weather fluid, at exterior & vestibule doors. Furnish non-flammable fluid at fire rated openings in conformance with UL Test Standard 10C.

D. Furnish Spacer Blocks and/or shoe supports where frame stop does not provide for adequate support for the parallel arm soffit shoe.

E. Furnish Fifth Hole Spacers or Shoe Supports where required by Frame configuration.

F. Furnish Door Closers with Metal Covers.MC Option).

2.6 KICK AND MOP PLATES

A. Kick and Armor Plates shall be applied to the Push Side of the Door, Mop Plate applied to the Pull Side.

B. Plates shall be beveled four edges (B4E) and countersunk for screws.

C. Height: Kick Plates: 10”, Mop Plates: 6”, Armor Plates: 34”

D. Plates shall be furnished with width as required to provide 1/4" clearance at sides of doors, stops, sound seal, or weatherstrip.

2.7 STOPS AND HOLDERS

A. Furnish Overhead Stop and Holders sized as recommended by the manufacturer.

B. Furnish Overhead Stop and Holders with special shims, brackets, or special template mounting where required.

2.8 THRESHOLDS

A. Requirements:
1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.

1. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
2. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.9 WEATHERSTRIP AND GASKETING

A. Furnish weatherstrip and gaskets for complete perimeter of opening, including mullions, and astragals.

2.10 KEYING

A. All Keyed products (Locksets, Cylinders, Deadlocks, etc.) specified in this Section shall be keyed to per City of Valdez standards.

B. Provide temporary brass Construction Cores and Keys during the construction period. Plastic Construction Cores are unacceptable.

C. The Finish Hardware Supplier shall meet with the Owner to prepare the permanent keying schedule. Submit Key Schedule for approval in accordance with paragraph 1.3 F.

D. The Permanent Cylinders, Change Keys, and Control Keys, prepared according to the approved keying schedule, shall be transmitted directly from the manufacturer to the Owner, prior to substantial completion. The General Contractor shall remove the construction cylinders and install the permanent cylinders. All Construction Cylinders shall be returned to the Finish Hardware Supplier.

E. All Permanent Cores and Keys shall be sent directly to the Owner via Registered Mail, Return Receipt Requested.

F. Stamp all Keys “Do not Duplicate” and with change designation as directed.

G. Furnish—subject to review and approval by City of Valdez:
1. Six (6) Building Grand Master Keys
2. Six (6) Master Keys per Set
3. Four change keys per Lockset or Cylinder.
4. Six Construction Keys

5. Two Construction Control Keys
6. Two Permanent Control Keys

2.11 HARDWARE GROUPS –

A. Hardware Group No. 01
1. For use on Door #(s):
103 ELECT/COMM
2. Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	CB179 4.5 X 4.5 NRP		626	ST
1	EA	PASSAGE SET	9K3-0N14D S3		619	BE
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		626	TR
1	EA	OH STOP	4423		626	ABH
1	EA	GASKETING	1229A		GREY	TRI

B. Hardware Group No. 02
1. For use on Door #(s):
E102 FUTURE STORAGE
2. Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	CB199 4.5 X 4.5 NRP		626	ST
1	EA	LOCKSET	9K3-7AB14D S3 PATD		619	BE
1	EA	SURFACE CLOSER	QDC115		689	STH
1	EA	OH STOP	1023		626	ABH
1	EA	DOOR SWEEP	200NA			PE
1	EA	SADDLE THRESHOLD	425			PE
1	EA	GASKETING	127N		GREY	PE

C. Hardware Group No. 03
1. For use on Door #(s):
E100 PUMP ROOM
2. Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	CB199 4.5 X 4.5 NRP		626	ST
2	EA	MANUAL FLUSH BOLT	FB458		626	IVE
1	EA	EU MORTISE LOCK	9K3-XXX		619	BE
1	EA	OH STOP	1023		626	ABH
1	EA	RAIN DRIP	142AA		AA	ZER
2	EA	SURFACE CLOSER	QDC115		689	STH
1	EA	ASTRAGAL	383AA		AA	ZER
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	DOOR SWEEP	200NA			PE
1	EA	SADDLE THRESHOLD	425			PE
1	EA	GASKETING	127N		GREY	PE

PART 3 - EXECUTION

3.1 PREPARATION

A. Examination: Examine Doors, Frames, and related items for conditions that would prevent the proper application and operation of the Doors and Finish Hardware. Do not proceed until defects are corrected.

B. Provide solid blocking for wall mounted components.

C. Fasteners: Check conditions and use fastening devices as needed to securely anchor the hardware as per manufacturer's published templates. Self-tapping sheet metal screws are not acceptable.

3.2 INSTALLATION

A. Mounting Heights: Mount units at heights as recommended in "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames (2001)" by Doors and Hardware Institute, except as indicated below. Products not specifically covered shall be installed in accordance with the manufacturer templates and instructions.
Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B.

1. Hinges:
   a. Top Hinge: 7-1/4”, Top of frame rabbet to centerline of hinge.
   b. Bottom Hinge: 12-1/4”, Bottom of Frame to centerline of hinge
   c. Intermediate Hinges: Centered, equal spacing between top and bottom hinges.

2. Mortise Lock Strikes: 40”, bottom of frame to centerline of Strike.

3. Push and Pull Plates: 42”, bottom of frame to centerline of plate.

C. Install each hardware item in compliance with manufacturer's instructions.

1. Cutting and Fitting: Wherever cutting and fitting are required to install hardware surfaces which will be painted or finished at a later time, install each item completely and then remove and store in a secure place. After completion of the finishes, re-install each item.

2. Finishes: Do not install surface-mounted items until finishes have been completed on the substrate.

3. Install Fire Rated Openings to comply with NFPA 80.

4. Door shall swing to the maximum degree that project conditions will allow. The swings indicated on the floor plan are intended to depict direction and do not indicate full degree of opening.

5. Trim Exit Devices to provide 1-1/2” clearance between End Cap and hinge jamb stop face and/or stop applied weatherstrip.

6. Door Closers shall be located to allow maximum degree of opening that project conditions will allow. Door Closers shall not be used to stop the door, except for models equipped with an integral stop-on-the-arm feature.

7. Overhead Stops: Furnish Overhead Stop and Holders with maximum degree of opening that project conditions will allow.

8. Wall Stops: Locate Wall Stops intended for use with Lever Handle Locksets and Exit Devices at the Centerline of the Spindle or Pull.

9. Floor Stops: Locate Floors Stops at maximum degree of opening that project conditions will allow. Do not locate Floor Stops where they create a hazardous condition. Stops should be located no more than 1/3 Door width from the latch edge of the Door.

10. Thresholds: Set Thresholds in a bed of butyl rubber sealant in conformance with Division 7 requirements. Remove excess sealant. Caulk exterior threshold edges and joints to exclude moisture. Do not attach Thresholds that provide transition from concrete to wood floors on wood floor side of opening.

11. Weatherstrip: Mount and adjust Rigid Jamb Weatherstrip prior to mounting Parallel Arm Door Closers. Weatherstrip shall be installed to provide a continuous seal at head and jambs. Do not notch Weatherstrip for Door Closer shoe. Provide Parallel Arm 5th hole spacer of increased thickness to allow for revised location.

12. Mount Astragals on the pull side of active leaf our out-swinging applications, inactive leaf for in-swinging.

13. Smoke Gasket

a. Completely clean frame and apply gasket in accordance with manufacturer's instructions.

b. Apply Gasket to Door rabbet of hinge jamb and to stop face of Strike Jamb and Headers, as described in Pemko's installation instructions for alternative positioning.

D. Adjust and check each operating item of hardware and each door to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly.

3.3 ADJUSTMENT

A. Wherever hardware installation is made more than one (1) month prior to acceptance or occupancy, make a final check and adjustment of hardware during the week prior to acceptance or occupancy. Clean and lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

B. Door Closer Adjustment: After mechanical systems have been balanced, adjust Door Closers to comply with following ICC/ANSI A117.1 requirements, as modified by International Building Code:

1. Closing Speed: Door Closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.

2. Opening Force: The maximum force for pushing or pulling a door open shall be as follows: (these forces do not apply to the force required to retract latch bolts or disengage other devices securing the door.

a. Fire Doors: The minimum opening force allowable by the appropriate administrative authority.

b. Exterior Doors: 10 lbf (44.4 N).

c. Interior Doors: 5.0 lbf (22.2 N).

d. Automatic Doors: Comply with ICC/ANSI A117.1, 404.3.

3. Adjust backcheck to prevent damage to the closer, hardware, door and frame, and wall.

C. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes

END OF SECTION 08 71 00

SECTION 09 29 00

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.
2. Abuse and Water-Resistant gypsum board for walls

B. Related Sections include the following:
1. Division 5 Metal Fabrications
2. Division 6 Sheathing for Air Infiltration Barrier
3. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in assemblies that incorporate gypsum board.
4. Division 7 Section "Joint Sealants" for acoustical sealants installed in assemblies that incorporate gypsum board.
5. Division 9 Section "Fiberglass Reinforced Wall Panels"
6. Division 9 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

1.5 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M,1396/C 1396M, or C1629 as applicable to type of gypsum board indicated and whichever is more stringent.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. American Gypsum Co.
b. BPB America Inc.
c. G-P Gypsum.
d. Lafarge North America Inc.
e. National Gypsum Company.
f. PABCO Gypsum.
g. USG Corporation.
h. Substitutions allowed in accordance with Division 1 product substitution requirements.

B. Type X – Moisture and Impact resistant. Height as indicated on plans and wall assembly descriptions.
1. Basis of Design: Gold Bond eXP Interior Extreme IR Gypsum Panels
2. Thickness: 5/8 inch (15.9 mm).
3. Long Edges: Tapered.
4. Mold Resistance
5. ASTM C 1658
6. ASTM D3273 with a score of 10
7. Glass Mesh Reinforced Gypsum Board

C. Ceiling Type: Manufactured to have more sag resistance than regular-type and Type X gypsum board.

1. Core: 5/8 inch (15.9 mm), Type X.
2. Long Edges: Tapered.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:

a. Metal Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. Expansion (control) joint.
d. Tear-Away L Bead

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Fry Reglet Corp.
b. Gordon, Inc.
c. Pittcon Industries.
d. Substitutions allowed in accordance with Division 1 product substitution requirements.
e. Expansion Joint Trim – Fry Reglet CRM50-50-2-PC

2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221 (ASTM B 221M), Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.

4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Grabber Construction Products; Acoustical Sealant GSC.
b. Pecora Corporation; AC-20 FTR, AIS-919.
c. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
USG Corporation; SHEETROCK Acoustical Sealant. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants." – Seal at top and bottom of all acoustic walls.

D. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

E. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

F. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

G. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants." – Seal at top and bottom of all classroom, toilet room, Practice Rooms, and office walls:

H. Thermal Insulation: As specified in Division 7 Section "Building Insulation."

I. Vapor Retarder: As specified in Division 7 Section "Building Insulation."

2.6 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

B. Unaggregated Finish: Water-based, job-mixed, unaggregated, drying-type texture finish for spray application.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. G-P Gypsum; Georgia-Pacific ToughRock Wall and Ceiling Texture.
b. USG Corporation; SHEETROCK Wall and Ceiling Spray Texture (Unaggregated).
c. Substitutions allowed in accordance with Division 1 product substitution requirements.

2. Texture (areas without FRP only): Very light stiple finish; match texture immediately adjacent to area.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members, or provide control joints to counteract wood shrinkage.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Regular Type: Vertical surfaces, unless otherwise indicated.
2. Type X: As indicated on drawings and where required for fire-resistance-rated assembly.
3. Ceiling Type: Exposed interior horizontal and ceiling surfaces.
4. Impact and Moisture/Mold-Resistant Type: Located at all walls.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels either vertically (parallel to framing) or horizontally (perpendicular to framing), unless specifically indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints [at locations indicated on Drawings according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges, unless otherwise indicated.
3. L-Bead: Use where indicated.
4. U-Bead: Use where indicated.
5. Tear Away L-Bead: Use where indicated – where wall board meets existing adjacent surfaces

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for wall protection or ceiling tiles.
3. Level 4: At panel surfaces that will be exposed to view: Transom zone between low and higher ceiling.

3.6 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

3.7 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 65 13

RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wall base.
2. Molding accessories.

1.3 SUBMITTALS

A. Samples for Initial Selection: For each type of product indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F(10 deg C) or more than 90 deg F(32 deg C).

1.5 PROJECT CONDITIONS

A. Maintain temperatures within range recommended by manufacturer, but not less than [70 deg F(21 deg C)] or more than [95 deg F(35 deg C)] , in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After post installation period, maintain temperatures within range recommended by manufacturer, but not less than [55 deg F(13 deg C)] > or more than [95 deg F(35 deg C)].

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

1. AFCO-USA, American Floor Products Company, Inc
2. Armstrong World Industries, Inc
3. Azrock Commercial Flooring, DOMCO
4. Burke Mercer Flooring Products
5. Endura;
6. Johnsonite
7. Roppe Corporation;

2.2 COLORS AND PATTERNS

A. Colors and Patterns: As selected by Architect from manufacturer's full range - See Sheet A4.1 Room Finish Schedule for color and location

2.3 RESILIENT WALL BASE

A. Wall Base:

1. Style: Cove (with top-set toe).
2. Type :rubber, vulcanized thermoset
3. Group :solid, homogeneous
4. Minimum Thickness: 0.125 inch(3.2 mm)].
5. Height =6 inches(102 mm)
6. Lengths: Coils in manufacturer's standard length
7. Outside Corners: Premolded.
8. Inside Corners: Pre-moulded
9. Surface: Smooth.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturers for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

C. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

1. Do not install resilient products until they are the same temperature as the space where they are to be installed.

D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RESILIENT WALL BASE INSTALLATION

A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

D. Do not stretch wall base during installation.

E. Premolded Corners: Install premolded corners before installing straight pieces.

F. Job-Formed Corners:

1. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.

3. Damp-mop surfaces to remove marks and soil.

a. Do not wash surfaces until after time period recommended by manufacturer.

B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 09 65 13

SECTION 09 72 16

DECORATIVE FIBERGLASS REINFORCED WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Prefinished fiber-reinforced plastic sheets and fiber-reinforced plastic laminate sheets, both adhered to gypsum board wall surfaces. Includes both metal and plastic trim.

B. Products Not Furnished or Installed under This Section:

1. Gypsum [Cementitious] substrate board.
2. Resilient Base.

1.2 RELATED SECTIONS

A. Division 9 – Gypsum [Cementitious] substrate board.

B. Division 9 – Metal Stud Framing

C. Division 9 - Painting & Transparent Finishes.

D. Division 9 - Resilient Base.

1.3 REFERENCES

A. American Society for Testing and Materials: Standard Specifications (ASTM)

1. ASTM D 256 - Izod Impact Strengths (ft #/in)
2. ASTM D 570 - Water Absorption (%)
3. ASTM D 638 - Tensile Strengths (psi) & Tensile Modulus (psi)
4. ASTM D 790 - Flexural Strengths (psi) & Flexural Modulus (psi)
5. ASTM D 2583- Barcol Hardness
6. ASTM D 5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
7. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Selection Samples: Submit manufacturer’s standard color pattern selection samples representing manufacturer's full range of available colors and patterns.

C. Samples for Verification: Submit appropriate section of panel for each finish selected indicating the color, texture, and pattern required.

1. Submit complete with specified applied finish.
2. For selected patterns show complete pattern repeat.
3. Exposed Molding and Trim: Provide samples of each type, finish, and color.

D. Manufacturers Material Safety Data Sheets (MSDS) for adhesives and sealants prior to their delivery to the site.

1.5 QUALITY ASSURANCE

A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:

1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)

   a. Wall Required Rating – Class C.

B. Sanitary Standards: System components and finishes to comply with:

1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.
2. Food and Drug Administration (FDA) 1999 Food Code 6-101.11.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials factory packaged on strong pallets.

B. Store panels and trim lying flat, under cover and protected from the elements. Allow panels to acclimate to room temperature (70°) for 48 hours prior to installation.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Building are to be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.

1. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

1.8 WARRANTY

A. Furnish one year guarantee against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis of Design: Marlite Standard FRP

B. Substitutions allowed under Section 01600.

2.2 FIBER REINFORCED PLASTIC (FRP) PANELS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.

1. Coating: Multi-layer print, primer and finish coats or applied over-layer.
2. Dimensions:

    a. Thickness – 0.090 inch (2.29mm) nominal
    b. Width - 4'-0" (1.22m) nominal
    c. Length – 10'-0" or as indicated on the drawings

3. Tolerance:

    a. Length and Width: +/-1/8 inch (3.175mm)
    b. Square - Not to exceed 1/8 inch for 8 foot (2.4m) panels or 5/32 inch (3.96mm) for 10 foot (2.4m) panels

B. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.

1. Flexural Strength - 1.0 x 10^4 psi per ASTM D 790. (7.0 kilogram-force/square millimeter)
2. Flexural Modulus - 3.1 x 10^5 psi per ASTM D 790. (217.9 kilogram-force/square millimeter)
3. Tensile Strength - 7.0 x 10^3 psi per ASTM D 638. (4.9 kilogram-force/square millimeter)
4. Tensile Modulus - 1.6 x 10^5 psi per ASTM D 638. (112.5 kilogram-force/square millimeter)
5. Water Absorption - 0.72% per ASTM D 570.
6. Barcol Hardness (scratch resistance) of 35 55 as per ASTM D 2583.
7. Izod Impact Strength of 72 ft. lbs./in ASTM D 256

C. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.

D. Front Finish: Pebbled.

1. Color: As indicated on the Drawings. As selected by Owner/Architect from the manufacturer's full product range.
2. Surface Pebbled surface texture.
3. Fire Rating : Class C
4. Size/Layout: As indicated on drawings or if not indicated on drawings balance panels on wall with equal panels on each side of wall. Panels to run full height of wall without a horizontal seam unless indicated on the drawing

2.3 MOLDINGS

A. PVC Trims for FRP panels:

    a. Provide at all panel edges.
    b. Color to match panel color.

2.4 ACCESSORIES

A. Color matched joint caulking: Color Sil by Color Rite ((405) 354-3645).

1. 100% silicon based colored caulking.
2. Match panel color (see reference guide from ColorSIL.)

B. Adhesive: Either of the following construction adhesives complying with ASTM C 557.

.
1. For FRP panels, per manufacturer's approved list.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.

1. Verify that stud spacing does not exceed 24 inch (61cm) on-center.

B. Repair defects prior to installation.

1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

3.2 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Cut sheets to meet supports allowing 1/8" inch (3 mm) clearance for every 8 foot (2.43m) of panel.

1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.

C. For FRP panels, apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.

1. Install panels with manufacturer's recommended gap for panel field and corner joints.

a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.

D. For FRP panels, apply panel moldings to all panel edges using silicone sealant providing for required clearances.

1. All moldings must provide for a minimum 1/8 inch (3.18mm) of panel expansion at joints and edges, to insure proper installation.
2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

E. Replace installations out of plumb and not aligned with adjacent panels and construction.

3.3 CLEANING

A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.

B. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

END OF SECTION 09 72 16

SECTION 09 90 12

INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Steel (Structural Steel, Misc. exposed steel sections, Handrails, Exposed roof decking, and bollards.)
2. Galvanized metal (Hollow Metal Doors and Frames)
3. Gypsum board.

B. Related Sections include the following:

1. Division 6 Sections for shop priming carpentry with primers specified in this Section.

1.3 SUBMITTALS

A. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches(200 mm) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.
5. Paint samples to be applied to surface similar to surface to be painted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F(7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F(10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F(3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Benjamin Moore & Co.
2. Bennette Paint Mfg. Co., Inc.
3. Color Wheel Paints & Coatings.
4. Columbia Paint & Coatings.
5. Davis Paint Company.
6. Diamond Vogel Paints.
7. General Paint.
8. ICI Paints.
9. Kelly-Moore Paints.
10. Rodda Paint Co.
11. Sherwin-Williams Company (The).
12. Spectra-Tone.
13. Safe-Coat
14. 3M

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

4. Restricted Components: Paints and coatings shall not contain any of the following:

a. Acrolein.
b. Acrylonitrile.
c. Antimony.
d. Benzene.
e. Butyl benzyl phthalate.
f. Cadmium.
g. Di (2-ethylhexyl) phthalate.
h. Di-n-butyl phthalate.
i. Di-n-octyl phthalate.
j. 1,2-dichlorobenzene.
k. Diethyl phthalate.
l. Dimethyl phthalate.
m. Ethylbenzene.
n. Formaldehyde.
o. Hexavalent chromium.
p. Isophorone.
q. Lead.
r. Mercury.
s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

C. Colors: As selected by Architect from manufacturer's full range.

2.3 INTERIOR PAINT SCHEDULE

A. See Interior Finish Key on Room Finish Schedule Sheet for interior finishes and colors

B. Systems and glass levels are found in the MPI, APSM. All work is Premium Grade.

C. Concrete Floor: Int. 3.2C, Water Based Sealer. Typical UNO. (Where indicated on exposed concrete floors including recesses of Refrigerator and Freezer units.)

D. Hollow metal (Doors & Frames) and Structural Steel: Institutional Low Odor/VOC, Gloss Level 5.

E. All exposed GWB: Epoxy Finish: Water Base Epoxy. Gloss Level 5.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Gypsum Board: 12 percent.

C. Clean surfaces of grease, dirt, or other debris.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates (Doors and Frames): Remove loose paint, rust or other imperfections. Clean using methods recommended in writing by paint manufacturer.

F. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat. Notify Owners Representative between each coat of paint, prior to application of successive coat of paint.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:

1. Mechanical Work:

   a. Uninsulated metal piping.
   b. Uninsulated plastic piping.
   c. Pipe hangers and supports.
   d. Tanks that do not have factory-applied final finishes.
   e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
   f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
   g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

2. Electrical Work:

   a. Switchgear.
   b. Panelboards.
   c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 90 12

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Primers.

2. Finish coatings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include preparation requirements and application instructions.

2. Indicate VOC content.

B. Samples: For each type of topcoat product.

C. Samples for Initial Selection: For each type of topcoat product.

D. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.

2. Apply coats on Samples in steps to show each coat required for system.

3. Label each coat of each Sample.

4. Label each Sample for location and application area.

E. Product Schedule: Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint Products: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.

2. Remove rags and waste from storage areas daily.

1.6 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each paint product from single source from single manufacturer.

2.2 PAINT PRODUCTS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range

2.3 PRIMERS

A. Water-Based, Rust-Converting Primer: Corrosion-resistant, water-based-emulsion primer formulated to transform rust into magnetite. Apply per manufacturer's writing application instructions. For use on all exterior ferrous metals.

1. Product: Uniflex Rust Inhibitive Metal Primer, Sherwin Williams.

2.4 FINISH COATINGS

A. High-Build Epoxy Paint, Low Gloss: High-solids, two-component epoxy; formulated for use on exterior concrete, masonry, and primed-metal surfaces.

1. Gloss and Sheen Level: Manufacturer's standard low-gloss finish

2. Basis of Design Product: Pro Industrial Rust Preventative Paint by Sherwin Williams Paints

3. Color: Match adjoining metal panel/flashing color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 INSTALLATION

A. Apply paints in accordance with manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.

4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

5. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting: Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:

a. Equipment, including panelboards and switch gear.
b. Metal conduit.
c. Tanks that do not have factory-applied final finishes.
d. Fuel oil tank piping, supports, etc.
e. Generator and Load Bank fittings, supports, etc.
f. Ventilation hoods and fittings

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.

2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.

2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.

3. Allow empty paint cans to dry before disposal.

4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION
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SECTION 25630
SUBMERSIBLE PUMPING UNITS

Part I – GENERAL

1.1 WORK INCLUDED

A. Submersible Well Pumps.

1.2 REFERENCE STANDARDS

The work in this section is subject to the requirements of applicable portions of the following standards:

A. ANSI – American National Standards Institute
B. AISI – American Iron and Steel Institute
C. IEEE - Institute of Electrical and Electronics Engineers
D. NEMA – National Electrical Manufacturers Association
E. AWWA – American Water Well Association
F. ISO – International Standards Organization

Part 2 – PRODUCTS

2.1 SUBMERSIBLE WELL PUMPS

A. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the published operating region. The design operating point shall be 1,500 gpm at 250 feet TDH. Pump setting shall be per the plans.

B. All pump bearings shall be lubricated by the pumped water.

C. Drop pipe shall be 8-inch 304 stainless steel pipe with a check valve installed above the pump.

D. The pump (including cable guard) shall be suitable for use in a 12-inch well-casing.

E. The discharge shall have 6-inch or 8-inch internal pipe thread connections and adapt to a Baker Monitor pitless unit.

F. Pump Construction:
Pump shall have extra long bearing to insure shaft alignment and stabilization. Intermediate bowls shall be ductile iron or stainless steel with glass coating for efficiency and abrasion. Impellers shall be maximum efficiency with no lead material and NSF 61 certified for potable drinking water. Taper lock shall be machined for positive locking of impeller to the pump shaft. Upthrust collar shall protect against upthrust at start up. Ductile iron or stainless steel suction adapter shall align pump and motor with an open area to provide access to pump/motor coupling. Pump to motor coupling shall be stainless steel and shall provide for alignment, balance, and power transmission. Pump shaft shall be stainless steel and shall be ground and polished for a smooth bearing surface. Pumps shall be corrosion resistant, have hermitically sealed 460 volt motor windings, sand resistant construction, and water filled.

G. Pump shall be coupled to motor by same manufacturer.

H. All pump parts must be available for purchase individually or in kits from the manufacturer.

I. Pump shall be a Goulds Model 9THC submersible pump, Grundfos or equal and shall be NSF certified.

J. The pump motor shall be approximately 9-inch diameter. Pump moor shall be 150 HP, 3450 RPM, 60 Hz, 3-Phase, 460 V stainless steel motor with a built-in temperature transmitter; however, temperature monitoring will be provided through the VFD drive unit.

2.3 TESTING

A. The pump shall be tested for performance by the manufacturer as standard prior to shipping.

B. The pump manufacturer shall provide documentation to the Engineer of the following tests prior to shipment:

1. Verified Performance Test
2. Witnessed Verified Performance Test shall include a minimum of two operating points on the pump curve including VFD performance. A written performance report shall be provided by the pump manufacturer.

2.4 WARRANTY

A. The warranty period shall be a non-prorated period of 24 months from date of installation, not to exceed 30 months from date of manufacture as indicated on the nameplate.

Part 3 – EXECUTION

3.1 Installation

A. Prior to setting the pump, Contractor shall install a test pump in the production well capable of discharging 1,500 gpm to waste at the DI on Pioneer Drive for 8 hours or until the discharge water is clear. The Contractor shall install a test pump in the monitor well capable of 100 gpm to waste at the DI on Pioneer Drive for 4 hours or until the discharge water is clear. After completion of the test pumping, Contractor shall remove test pump(s) and chlorinate both wells per AWWA C654 requirements.

B. Pump setting shall be per the plans. A well transducer shall be installed down a sounding tube in the monitoring well. The transducer shall be installed at 80 feet below ground surface.

C. The Contractor will install all pumping equipment, drop pipe, power cable and appurtenances pursuant with manufacturer's recommendations.

D. Contractor shall check rotation prior to initializing a field test of the equipment. In the presence of the Owner, Engineer and Contractor, a field start-up will be required to verify field performance of the newly installed pumping equipment. A representative from Grundfos is required to be present during the start-up test. The Contractor is responsible for coordinating all parties to be present for the start-up.

END OF SECTION

SECTION 26000
PITLESS UNIT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

Complete assembled 12" Pitless Unit System including well cap, lift-out bail, hold down hooks, lift out pipe, discharge body with support ring, spool with check valves and pressure equalizing passages.

1.02 SUBMITTALS

A. Submittals shall include:

1. The Manufacturer and Model of the Pitless Unit to be installed.
2. Detailed Specifications with Drawings of the System furnished by the manufacturer.

PART 2 PRODUCTS

2.01 PITLESS UNIT

The Pitless Unit shall be Baker Monitor Custom 244442, Maas or equal with 304 stainless steel wetted surfaces, 8" 304 stainless steel connection to drop pipe, 12" flanged discharge. The unit must capable of withstanding 300 psi discharge pressure, and have a minimum of 65,000 pound lift out load rating. The unit should be factory assembled, before shipping to the site. The pitless unit must conform to the Recommended Standards for Water Works and be NSF-listed.

2.02 WELL CAP

The Watertight Cap shall be secured to the pitless casing with a compression gasket. The top of the cap can be removed without affecting the sealed conduit or wiring. The heavy duty watertight cap will have a separate protected downward facing stainless steel screened well vent with pipe nipple. Construction of the cap and well vent will be of heavy duty gray cast iron and painted with a green enamel finish.

2.03 UPPER CASING

The Upper Casing is factory assembled to the discharge body, and the lift out and hold down mechanism are factory assembled to the spool. Upper casing thickness must conform to AWWA standards and be coated with a rust protective coating. The upper casing must provide a watertight connection from the discharge body to the well cap. The discharge port center line to be a minimum of 8.5 feet below grade, and the pitless upper casing to extend a minimum of 1.5 feet above grade.

2.04 SPOOL

The spool shall include 2-inch NPT per ANSI B 1.20.1 male drop pipe connection and shall be constructed of lead-free galvanized heavy-duty steel with a lead-free galvanized plating on the wetted surface of over .010 inches thick. The spool will have o-ring grooves machined into the spool retaining the o-rings when setting or pulling the system.

The positive pressure o-ring seals shall be constructed of neoprene or equivalent. Spool shall be designed to accommodate probe tubes or water samplers and NPT ports for discharge pressure taps. O-ring protection should be provided to prevent the seals from dragging on the upper casing when the pump is installed or removed.

2.05 DISCHARGE BODY

The Discharge Body shall be constructed of lead-free galvanized steel. O-ring seat to be designed to prevent crevice and galvanic corrosion. Dissimilar metals should be avoided. Discharge body designed to be strong enough to prevent distortion due to vertical movement of discharge pipe thereby allowing spool to bind in the discharge body. Minimum I.D. of the discharge body to be equal to or greater than I.D. of the well casing for ease in well servicing.

2.06 HOLD-DOWN MECHANISM

The Pitless Unit spool should have a hold down mechanism, factory assembled to spool and capable of preventing rotation of the pitless spool relative to the discharge body, at full rated locked rotor torque of the submersible pump motor. The spool must also have a factory assembled lift out pipe and bail, or spider capable of rated load, to allow lifting a water filled drop pipe and pump out of the well for service. Components to be constructed of steel with a corrosion resistant coating.

PART 3 EXECUTION

3.01 EXCAVATION

The existing well casing shall be exposed adequately for proper installation of the pitless unit. Sanitary seal shall be replaced to ground surface after installation of the pitless unit. An 8' square concrete slab shall be poured around the new pitless.

3.02 INSTALLATION

The new pitless shall be installed per manufacturer's recommendations.

END OF SECTION

SECTION 31100

TRENCH EXCAVATION AND BACKFILL

PART 1 GENERAL

1.01 DESCRIPTION

A. Description of Work

The work covered by this Section includes the furnishing of all plant, labor, tools, equipment and materials and performing all operations in connection with the excavation, trenching, backfilling, moisture conditioning, and surface repair of all pipelines, accessories and lines connected thereto, complete including sheeting and shoring, dewatering, grading and cleanup and traffic control all in accordance with these Specifications and the applicable Drawings.

B. Definitions

1. Trench – An excavation in which the depth is greater than the width of the bottom of the trench.

2. Foundation – Material on which pipe bedding or structure is to be directly placed.

3. Bedding – Granular material that surrounds pipe or structure. Pipe bedding shall extend 12” above the pipe.

4. Maximum Density – The maximum density as determined by ASTM D1557 for the soil or aggregate under consideration.

5. Backfill – Material from top of bedding to finish subgrade or finish grade.

1.02 QUALITY ASSURANCE

A. Provisions of Testing

1. All testing for compaction will be provided by Owner. The Contractor shall be responsible for the cost of any retests required due to failed tests. Test results shall be provided to the approving agency prior to paving.

B. Testing Methods

1. ASTM C94, Standard Specification for Ready-Mixed Concrete

2. ASTM C117, Standard Test Method for Materials Finer than No. 200 Sieve by Washing.

3. ASTM C131, Standard Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

4. ASTM C136, Standard Method for Sieve Analysis of Fine and Coarse Aggregate.

5. ASTM D 1556 Test Method for Density of Soil in Place by the Sand-Cone Method.

6. ASTM D 1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop.

7. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

8. ASTM D3017, Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods.

1.03 FREQUENCY OF TESTING

A. Maximum Dry Density and Optimum Moisture Content, ASTM 1557

1. Request one test for each different class or type of material

2. Request one test when previous test is suspect, due to subtle changes in the material, as determined by the Engineer.

B. Density of Soil In-Place by Sand Cone or Nuclear Methods

1. Request a minimum of one test per lift per 500 linear feet of trench.

2. Owner or the Engineer may request testing more or less frequently as he deems appropriate.

1.04 FREQUENCY OF TESTING

A. Percent Compaction. Not less than as specified on Plans or in these Specifications.

B. Place Moisture Content. As required to achieve minimum compaction requirements.

C. Soft or Yielding Surfaces. Regardless of percent compaction obtained by test, areas that are soft and yield under the load of construction equipment ("pumping") are to be removed and replaced at no additional cost.

1.05 SUBMITTALS

A. Test Results

1. Provide moisture-density corves and gradations for bedding material per ASTM D1557, ASTM C131 and ASTM C136.

PART 2 PRODUCTS

2.01 MATERIALS

A. Unsuitable material not to be incorporated in the work include:

1. Organic matter such as peat, mulch, organic silt or sod

2. Expansive clays

3. Material containing excessive moisture

4. Poorly graded coarse material

5. Rock or particle size in excess of 4 inches

6. Material that will not achieve density and/or bearing requirements

7. Construction debris such as broken concrete or asphalt concrete.

B. Bedding

1. Bedding material shall consist of screened native material meeting Class C requirements conforming to a gradation as specified in Section 200.03.04 and the following table:

Class	Sieve Size	Percent by Weight Passing Sieve
Class C	1 inch	100
	¾ inch	90-100
	3/8 inch	10-55
	No. 4	0-10

C. Backfill

1. Backfill 12 inches above the pipe zone shall consist of screened native material meeting Class E requirements conforming to the gradation specified in Section 200.03.06 and the table below.

2. Gradation

Sieve Size	Percent by Weight Passing Sieve
4 inch	100
¾ inch	70-100
No. 40	10-50
No. 200	0-35

3. Type 2 Class B backfill shall be imported and meet the gradation requirements specified in Section 200.01.03 and the following table:

Sieve Size	Percent by Weight Passing Sieve
1 inch	100
¾ inch	90-100
No. 4	35-65
No. 10	25-53
No. 16	15-40
No. 40	12-28
No. 200	2-10

4. Plastic Limits

Percentage Passing #200 Sieve	Max Plasticity Index	Max Liquid Limit
5 - 10	20	50
11 - 20	15	40
21 -30	10	35

D. Portland Cement Concrete

1. ASTM C94, 3,000 psi yield strength minimum. Concrete used in building materials shall be as specified on the Structural Plans.

E. Foundation

1. The Contractor may use any aggregate material that is free from unsuitable material for pipe foundation provided that a suitable foundation, as determined by the soils engineer, can be constructed with the material provided. Drain rock (3/4-inch) is specified under vaults and concrete structures.

F. Concrete Slurry

1. For backfill of water mains, concrete slurry shall consist of a fluid, workable mixture of aggregate, Portland cement (Type II, low alkali, 2 or 3-sack mix) and water. The aggregate materials selected for concrete slurry shall be Mortar Sand conforming to the requirements of ASTM C144 and Coarse Aggregates for Grout per Section 200.04.03 of the Standard Specifications. The slurry shall also conform to the following grading:

Sieve Size	Percent by Weight Passing Sieve
½- inch	100
3/8- inch	90-100
No. 4	20 - 55
No. 8	5 - 30
No. 16	0 - 10
No. 30	0 - 5

PART 3 EXECUTION

3.01 INSPECTION BY CONTRACTOR

A. Verify all preliminary work including construction staking has been performed in accordance with the Plans and these Specifications. The Contractor shall provide all construction staking.

3.02 EXCAVATION

A. General

1. Perform all excavations of every description and of whatever substances encountered to the depths indicated on the Plans, including excavation ordered by the Owner of compacted fill for the purpose of performing tests. Use open cut excavation methods unless otherwise shown on the Plans or approved by the Engineer. Remove all loose material after excavation and compact to 90% maximum density prior to placing bedding.

B. Trench Widths

1. Excavate trenches for pipe to the dimensions indicated on the Plans.

2. Maintain trench walls as vertical as possible except as required by safety standards and for that required for sheeting and shoring. If the maximum trench width of 24 inches greater than the outside diameter of the pipe is exceeded at the top of the pipe, provide necessary additional load bearing capacity by means approved by the Owner at the Contractor's expense.

C. Trench Alignment

1. The pipeline shall be laid to the alignments and grades shown on the Plans and as directed by the Owner's Field Inspector. The Contractor will provide surveying for the pipeline.

2. Water and sewer separations shall conform to the requirements of the Nevada Division of Environmental Protection (NDEP). Whenever the water main crosses over the sewer or storm drain, a vertical separation of 18 inches must be maintained or special construction methods must be employed to protect the water main pursuant with the NDEP requirements. Minimum horizontal separation must be 10 feet between water and sewer mains.

3.03 OVER-EXCAVATION

A. Unauthorized Over-excavation.

1. Fill and compact unauthorized beyond the specified grade line, at the contractor's expense, with aggregate base or bedding material.

2. Additional trenching and/or shoring required due to pipe depths or proximity to existing utilities as shown on the Plans is the Contractor's responsibility and shall be at the Contractor's expense.

3. Compact to 95 percent of the maximum density.

B. Rock.

1. Over-excavate rock encountered in trench to provide a minimum of six inches of bedding below the pipe and the minimum width at the springline.

C. Unsuitable Material.

1. Over-excavate unsuitable material to the depth required as determined by the Owner to provide required support.

2. Backfill the over-excavation with bedding and compact to at least 95% of the maximum density.

3. Foundation material may be used for stabilization below the bedding zone.

4. All unsuitable and excavated material shall be disposed of off-site at the Contractor's expense.

D. Blasting

1. Blasting will not be permitted on this project.

3.04 GRADING AND STOCKPILING

A. Grading.

1. Grade in the vicinity of the trench to prevent surface water from flowing into the trench.

2. Remove any water accumulated in the trench by pumping or other approved methods. Dewatering is not anticipated for this project; however, it is the responsibility of the Contractor to investigate the subsurface conditions of the site for the extent of the work and familiarize him/herself with the site to prepare an adequate bid for the work intended.

3. Stockpile excavated material in an orderly manner a sufficient distance back from the edges of the trench to avoid overloading and to prevent slides or cave-ins.

B. Topsoil.

1. Excavate topsoil and stockpile separately.

2. Replace topsoil upon completion of backfill to the elevation and grade indicated on the Plans

3.05 SHORING AND SHEETING

A. Shore, sheet and brace excavations as set forth in the rules, orders and regulations of the United States Department of Labor Occupational Health and Safety Administration (OSHA). Provide detailed plans and calculations prepared by a Nevada-registered professional engineer for excavations twenty feet (20') in depth or greater or when shoring, sheeting or bracing deviates from OSHA standards. Place and remove shoring, sheeting and bracing so as no to damage adjacent improvements, utilities or utility being placed. Costs for shoring, sheeting and bracing shall be incidental to the pipe items.

3.06 OPEN TRENCH

A. Maximum Length.

1. Maximum length of open trench shall be 100 feet. Where trenches are adjacent to or cross existing roadways, the trench shall be plated or backfilled at the end of each day. Paved roadway sections shall be temporarily patched with 2-inch minimum cold-mix asphalt until permanent asphalt patch is installed.

2. The trench is open until fill is completed to adjacent finish grade elevation.

B. Temporary Provisions.

1. Furnish and install trench bracing and steel plating required to provide safe and convenient vehicular and pedestrian passage across trenches where required if permitted by the Churchill County Road Department.

2. Maintain access to emergency facilities at all times. Road closures must be authorized by the Churchill County Road Department.

3.07 AGGREGATE BASE

A. Place the aggregate base upon backfill and embankments as indicated on the Plans. Grade the base to provide the depth and dimensions shown on the Plans. Compact the aggregate base to 95% of the maximum value determined by ASTM D1557.

3.08 FOUNDATION, BEDDING, BACKFILLING AND COMPACTION

A. Foundation.

1. Place foundation when soils in the trench bottom are soft or yielding.

2. It is anticipated that foundation could be necessary in areas where groundwater is present or near the trench bottom.

3. Costs associated with dewatering and foundation shall be considered incidental to the pipe item. Dewatering is not anticipated on this project.

B. Fine Grading.

1. Accurately grade the bottom of the trench to provide uniform bearing and support for each section of pipe at every point along its entire length.

3.09 MOISTURE CONDITIONING

A. Moisture condition all bedding and backfill materials by aerating or wetting to achieve the moisture content required to obtain the minimum percent compaction. Mix until the moisture content is uniform throughout the lift. No additional payment will be made for moisture conditioning, import or native materials.

3.10 LIFT THICKNESS

Lift Description	Maximum Loose Lift Thickness, Inches
Bedding	6
Backfill	8
Aggregate Base Surfacing	6

A. Lift thickness may be increased if Contractor can demonstrate through a series of density tests that minimum density is achieved throughout the lift thickness.

3.11 COMPACTION

A. Compaction Methods.

1. Water consolidation, water jetting or rubber-tired tractor wheel rolling will not be allowed.

B. Pipe Haunch.

1. Hand compact initial backfill in pipe haunch with a hand compactor (J-bar) or a mechanical vibratory compactor sized to fit the narrow width between the trench wall and pipe.

2. Give special attention to provide proper compactive effort in the important pipe haunch zone.

C. Compaction Densities.

1. Thoroughly compact trench bedding and backfill to not less than the percent compaction indicated on the Plans.

2. Where not indicated on the Plans, compact bedding to 95% and backfill to 90% per ASTM 1557. In roadway sections, backfill shall be compacted to 95%.

3.12 BACKFILL FOR PIPES, VALVES, MINOR STRUCTURES AND OTHER

A. Backfill appurtenances and structures as shown on the Plans. Where not clearly indicated, the backfill, including bedding, backfill lift, lift thickness, and compaction, shall be identical to the adjacent trench. Backfilling during freezing weather will not be permitted.

3.13 SURFACE RESTORATION

A. Grading.

1. Perform all grading adjacent to backfilled trenches and structures as necessary.

2. Leave the area in a neat and satisfactory condition.

3. Grade area to provide proper drainage and to ensure that the existing drainage has not been changed.

B. Surface Restoration.

1. Resurface as specified or to match all existing surfaces broken or damaged by the installation of the new work.

C. Asphalt Patching

1. Asphalt Pavement Patching (AC) material shall be a mixture of cement grade PG64-22 per Standard Specifications Section 201.02 and Type 2 Aggregate per Standard Specifications Section 202.02. Temporary pavement patch shall be a minimum of 2 inches and placed at the end of each day. Permanent AC patch shall consist of 4 inches (or match existing) of Type 3 AC 20 hot-mix over 8 inches of Type 2 Base material compacted to 95% RC.

D. Concrete Patching

1. All Portland Cement Concrete, unless otherwise specified, shall have a coarse aggregate gradation conforming to Size No. 67 in Subsection 200.05.03 – "Coarse Aggregates" of the Standard Specifications, shall have a 4-inch maximum slump and 6 percent entrained air. The minimum 28-day compressive strength shall be 4,000 psi. Cement shall be Type II. Maximum water/cement ratio shall be 0.45.

E. Repairs Required by Permanent Trench Settlement

1. If at any time during a period of one year dating from the date of final acceptance of the project, there is any settlement of the permanent trenches requiring repairs to be made or should any defect appear in the system due to negligence or carelessness on the part of the Contractor, the Owner may notify the Contractor to immediately make such repairs as may be deemed necessary at the Contractor's expense.

F. Clean up.

1. Remove all excess soil, concrete, etc. from the premises.

2. Leave job site in a neat and clean conditions.

3.14 PROTECTION AND RESTORATION OF EXISTING FACILITIES

A. Protect all structures, signs, vegetation, driveways, curb, gutter, sidewalks, Section corners, property corners and personal property that are not specified or shown on the Plans to be removed for the performance of the Work, from injury or damage resulting from the construction operations.

B. All signs, structures, driveways, curb, gutter, sidewalks, driveways, vegetation, Section or property corners and personal property which are removed, injured or damaged by the

Contractor's operations shall be replaced or restored to their former state, or better, at the Contractor's expense.

C. The Contractor shall replace any damaged, longitudinal and transverse striping prior to opening a roadway to traffic.

END OF SECTION

SECTION 33100

WATER UTILITY DISTRIBUTION PIPING & FITTINGS

PART 1 - GENERAL

1.01 The work to be done under this section consists of furnishing labor, equipment, materials and incidentals and performing all work necessary for furnishing and installing a water pressure pipe as indicated on the Plans. This item covers the work necessary for the installation of the pipe and fittings of the sizes and classes indicated, including but not limited to, furnishing all materials, base preparation, laying and jointing the pipe, blocking, restraining, furnishing materials and equipment necessary for hydrostatic testing of the lines, and incidental work. Trench excavation and backfill shall conform to the requirements as specified in Section 31100, TRENCH EXCAVATION AND BACKFILL.

1.02 Standards shall conform to the Standard Specifications for Public Works Construction, "Orange Book" hereinafter referred to as Standard Specifications, sponsored and distributed by Washoe County, Sparks, Reno, Carson City and Regional Transportation Commission of Washoe County, Latest Edition, AWWA Standards and Churchill County Standard Construction Specifications.

1.03 References include the following:

A. Ductile Iron Pipe

1.	C104-03	Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
2.	C105-05	Polyethylene Encasement for Ductile Iron Pipe Systems
3.	C110-03	Gray Iron and Ductile Iron Fittings, 3 Inch – 48 Inch for Water
4.	C111-07	Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
5.	C115-05	Flanged Ductile Iron Pipe with Ductile Iron or Gray Iron Threaded Flanges
6.	C150-02	Thickness Design of Ductile Iron Pipe
7.	C151-02	Ductile Iron Pipe, Centrifugally Cast for Water or Other Liquids
8.	C153-06	Standard for Ductile Iron Compact Fittings
9.	C600-05	Installation of Ductile Iron Water Mains and Appurtenances

B. Steel Pipe

1.	C200	Steel Water Pipe, 6-Inch and Larger
2.	C205	Cement Mortar Lining and Cement Mortar Coating
3.	C206	Field Welding of Steel Pipe
4.	C207	Flanges for Steel Pipe
5.	C208	Steel Pipe Fittings

C. PVC Pipe

1.	C605-05	Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

2. C900-07 Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inch – 12 Inch for Water Distribution
3. C905-07 Polyvinyl Chloride (PVC) Pressure Pipe, 14 Inch – 24 Inch for Water Distribution
4. ASTM D1785 PVC Water Pressure Pipe and Fittings – Small Diameter (Schedule 40 and Schedule 80)
5. ASTM D3034 PVC Sewer Pipe and Fittings

D. HDPE Pipe

1. C901-02 Polyethylene (PE) Pressure Pipe and Tubing, ½ Inch – 3 Inch

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE

A. Small-diameter, push-on Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50 and rated for 350 psi working pressure. Large diameter push-on Ductile Iron Pipe shall be rated for 150 psi working pressure. The working pressure includes a surge allowance of 100 psi. Cement mortar lining conforming to ANSI/AWWA C104/A21.4. Provide Polyethylene Encasement per AWWA C105. Standard laying length is 18 feet.

B. Flanged Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50 and AWWA C115, rated for 350 psi working pressure. Cement mortar lining conforming to AWWA/ANSI C104/A21.4.

C. Restrained Joint Ductile Iron Pipe shall conform to AWWA/ANSI C150/A 21.50, AWWA/ANSI C151/A 21.51, and AWWA C115, rated for 350 psi working pressure. Cement mortar lining conforming to AWWA/ANSI C104/A21.4.

D. Pipe Joints

1. Flanged Pipe: Ductile Iron, ANSI/AWWA C115/A21.15 flat faced. Pressure rating equivalent to those thickness or pressure classes of the pipe. Bolts per ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch beyond outer face of nut. Nuts per ASTM A307, hexagonal, ANSI B18.2.2, heavy semi-finished pattern. Flanges shall conform to the requirements of AWWA C115 for Class 125 ANSI B16.1 flanges.

2. Restrained joint pipe: Per performance requirements of AWWA C151. Boltless, integral restraining system rated for 150 psi minimum. Restrained gaskets shall be U.S. Pipe Field Lok joint restraint or approved equal. Restrained push-on joints shall be U.S. Pipe TR Flex or approved equal. Large diameter restrained joint ductile iron pipe shall be U.S. Pipe TR Flex or approved equal. Field Lok joint restraint will not be permitted for large-diameter, restrained joint ductile iron pipe.

3. Gaskets: AWWA C111. Natural rubber gaskets will not be accepted. Flange gaskets shall be of the profile type by ACIPCO (Toruseal®) or US Pipe (Flange-Tyte®). Full-face flat gaskets shall not be used for flanged applications.

4. Mechanical joint pipe: In accordance with applicable requirements of AWWA C151. Gaskets, follower glands and bolts per applicable requirements of ANSI/AWWA C111/A21.11.

5. Push-on joint pipe: In accordance with applicable requirements of ANSI/AWWA C111/A21.11.

2.02 DUCTILE IRON PIPE FITTINGS

A. Ductile iron pipe fittings shall conform to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53, cement lined in accordance with ANSI/AWWA C104/A21.4.

B. Flanged joint fittings shall conform to AWWA C110, faced and drilled surface in accordance with ANSI Class 125 B16.1. Minimum pressure class rating of 250 psi. Bolts per ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch beyond outer face of nut. Nuts per ASTM A307, hexagonal, ANSI B18.2.2, heavy, semi-finished pattern. Gaskets per of AWWA C111.

C. Mechanical joint fittings shall conform to ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11. Minimum pressure rating of 250 psi. Glands, bolts, nuts and gaskets per AWWA C110.

D. Mechanical Restraint Adapters shall be EBAA Iron Mega-Lug, Romac Roma-Grip, no substitutes.

E. All direct buried steel pipe shall be coated with Protecto Wrap Co. #1170 Primer and #320 cold applied tape. All valves, fittings, etc. shall receive two coats of Protecto Wrap cold applied mastic #160H.

F. Lubricant, where required, shall be nontoxic, shall not support the growth of bacteria, and shall have not deterioration effects on the gasket material nor shall it impart taste or odor to water in the pipe.

G. Polyethylene Encasement shall comply with ISO 8180, ANSI A21.5, AWWA C105, and ASTM A674. Encasement shall be U.S. Pipe polyethylene encasement for ductile iron pipe or approved equal.

2.03 STEEL PIPE

A. Steel Pipe shall be designed in accordance with AWWA M11 and manufactured in accordance with AWWA C200. Steel Pipe shall be designed for 200 psi maximum working pressure which includes a surge allowance of 100 psi. Pipe shall be designed to the cover conditions as shown on the Plans. The allowable deflection shall be 3% of the pipe inside diameter for pipe with flexible coating and 2% for pipe coated with cement mortar.

2.04 STEEL PIPE COATINGS

A. Cement mortar lining conforming to AWWA C205. Standard laying length is 40 feet. Pipe shall be cement mortar lined in the shop by the centrifugal process in accordance with AWWA C205. Cement mortar lined pipe shall be braced as required to maintain roundness during shipping and handling.

2.05 STEEL PIPE FITTINGS

A. Steel pipe fittings shall conform to the dimensions of AWWA C208 or may be fabricated into standard or special pipe lengths. All tees, laterals and outlets shall be reinforced in accordance with AWWA M11.

B. Gasketed joints shall conform to AWWA C200 Standard. The standard joint for working pressures up to 250 psi shall be rubber gasketed unless otherwise noted on the Plans. The difference in diameter between the inside diameter of the bell and the outside diameter of the spigot shoulder at point of full engagement, with allowable deflection, shall be no more than 0.4 inches as measured circumferentially. Shop applied coating shall be continuous to the end of the pipe on the bell end and shall be held back on the spigot end sufficiently to allow full engagement of the joint.

2.06 PVC PRESSURE PIPE

A. PVC water pipe shall be extruded from Class 12454 B compound per ASTM D1784 providing a hydrostatic design basis (HDB) of 4000 psi. in accordance to AWWA C-900. Pipe shall have cast iron outside diameters. AWWA C-900 PVC water pipe shall be DR 18 pressure class 235 or DR 14 pressure class 305.

B. Schedule 40 and Schedule 80 PVC shall conform to ASTM D1785 and NSF Standard 14 specifications. Schedule 40 and 80 PVC shall have a pressure rating based on size of pipe. The maximum working pressure for 1-inch Schedule 40 PVC is 450 psi and the maximum working pressure for 2-inch Schedule 80 PVC is 370 psi. Maximum working pressure for 3-inch size pipe shall be as specified on the Plans. Threaded PVC pipe requires a 50% reduction in pressure rating stated for plain end pipe at 73 degrees Fahrenheit.

C. Standard pipe laying length shall be 20 feet. PVC pipe dimensions and tolerances of the pipe barrel shall conform to the requirements of AWWA C900 as specified in ASTM D2122 and as specified in ASTM D2672 for Schedule 40 and Schedule 80 PVC.

D. Solvent cement for PVC pipe shall conform to ASTM D2564 and shall be listed by NSF for potable water use. Primer for PVC pipe shall conform to ASTM F656.

2.07 PVC PIPE FITTINGS

A. Fittings for PVC pipe shall be flanged or bolted mechanical joint or push-on joint ductile iron fittings and shall conform to ANSI/AWWA C110/A21.10 or C153/A21.53, and ANSI/AWWA C111/A21.11. All fittings shall be cement mortar lined and coated in accordance with ANSI/AWWA CI04/A21.4. Fittings for small diameter PVC pipe shall include solvent weld (slip) joints or threaded joints for Schedule 80 PVC.

B. Mechanical joint restraining devices shall be utilized for restraining plain end PVC pipe to mechanical joint fittings as manufactured by EBBA Iron, Series 2000PV or equal. Bell restraining harnesses for PVC pipe shall be as manufactured by EBBA Iron, Series 1600 or equal. The restraining harness shall be manufactured of ductile iron conforming to ASTM A536.

C. PVC gaskets and lubricants shall be made from materials that are compatible with the plastic material and with each other when used together. They shall be suitable for use in potable water systems and shall not support the growth of bacteria. All rubber rings shall be furnished by the pipe manufacturer. These rubber rings (elastomeric gaskets) shall be manufactured to conform to the requirements of ASTM F-477. One gasket shall be furnished with each length of elastomeric gasket bell end pipe.

D. Solvent cement for pipe fittings shall conform to ASTM D2564 and shall be listed by NSF for potable water use. Primer for PVC pipe fittings shall conform to ASTM F656.

2.08 PVC GRAVITY SEWER PIPE

A. PVC sewer pipe, fittings, couplings and joints shall comply with the size, dimensions, materials and performance requirements of ASTM D3034, SDR 35 for 4-Inch through 15-Inch. Pipe shall be furnished in 20-foot lengths with rubber-gasketed bell and spigot ends. The spigot ends of all pipe shall include a home mark to indicate proper penetration when the joint is made. Gasketed joints will meet ASTM D3212 requirements.

2.09 POLYETHYLENE PRESSURE PIPE

A. Polyethylene pressure pipe 3 inches and larger shall be PE 3608, Pressure Class 100, DR 17. The pipe shall be manufactured from a PE 3608 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material will meet the specifications of ASTM D 3350 with a minimum cell classification of 345464C. Pipe shall also have a manufacturing standard of ASTM F714. The material shall have a minimum Hydrostatic Design Basis (HDB) of 1,600 psi at 73 degrees Fahrenheit. Pipe O.D. sizes 4-inch through 24-inch diameter shall be available in both steel pipe sizes (IPS) and ductile iron pipe sizes (DIPS).

B. The pipe shall contain no recycles compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All pipes shall be suitable for use as potable, pressure conduits, listed as NSF 61 and per AWWA C906. All pipes shall have a nominal burst value of three and one-half times the working pressure rating of the pipe.

C. Butt Fusion Fittings shall be PE 3608 HDPE, minimum cell classification of 345464C as determined by ASTM D 3350 and approved for AWWA use. Butt fusion fittings shall have a manufacturing standard of ASTM D 3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe. All fittings shall be suited for pressure conduits.

D. Flanged and Mechanical Joint Adapters shall be PE 35608 HDPE, minimum cell classification of 345464C as determined by ASTM D 3350. Butt fusion fittings shall have a manufacturing standard of ASTM D 3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe. All fittings shall be suited for pressure conduits.

PART 3 -EXECUTION

3.01 HANDLING PIPE

A. Avoid damaging the pipe during hauling, unloading and placement. The use of chains or steel cables on pipe without protective covers is prohibited.

3.02 PIPE LAYING

A. Install per Section 307 of the Standard Specifications, manufacturer's recommendations, and these specifications. Proceed with laying pipe in the trench only after the trench has been dewatered (if necessary) and the bedding has been prepared in accordance with these Specifications. Keep mud, silt, gravel and other foreign material out of the pipe and off the jointing surfaces. Maintain alignment and joint closure until sufficient backfill has been completed to adequately hold the pipe in place. Lay pipe to conform to the prescribed line, depth, and grade shown on the Plans. When pipe laying is not in progress the forward end of the pipe shall be kept tightly closed with an approved temporary plug.

3.03 PIPE BEDDING

A. Placed in accordance with manufacturer's recommendations so that the entire length of the pipe will have full bearing. Do not use blocking of any kind to adjust the pipe to grade. Dig depressions for Bell holes as required to ensure uniform support along the pipe barrel.

3.04 CAPS, PLUGS, AND CONNECTIONS

A. Cap and restrain pipe stub-outs, plugs or open pipe ends. All open pipe ends and fittings shall be sealed closed when work is not in progress.

3.05 PIPE DEFLECTIONS

A. A maximum axial deflection is allowed at each gasketed joint per manufacturer's recommendations pursuant with the size and type of PVC pipe application. For a 20-foot length of 12-inch diameter, DR 18, C900 PVC pipe, maximum joint deflection is 2 degrees which is equivalent to a 9-inch offset resulting in a minimum deflection radius of 275 feet. This offset and minimum radius also applies to proposed vertical deflection of the pipeline alignment. The allowable deflection in mechanical joint fittings shall be per the manufacturer's published limits.

3.06 ANCHORAGE

A. Provide thrust and anchor blocks as shown on the Plans for all unrestrained joints for tees, bends and dead ends. Concrete blocking shall extend from the fitting to solid undisturbed earth and not cover the joint or bolts. The dimensions of concrete reaction blocking shall be per Plans and Standard Details.

3.07 FUSION JOINING OF HDPE PIPE

A. Sections of HDPE pipe shall be jointed into continuous lengths on the jobsite above ground and set in place. The joining method shall be by butt fusion method and shall be performed

in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe manufacturer, including but not limited to, temperature requirements of 400-450 degrees Fahrenheit, alignment and an interfacial fusion pressure of 75 psi. The butt fusion joining will produce a joint with weld strength equal to or greater than the tensile strength of the pipe itself.

B. Sidewall fusions for connections to outlets shall be performed in accordance with HDPE pipe and fitting manufacturer's specifications. The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of the heating iron shall be ¼-inch larger than the size of the outlet branch being fused.

C. Mechanical joining will be used where the butt fusion method cannot be used. Mechanical joining will be accomplished by either using an HDPE flange adapter with a ductile iron back-up ring or HDPE mechanical joint adapter with a ductile iron back-up ring.

D. Socket fusion, hot gas fusion, threading, solvents and epoxies will not be used to join HDPE pipe.

E. The minimum radius of the pipe curvature shall be determined by multiplying a bend radius multiplier times the O.D. of the pipe. For DR 17 HDPE, the multiplier is 40. The average O.D. of 3-inch HDPE is 3.088. The wall thickness of DR 17 is 0.206 inches.

END OF SECTION

SECTION 33500

WATER UTILITY APPURTENANCES

PART 1 GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, equipment and services necessary for the completion of the work specified and as shown on the Plans.

1.02 SERVICEABILITY

Appurtenances shall be rated at the maximum working pressure of 150 psi for the project application.

PART 2 PRODUCTS

2.01 FLOW METERS

A. Flow meters shall be installed in accordance with the Plans and as dictated by the Standard Details. Meters shall meet or exceed ANSI/AWWA Standard C701 and C702 Class II and shall be NSF-approved.

B. Small diameter flow meters (2 inches and smaller) shall be rated for 150 psi maximum working pressure. The meter shall be of split case type with bronze lower and upper shell assemblies. They shall include a separate oscillating piston-type measuring chamber which can easily be removed from the case. The register shall be secured to the main case by means of a locking device located inside the meter. The meter shall read in gallons and shall be capable of remote reading. All reduction gearing shall be contained in a permanently hermetically sealed, tamperproof enclosure made of corrosion resistant metal. The meter connections shall include 2-bolt flange. The main case shall be bronze.

C. Large diameter meter assemblies (3 inches and larger) shall be flanged and rated for 150 psi maximum working pressure. Meter flanges shall be rated for 150 psi as well. Flow meters shall be of the electromagnetic type incorporating sensors that convert flow into an electrical voltage proportional to the velocity of the flow. Flow meters shall include a flow sensor and associated compact transmitter for remote reading capabilities. The meter shall be suitable for flooding. The sensor shall have a coned bore and an excitation frequency of 6.25 Hz. The main case shall be carbon steel with an NSF-approved epoxy coating. The measuring chamber shall be removable. Sensor cable connection shall be ½-inch NPT single opening. Power consumption shall be less than 20 VA. Display shall be keypad 3-line, 16-character, back-lit display with ½-inch numerals for flow rate and two lines for engineering units, totalizer, alarm status, velocity and percent of range.

D. Meters shall be accurate to 100 plus or minus 2% of actual flow within the specified normal and intermittent flow ranges per manufacturer listed characteristics.

E. Small diameter meters shall be Sensus SR-type or approved equal. Large diameter flow meters shall be flanged, propeller-type as manufactured by Sensus, Water Specialties or approved equal.

2.02 AIR VALVE ASSEMBLIES

A. Combination air valve assemblies allow air to escape during pipeline filling and allow air to enter into the pipeline during draining or check valve closure to prevent pipeline collapse. Air vacuum valves allow air to enter into the pipeline during draining or when a negative pressure in the pipeline occurs from instantaneous valve closure.

B. The valve shall consist of a body, cover, baffle, float and seat.

1. The baffle will be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve.

2. The seat shall be fastened into the valve cover without distortion and shall be easily removed if necessary.

3. The float shall be stainless steel designed to withstand 300 psi or more.

a. The float shall be center guided for positive seating.

C. The valves shall be coated with 15 mils minimum epoxy for resistance to corrosion.

D. Below-grade air valve assemblies shall include a service saddle and corporation stop on the water main, HDPE pipe to the air valve, Christy N36 valve box and lid, gravel bed, insulation, and above-ground, screened vent pipe. Exposed air valve assemblies shall include a service saddle and corp stop connection to the main pipeline, a gate or ball shutoff valve and drain line to a floor drain.

E. Air valve assemblies shall be as manufactured by APCO, Valmatic, Crispin or approved equal.

2.03 CORPORATION STOPS AND SERVICE SADDLES

A. Corporation Stops shall be brass, ball valve type, conforming to AWWA C800 and ASTM B-62. Corporation stops shall be suitable for working pressures of 150 psi. Inlet ends shall be male iron pipe thread (MIP). Outlet ends shall be suitable for connections to CTS PE plastic pipe. Corporation stops shall be Ford Ballcorp FB1100-x-G style or approved equal.

B. Service saddles shall be full circle type, AWWA approved for PVC or Ductile Iron pipe and of the size specified on the Plans. Service saddles shall be nylon coated with double Stainless Steel straps. Service saddles shall be Romac style 202N or approved equal.

2.04 SAMPLE TAPS

A. Sample taps shall be brass with a male inlet and smooth-nosed outlet without external threads, screen, aerator or filter. Sample taps shall be as manufactured by Arrowhead Brass, or approved equal.

2.05 COUPLINGS, SLEEVES AND PIPE RESTRAINTS

A. Reducing and transition couplings shall be installed where pipe of dissimilar size and/or material are to be joined at the locations shown on the Plans. Couplings shall be rated for 150 psi.

B. Center end rings shall be manufactured of ductile iron conforming to the material properties of ASTM A536, Grade 65-14-12. Gaskets shall be resilient material approved for potable water applications. Followers and middle rings shall be fusion bonded epoxy coated per NSF 61. Bolts shall be high strength steel. Reducing couplings shall be Romac style RC 501, Dresser style 253 or approved equal. Transition couplings shall be Romac style 501, Dresser style 253 or approved equal. Unions shall be Schedule 80 PVC. Small diameter couplings shall be FPT couplings based on iron pipe size.

C. Pipe restraints shall be installed where a restrained connection is required as shown on the Plans. Castings shall be Ductile Iron conforming to ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall conform to ANSI B 18.2.2 and 18.2.2. Restraining rods shall conform to AWWA C111. Pipe restraints at bell and spigot joints shall be Romac 611 Series or approved equal. Small diameter pipe restraints shall include straps at pipe stands.

D. Pipe sleeves shall be used to connect new Ductile Iron or PVC pipe to existing Cast Iron pipe where a restrained coupling is required as shown on the Plans. Pipe sleeves shall be the long style with MJ x MJ ends and retaining glands, conforming to AWWA C153. Restraining sleeves shall be Ebba Iron RS 3800 or approved equal.

E. Pipe hangers shall be designed to carry the weight of the pipe material, associated valves and fittings and the weight of water half the distance between each hanger. The fastening system shall be compatible with the roof structure (i.e metal beam flanges or wood trusses). Pipe clamps shall be Anvil Model 138R split pipe clamp ring or approved equal. Pipe hanger hardware shall be Anvil Model 278 Welded Eye Rod and of adequate length to facilitate the support system. Ceiling plates, flanges or beam clamps shall be used for fastening to the roof system. Adequate roof structure shall be utilized for anchorage locations.

2.06 CONCRETE THRUST BLOCKS

A. Concrete thrust blocks shall be installed at all pipe horizontal deflections greater than 10 degrees. Concrete shall be 6 ½ sack mix and achieve 28-day strength of 3,000 psi. Concrete pads shall be installed under tees, valves and reducers per Standard Details.

2.07 WARNING TAPE, TRACER WIRE AND TEST STATIONS

A. Warning tape shall be 4-mil, detectable, 3-inch wide tape. Warning tape shall be color-coded blue with black letters clearly marked “CAUTION: BURIED WATER LINE BELOW”.

B. Water pipe tracer wire shall be No. 12 stranded copper wire with blue THHN insulation. Tracer wire shall be taped to the top of the pipe a minimum of every pipe joint (each side of the pipe joint). All wire splices shall be made using a split bolt connector wrapped with aqua seal and electric tape. Test stations shall consist of a valve box with cover and 3-pound anode. Tracer test stations may coincide with in-line valves.

2.08 PRESSURE GAUGES

A. Pressure gauges shall be the direct reading type and shall be furnished with a shut-off cock. The gauges shall be calibrated in one (1) pound per square inch in not more than five (5) pound increments and two (2) feet in not more than five (5) foot increments. Unless otherwise specified, the gauge shall range from 0 to 100 psi. The dial shall be 3 inches in diameter with black aluminum, stainless steel, black bronze or heavy black polypropylene case. Gauges shall be glycerin-filled and be furnished with pressure snubbers.

PART 3 EXECUTION

3.01 FLOW METER ASSEMBLIES

A. All flow meter assemblies shall be installed plumb and at the locations indicated on the Plans. Volumetric testing of all meters must be performed and approved prior to shipment. The complete meter head shall be accuracy tested in the same pipe size and type that the meter will be mounted in. The amount of water used to conduct the test shall be left on the totalizer and the meter head shall be tagged showing the totalizer reading after the test.

3.02 AIR VALVE ASSEMBLIES

A. Air valves shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.03 CORPORATION STOPS

A. Corp stops shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.04 SAMPLE TAPS

A. Sample taps shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.05 COUPLINGS, SLEEVES AND PIPE RESTRAINTS

A. Couplings, sleeves and pipe restraints shall be installed in accordance with the manufacturer's recommendations and as indicated on the Plans.

3.06 THRUST BLOCKS/THRUST RESTRAINT

A. Thrust blocks shall be installed in accordance with the Standard Details. All elbows, tees, valves and reducers shall be provided with thrust restraint.

B. Where restrained pipe joints are indicated on the Plans, joint restraint shall be provided by TR Flex Ductile Iron Pipe and Fittings, manufactured by U.S. Pipe, Field Lok Gaskets for Ductile Iron Pipe, manufactured by U.S. Pipe, retainer glands for Mechanical Joint, Ductile Iron Pipe and Fittings and restraining harnesses for push-on, bell and spigot pipe or pipe restraining systems at couplings.

C. Restrained pipe joints shall be provided on each side of fittings a minimum of two joints or as indicated on the Plans.

3.07 CONNECTION TO EXISTING FACILITIES

A. Connections to existing water mains and customer services are required at all locations shown on the Plans. Hot-Tap connections shall be permitted utilizing Standard Distribution Hot Tap procedures and per Standard Details.

B. The Contractor shall verify all existing pipe locations, depths, and pipe OD dimensions at all connection locations prior to initiating the actual connections. The Contractor shall also coordinate the operation of isolation valves in the existing system intended for existing water main isolation with Owner prior to initiating the work. All coordination of water main shutdowns and customer notifications shall be coordinated through Owner.

C. The Contractor shall limit service downtime to a minimum. Where service outages are necessary, the Contractor shall construct entire assemblies for the connections prior to cutting or tapping into the existing pipeline to reduce disruption of service.

D. The Contractor shall use caution when excavating near the existing water mains to eliminate damage to a live main. The Contractor is responsible for any repairs to existing water mains that are damaged as a result of excavation operations.

3.08 POLYETHYLENE (PE) TUBING AND CONNECTIONS

A. Tubing diameters are finished nominal tubing size with inside clear dimensions of the sizes indicated on Table 7, AWWA C901. Tubing shall be furnished in coil lengths of the size indicated on the drawings. PE pipe may be substituted with the approval of Owner.

B. Connections shall be mechanical fittings providing a pressure seal and resistance to pullout.

C. Joints of tubing end to tubing end shall be by electrofusion or mechanical fittings.

D. Tubing installation shall conform to the standard trench detail and AWWA C901.

3.09 WARNING TAPE AND TRACER WIRE

A. Warning Tape shall be installed 12 inches above buried water pipes and tracer wire shall be taped directly to top of the pipe per Standard Details.

3.10 PRESSURE GAUGES

A. Pressure gauges shall be installed in accordance with manufacturer’s recommendations and as shown on the Plans.

3.11 POTHOLING

A. Potholing involves exploratory excavation at connections to existing water facilities, known utility crossings and other areas as required. The Contractor will be required to obtain the following information from these investigations:

1. Verification of pipe size, type, depth and location;

2. Verification of type, size, depth and location of known utility crossings;

3. List of utilities that will require relocation;

4. Information required for surveying and staking of construction of the facilities.

All potholing will be completed prior to the start of construction of the water facilities.

END OF SECTION

SECTION 33600

VALVES

PART 1 GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, equipment and services necessary for the completion of the work specified and as shown on the Plans.

1.02 SERVICEABILITY

A. All valves shall be rated at a minimum of 150 psi maximum working pressure:

PART 2 PRODUCTS

2.01 GATE VALVES

A. Gate valves shall be resilient seat gate valves as manufactured by American Flow Control Series 2500, Mueller A-2360 Series or equal.

B. All ferrous components shall be ductile iron. Valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Ductile Iron
Stem	Bronze (non-rising)
O-Rings	Rubber
Operating Nut	Cast Iron
Valve Disc	Rubber Encapsulated Cast Iron
Stuffing Box	Cast Iron

C. Design

1. Valve shall be non-rising type with a modified wedge disc traveling in a machined surface in the valve body.

2. The valve disc and guide lugs must be fully encapsulated in SBR ASTM D2000 rubber material. The peel strength shall not be less than 75 pounds per inch. Guide caps of an Acetyl bearing material (Celcon) shall be placed over solid guide lugs to prevent abrasion and to reduce the operating torque.

   a. The resilient seat shall be permanently bonded to the wedge as per ASTM D429, creating a sealing surface permitting bubble tight shut off at pressures to 150 psig.

3. Valves shall be provided with O-Ring stem seals above and below the thrust collar which can be changed while the valve is open and under pressure.

4. The valve stem shall be made of bronze per AWWA C515. The stem shall have at least one "anti-friction" thrust washer above and below the stem collar to reduce operating torque.

5. Valves shall have a stuffing box that is 0-ring sealed. The two o-rings shall be placed above and below the thrust collar. The thrust collar shall be factory lubricated.

6. Except as otherwise stated herein, valves shall conform to ANSI/AWWA C509 and/or C515. All ferrous materials shall be ductile iron.

7. Ends shall be designed for direct connection to the type of pipe which the valve is adjoined to, or as shown on the Plans. All mechanical joint gate valves shall include MEGALUG joint restraint. Flanged ends dimension and drilling pattern shall comply with ANSI B16.1, Class 250.

8. The design working pressure for valves 2 inches through 12 inches in diameter shall be as specified in Part 1 of this Specification.

9. Valves shall be designed to have full port opening for unrestricted flow and passage of stones and other foreign material.

10. Underground gate valves shall be equipped with standard 2-inch square operating nuts. Valves shall open when turned counterclockwise. The operating nut shall also have a directional arrow on top of the nut.

11. Gate valves installed above ground (non-buried) or in structures shall be equipped with standard handwheel operators.

D. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550. All buried valves shall be wrapped in polyethylene film and sealed.

2.02 CHECK VALVES

A. Check valves shall be flanged-type, silent, globe-style check valves that open and close in accordance with the direction of flow. Check valves shall conform to AWWA C508 as manufactured by Valmatic, Cla Val, M&H or approved equal.

B. Check valves shall provide full flow through the valve equal to the nominal diameter of the pipe.

C. Poppet shall be spring loaded to allow valve closure before flow reversal occurs for silent, non-slam closure.

D. Check valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Cast Iron
Spring	Stainless Steel
Disc	Bronze
Seat	Bronze

E. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550.

2. Valves shall be hydrostatically tested at 1.5 times their rated working pressure.

2.03 PRESSURE RELIEF VALVES

A. Pressure relief valves shall be drip tight, positive sealing, capable of being serviced without removal, flanged ends, 100% factory tested, hydraulic operated, diaphragm actuated, globe valves. Body and ends shall be ductile iron, valve trim shall be stainless steel, pressure rated to a minimum of 250 psi, fusion bonded epoxy coated, elastomeric shall be Buna-N synthetic rubber. CRD pilot valve, trim, and pilot piping shall all be stainless steel with a spring range of 30 to 300 psi. Pilot mounting shall maximize the space to work on the valves depending on the vault / valve locations. Pilot isolation valves shall be stainless steel ball valves, Valves shall have a valve position indicator with air release. Pressure relief valves as manufactured by Bermad 730 Quick Release or equal.

2.04 BALL VALVES

A. Ball valves shall be lead-free as manufactured by Apollo, Watts, or approved equal.

B. All ferrous components shall be 316 stainless steel. Valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	316 Stainless Steel
Ball	316 Stainless Steel
Stem	316 Stainless Steel

C. Design

1. Valve shall be a 2-piece, full port, lead-free valve with stainless steel ball in the valve body.

2. Valves shall be NSF-61 rated for potable water applications.

3. Ends shall be designed for direct connection to the type of pipe which the valve is adjoined to, or as shown on the Plans. Threaded ends shall be FPT.

4. The design working pressure for valves shall be 150 psi minumum.

5. Valves shall be designed to have full port opening for unrestricted flow and passage of stones and other foreign material.

6. Ball valves installed above ground (non-buried) or in structures shall be equipped with lever operators.

PART 3 EXECUTION

3.01 INSTALLATION

A. Valves shall be installed as shown on the Plans per manufacturer's recommendations.

END OF SECTION

SECTION 33800

WATER MAIN PRESSURE TESTING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all equipment labor and materials required for testing the potable water main pipeline.

1. Water for testing will be provided, in limited quantities, by Owner.

1.02 CONTRACTOR SUBMITTALS

A. Submit proposed testing schedule for review and approval by the Engineer, at least 3 days prior to testing.

B. Proposed plans for water conveyance, control and disposal shall also be submitted in writing.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 GENERAL

A. Water for testing will be potable water furnished in limited quantities by the Owner; however, the Contractor shall make all necessary provisions for conveying the water from the designated source to the points of use.

1. Testing operations shall be performed in the presence of the Engineer in accordance with AWWA C600 and C605 and the Uniform Plumbing Code.

3.02 TESTING

A. The test shall be made by isolating valves when available, or by placing temporary bulkheads in the pipe and filling the lines slowly with water.

1. Care shall be used to see that all air vents are open during filling.

2. After the pipeline, or section thereof, has been completely filled, it shall be allowed to stand under a slight pressure for a sufficient length of time to allow the escape of air from any air pockets, but not less than 24 hours.

3. During this period, bulkheads, valves and connections shall be examined for leaks.

4. If any are found, these shall be stopped or in case of leakage through valves or bulkheads, provision shall be made for measuring such leakage during the test.

5. The test shall consist of holding the test pressure on each section of the pipelines for a period of 2 hours.

6. Pressure at the lowest point in the pipe shall be 2 times the working pressure of the pipeline being tested as shown on the Plans or 150 psi, whichever is greater.

7. The water necessary to maintain the pressures shall be measured through a meter or by other means satisfactory to the Engineer.

8. The leakage shall be considered the amount of water entering the pipe during the test, less the measured leakage through valves and bulkheads.

9. The leakage shall not exceed the following:

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

L = allowable leakage in gallons per hour
S = length of pipeline tested in feet
D = nominal pipe diameter, in inches
P = average test pressure during the leakage test, in pounds per square inch

10. Any noticeable leaks shall be stopped and any defective pipe or equipment shall be replaced with new pipe or equipment until the leakage is reduced to permissible limits.

11. Each pipeline valve shall be tested in the closed position with the test pressure maintained on one side and zero pressure on the other side.

    a. Each valve thus tested shall be drip tight.

END OF SECTION

SECTION 33900

WATER MAIN DISINFECTION

PART 1 GENERAL

1.01 SUMMARY

A. Description of the Work

1. The work to be performed in accordance with this section includes all work associated with installation of the proposed water line including valves, fittings and appurtenances.

2. The work shall include the furnishing of all labor, tools, equipment, materials and performing all operations required to provide a complete item in accordance with the project Plans and these specifications.

a. Related Work Specified Elsewhere

Trench Excavation and Backfill ..... Section 31100
Water Utility Distribution Piping..... Section 33100

B. Quality Assurance

1. Reference Test Standards and Specifications

AWWA C651 Standard for Disinfecting Water Mains (Includes addendum C651)
Uniform Plumbing Code

PART 2 MATERIALS

NOT USED

PART 3 EXECUTION

3.01 CONNECTION TO EXISTING MAINS

A. Expose existing pipe to be connected and verify location, size, and type prior to constructing new mainline.

1. The locations, sizes and depths of existing mains indicated on the Plans are approximate only.

2. Coordinate connection to existing main with Owner at least forty-eight (48) hours in advance.

3. The Owner cannot guarantee a complete shut down on existing valves.

B. When shutdown of an existing water main is necessary in order to connect to the new lines, make application and pay the required charges to the Owner.

1. The Contractor's representative, the project inspector, and Owner shall meet to establish the time and procedures to ensure that the shutdown will be for the shortest possible time.

2. It may be necessary to schedule the shutdown before or after normal working hours in order to minimize the inconvenience to some customers.

3. The water supply to some customers, such as hospitals, cannot be shut off at any time. Provisions to furnish a continuous supply of water to such establishments will be required and must be approved by the Owner prior to implementation. The valve operational sequencing for water main isolation is identified on the Plans and must be coordinated with the Owner prior to implementation.

C. After the procedures and the time for a shutdown are agreed upon, it shall be the Contractor's responsibility to notify all customers that the water will be turned off.

1. When possible, notify customers twenty-four (24) hours in advance and in no case, except in emergency, shall notification be less than thirty (30) minutes.

2. Notification shall be in writing, giving the reason for the shutdown and the time and duration the water service will be shut off.

3. The Contractor shall limit the disruption of water service to six (6) hours or less for each dwelling unit.

4. The Contractor shall provide temporary water service to any customer whose service is to be interrupted for more than six (6) hours.

5. Temporary service and notification is incidental to the laying of the new pipeline. No separate payment shall be made for this item.

3.02 TRANSFER OF SERVICE

A. The Contractor shall coordinate with the Owner the new pipelines' schedule for disinfection, connections to existing mains, and completion of connections to the existing system.

1. The Contractor's schedule of construction activities shall be reviewed by the Engineer and Owner prior to commencement of such activities.

2. No connections for service to the new water line shall be made until the new line has been both pressure tested and tested for bacterial contamination.

3.03 DISINFECTING WATER LINES

A. All water lines shall be disinfected in accordance with AWWA C651 and Uniform Plumbing Code.

1. Pipe Placement.

a. Keep the interior of the pipe and fittings free from dirt, trench water and foreign materials at all times.

b. At the end of each work day, plug or cap open pipe end to prevent entry of dirt or trench water.

c. Clean and swab interior surfaces that become contaminated, with 0.005 to 0.01 percent chlorine solution.

2. Joint Lubricant.

a. Do not use material capable of supporting prolific growth of microorganisms for sealing joints.

b. Lubricant shall be suitable for use with potable water.

c. Handle lubricant in a manner that will avoid contamination.

3. Preliminary Flushing.

a. Flush all mains prior to chlorination and after the pressure test, except when using the tablet method of chlorination.

b. Install service saddle clamps and corp stops at high points and disinfection points.

c. Leave service saddles and corp stops exposed until testing is complete.

d. Leave saddle clamps and corp stops on the main line upon completion.

e. Check operation of all valves after flushing.

f. Replace damaged or defective materials.

B. Methods of Chlorination

AWWA C651. Use any of the following methods:

1. Tablet Method, Continuous Feed Method, or Slug Method.

a. Retention Period.

1.) Retain chlorinated water in the pipe long enough to destroy all non spore-forming bacteria, but not less than twenty-four (24) hours.

2.) Minimum chlorine residual at the extreme end of the line shall be no less than ten (10) ppm at the end of the retention period.

b. Chlorinating Valves and Hydrants.

1.) Operate all valves, hydrants, and appurtenances while chlorinating to ensure complete disinfection.

c. Final Flushing.

1.) Following chlorination, flush chlorinated water from the line at its extremities until the water through its length is comparable in quality to the water served to the public by the existing system.

d. Disposal of Heavily Chlorinated Water.

1.) Inspect the environment to which the chlorinated water is to be discharged.

2.) Apply a reducing agent to chlorinated water if required.

3.) Contact Federal, state and local regulatory agencies to determine special provisions for chlorinated water disposal. Disposal of any spent chlorine solutions must be coordinated with NDEP in accordance with NAC 445A.67085 (3) and .67145 (6) (a).

C. Disinfections Procedures When Cutting into or Repairing Existing Mains – AWWA C651.

1. The following procedures apply to mainline replacements or repairs one hundred (100) feet in length or less. After the appropriate procedures have been completed, the main may be returned to service prior to completion of bacteriological testing in order to minimize the time customers are out of water.

a. Trench Treatment.

1.) When an old main is opened, either by accident or by design, the excavation will likely be wet and may be badly contaminated.

2.) Apply liberal quantities of hypochlorite in granular or liquid form to open trench areas to lessen the danger from such pollution.

b. Swabbing with Hypochlorite Solution.

1.) The interiors of all pipe and fittings (particularly couplings and sleeves) used in making the repair shall be swabbed or sprayed with a 1-percent hypo chlorite solution before they are installed.

c. Flushing.

1.) If valve and hydrant locations permit, flush toward the work location from both directions.

2.) Flushing shall be started as soon as the repairs are completed and shall be continued until discolored water is eliminated.

D. Sampling and Testing

1. Sampling and Bacteriological testing shall be performed in accordance with AWWA C651, which requires two samples, taken twenty-four (24) hours apart, for each 1,200 feet of water main.

2. In addition, more samples must be taken at the ends of line sections and from each distribution branch greater than 20 feet in length.

3. The Contractor shall include all the cost of sampling, shipping, and testing in his Bid and no separate payment will be made for the testing.

END OF SECTION

SECTION 220500

COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.1 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to this work.

2.1 WORK INCLUDED

A. The work to be included in these and all other plumbing subsections shall consist of providing, installing, adjusting and setting into proper operation complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 01 of the specifications is to be specifically included as well as all related drawings.

3.1 RELATED WORK

A. Related Work Specified Elsewhere:

1. Fire Suppression Specifications: Division 21.
2. Heating, Ventilating and Air Conditioning (HVAC) Specifications: Division 23.
3. Electrical Specifications: Division 26.
4. Motors and Connections: Division 26.
5. Starters and Disconnects: Division 26.

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all plumbing equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric switches, electrical components, wiring and any other miscellaneous Division 22 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

4.1 REFERENCED CODES - LATEST ADOPTED EDITION

A. NFPA 70 National Electrical Code (NEC).

B. IMC International Mechanical Code.

C. UPC Uniform Plumbing Code.

D. IFC International Fire Code.

E. IBC International Building Code.

5.1 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 01, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

C. Show the location of all valves and their appropriate tag identification.

D. At completion of project, deliver these drawings to the Owner and obtain a written receipt.

6.1 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be provided in electronic PDF Format. The data in the electronic

file shall be arranged and indexed under basic categories in order of the Specification Sections. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. Only submit on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

E. Submit product data for:

1. Hangers and Supports for Plumbing Piping and Equipment.
2. Vibration and Seismic controls for Plumbing Piping and Equipment.
3. Identification for Plumbing Piping and Equipment.

F. Provide shop drawings with calculations for selection of seismic/wind restraints in accordance with IBC and ASCE 7, certified by a qualified professional engineer, licensed in the State of Alaska. Seismic calculations shall be based upon Seismic Category D. All components shall utilize an IP of 1.0 for seismic calculations.

7.1 OPERATING AND MAINTENANCE MANUALS

A. See General Conditions and the General Requirements in Division 01 regarding Operating and Maintenance Manuals.

B. Submit maintenance manuals to the Engineer covering all equipment, fixtures, devices, etc. installed by the Contractor.

C. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The Operation and maintenance manuals shall be provided in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. The manual shall contain, but not limited to, the following types of information:

1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
2. Catalog cuts of all equipment, fixtures, etc. installed (Marked to identify the specific items used).
3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.
4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. All manufacturers' warranties and guarantees.
6. Contractors Warranty Letter.

8.1 HANDLING

A. See General Conditions and the General Requirements in Division 01 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

9.1 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 01 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 01, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible

with existing equipment. The [Owner]Architect/Engineer shall be the final authority regarding acceptability of substitutes.

10.1 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences, which may be found, shall be submitted to the [Owner]Architect/Engineer for consideration before proceeding with the work.

11.1 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer, unless specifically called out otherwise. Advise the Architect/Engineer of any such conflicts before installation.

12.1 PERMITS, FEES, ETC.

A. The Contractor under each Division of these specifications shall arrange for a permit from the local authority. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these specifications.

13.1 TESTING

A. The Contractor under each section shall perform the various tests as specified and required by the Architect, Engineer and as required by applicable code, the State and local authorities. The Contractor shall furnish all labor, fuel and materials necessary for making tests.

14.1 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" convey a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

15.1 SCHEDULE OF WORK

A. The work under the various sections must be expedited and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting scheduled completion dates, and to avoid delaying any other trade. The Architect will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process work so as to ensure the proper execution of it.

16.1 COOPERATION AND CLEANING UP

A. The Contractor for the work under each section of the specifications shall coordinate the Contractors work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on the work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the Architect, clear any designated areas or area of materials and debris. On completion of any

portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

17.1 WARRANTY

A. Unless a longer warranty is hereinafter called for, all work, materials and equipment items shall be warrantied for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Architect/Engineer, shall be repaired and/or replaced to the complete satisfaction of the Architect/Engineer. Guarantee shall be in accordance with Division 01.

18.1 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 01, Project Closeout; before acceptance and final payment, the Contractor shall furnish:

1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
2. Contractors One Year Warranty.
3. All Manufacturers' Guarantees.
4. Operation and Maintenance Manuals.

PART 2 PRODUCTS

1.1 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.1 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed.

B. No solder or flux containing lead shall be used on this project.

C. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be "lead free" in accordance with the Safe Drinking Water Act, Section 1417. "Lead free" materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61.

D. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

3.1 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

A. Plastic Nameplates: Laminated plastic with engraved letters.

B. Plastic Tags: Laminated plastic with engraved letters, minimum 1-1/2 inches diameter.

C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering.

D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

E. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, for direct burial service.

4.1 PIPE HANGERS AND SUPPORTS

A. Acceptable Manufacturers:
   1. Anvil.
   2. B-Line Systems, Inc.
   3. Erico.
   4. PHD Manufacturing, Inc.
   5. Tolco.

B. Plumbing Piping - Water:
   1. Conform to ANSI/MSS SP58.
   2. Hangers for Pipe Sizes ½ to 1-½ Inch: Malleable iron or carbon steel, adjustable swivel, split ring.
   3. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
   4. Copper Pipe Support: Carbon steel ring, adjustable, copper plated with neoprene isolation pad.
   5. Design hangers to allow installation without disengagement of supported pipe.
   6. Copper Plating: All hanger elements in metal-to-metal contact with copper pipe, except hanger rings with factory-applied 1/16 inch minimum thick plastic or tape cushion strip over all contact surfaces.

C. Shield for Insulated Piping 1-½ Inches and Smaller: 18 gauge galvanized steel shield over insulation in 180º segments, minimum 12 inches long at pipe support.

D. Shields for Vertical Copper Pipe Risers: Galvanized steel pipe.

5.1 HANGER RODS

A. Steel Hanger Rods: Mild steel, threaded both ends, threaded one end, or continuous threaded. Minimum Hanger Rod Sizes:

PIPE AND TUBE SIZE (INCHES)	ROD SIZE (INCHES)
¼-4	3/8
5-8	1/2
10-12	5/8

6.1 ANCHOR BOLTS

A. Anchor (Expansion) Bolts: Shall be carbon steel to ASTM A 307; nut shall conform to ASTM A194; shall be drilled-in type. Design values for shear and tension shall be not more than 80 percent of the allowable load.

7.1 EQUIPMENT CURBS

A. Fabricate curbs of concrete, unless specifically called out otherwise.

8.1 FLASHING

A. Metal Flashing: 26-gauge minimum galvanized steel.

B. Metal Counter Flashing: 22 gauge minimum galvanized steel.

C. Flexible Flashing: 47-mil thick sheet butyl, compatible with roofing.

D. Caps: Steel, 22-gauge minimum; 16 gauge at fire resistant elements.

9.1 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

C. Caulk: Fire stop sealant in compliance with ASTM E814, UL 1479 and Division 07.

10.1 ACCEPTABLE MANUFACTURERS: SEISMIC RESTRAINT

A. Vibration isolators and Seismic Restraint shall be manufactured by:

1. Amber/Booth.
2. Cooper Industries.
3. International Seismic Application Technology.
4. Kinetics Noise Control.
5. Mason Industries.
6. Vibro-Acoustics.
7. Substitutions: Items of same function and performance are acceptable in conformance with Division 01.

11.1 SEISMIC BRACING AND SUPPORT OF SYSTEMS AND COMPONENTS

A. General:

1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.
4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the applicable building code and as summarized in installation requirements.
5. The total height of the structure (h) and the height of the system to be restrained within the structure (z) shall be determined in coordination with architectural plans and the General Contractor.

B. Friction from gravity loads shall not be considered resistance to seismic forces.

12.1 SEISMIC BRACING COMPONENTS

A. Steel strut shall be 1-5/8 inch wide in varying heights and mig-welded combinations as required to meet load capacities and designs indicated. A material heat code, part number, and manufacturer's name shall be stamped on all strut and fittings to maintain traceability to material test reports.

1. Material for epoxy painted strut: ASTM A1011, SS, Grade 33.
2. Material for pre-galvanized strut: ASTM A653, SS, Gr. 33.
3. Material for Hot-Dip Galvanized strut: ASTM A1011, SS, Grade 33 and hot-dip galvanized after fabrication in accordance with ASTM A123.
4. Material for fittings and accessories: ASTM A907 Gr. 33, Structural Quality or ASTM A1011, SS. Gr.33.
5. Fittings and accessories: Products shall be of the same manufacturer as strut and designed for use with that product.

PART 3 EXECUTION

1.1 DRAWINGS

A. The drawings are partly diagrammatic, not necessarily showing all offsets or exact locations of piping and ducts, unless specifically dimensioned. The contractor shall provide all materials and labor necessary for a complete and operable system. Complete details of the building which affect the mechanical installation may not be shown. For additional details, see Architectural, Structural, Civil and Electrical Drawings. Coordinate work under this section with that of all related trades.

2.1 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the IMC, UPC, IBC, NEC, NFPA, IECC, IFGC and IFC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

3.1 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment and fixtures on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, equipment, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with current ADA and ANSI 117.1 standards.

4.1 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Plumbing Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of [eight] [four] hours of onsite instruction to the owner designated personnel.

C. When required by individual specification sections provide additional training on plumbing systems and equipment as indicated in the respective specification section.

D. Provide schedule for training activities for review prior to start of training.

5.1 SYSTEM ADJUSTING

A. Each part of each system shall be adjusted and readjusted as necessary to ensure proper functioning of all plumbing systems. Test all plumbing equipment, fixtures and piping for proper water distribution, drainage, pressure and flow, adjust systems as required to eliminate splashing, noise and vibration.

6.1 CUTTING, FITTING, REPAIRING, PATCHING AND FINISHING

A. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

B. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for piping.

C. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

7.1 PAINTING

A. Perform all of the following painting in accordance with provisions of Division 09 with colors as selected by the Architect. Provide the following items as a part of plumbing work:

1. Factory applied prime and finish coats on plumbing equipment.
2. Factory applied prime coat on access doors.
3. Pipe identification where specified.

B. If factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

8.1 IDENTIFICATION

A. Tag all valves with heat resistant laminated plastic labels or brass tags engraved with readily legible letters. Securely fasten to the valve stem or bonnet with beaded chain. Provide a framed, typewritten directory under glass, and installed where directed. Provide complete record drawings that show all valves with their appropriate label. Seton 250-BL-G, or 2961.20-G, 2" round or equal.

B. Label all equipment with heat resistant laminated plastic labels having engraved lettering ½" high. If items are not specifically listed on the schedules, consult the Engineer concerning designation to use. Seton engraved Seton-Ply nameplates or equal.

C. Identify piping to indicate contents and flow direction of each pipe exposed to view by a labeled sleeve in letters readable from floor at least once in each room and at intervals of not more that 20' apart and on each side of partition penetrations. Coloring scheme in accordance with ANSI A13.1-1981, Seton Opti-Code or equal.

9.1 PIPE HANGERS AND SUPPORTS

A. Support plumbing piping in accordance with the latest adopted edition of the UPC.

B. Support horizontal piping as follows:

MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
PEX	Cold Expansion, Insert and Compression	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion weld (socket, butt, saddle, electrofu-sion), threaded (metal threads only), or me-chanical	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet[7]	Base and each floor; provide mid-story guides[7]

Notes:
[7] See manufacturer installation instructions for additional requirements.

C. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

D. Place a hanger within 12 inches of each horizontal elbow.

E. Use hangers with 1-½ inch minimum vertical adjustment.

F. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

H. Provide transverse seismic support for all piping systems.

10.1 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of where shown on plans and where required by equipment manufacturer installation instructions.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Provide housekeeping pads of concrete, minimum 6 inches thick and extending 6 inches beyond supported equipment anchors.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

E. Anchor (Expansion) Bolts: Install anchor bolts for all plumbing piping and equipment as required. Tightly fit and clamp base-supported equipment anchor bolts at all equipment support points. Provide locknuts where piping and equipment is hung. Install anchor (expansion) bolts in holes drilled in concrete where necessary to hang piping or equipment, or to anchor stationary equipment from existing concrete slabs.

11.1 FLASHING

A. Provide flexible flashing and metal counter-flashing where piping penetrates weather or waterproofed walls, floors, and roofs. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash and seal.

12.1 SLEEVES

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Set sleeves in position in construction. Provide reinforcing around sleeves.

C. Where piping penetrates floor, ceiling, or wall, install sleeve, close off space between pipe and adjacent work with fire stopping insulation and caulk seal.

13.1 SEISMIC RESTRAINT

A. General:

1. All piping and equipment shall be restrained to resist seismic/wind forces per the applicable building code(s) as a minimum. Restraint attachments shall be made by bolts, welds or a positive fastening method. Friction shall not be considered. All attachments shall be proven capable of accepting the required wind load by calculations. Additional requirements specified herein are included specifically for this project.

2. Install seismic and wind restraint devices per the manufacturer's submittals. Any deviation from the manufacturer's instructions shall be reviewed and approved by the manufacturer.

3. Attachment to structure for suspended pipe and equipment: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.

4. Wall penetrations may be used as bracing locations provided the wall can provide adequate resistance without significant damage.

5. Coordinate sizes and locations of cast-in-place inserts for post-tensioned slabs with seismic restraint manufacturer.

6. Provide hanger rod stiffeners where indicated or as required to prevent buckling of rods due to seismic forces.

7. Where rigid restraints are used on equipment or piping, support rods for the equipment or piping at restraint locations must be supported by anchors rated for seismic use. Post-installed concrete anchors must be in accordance with ACI 355.2.

8. Ensure housekeeping pads have adequate space to mount equipment and seismic restraint devices and shall also be large enough to ensure adequate edge distance for restraint anchor bolts to avoid housekeeping pad breakout failure.

B. Concrete Anchor Bolts:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid pre- or post-tensioned tendons, electrical and telecommunications conduit, and gas lines.

2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Mechanical Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.

C. Equipment Restraints:
1. Seismically restrain equipment all equipment. Install fasteners, straps and brackets as required to secure the equipment.
2. Install seismic snubbers on HVAC equipment supported by floor-mounted, non-seismic vibration isolators. Locate snubbers as close as possible to vibration isolators and attach to equipment base and supporting structure as required.
3. Install neoprene grommet washers on equipment anchor bolts where clearance between anchor and equipment support hole exceeds 1/8" (3.2 mm).
4. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

D. Install restraint cables so they do not bend across edges of adjacent equipment or building structure.

E. Install flexible piping connectors where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment.

F. Coordinate seismic restraints with thermal expansion compensators, guides and anchor points. Thermal expansion anchor points shall be designed to accommodate seismic forces.

14.1 INSTALLATION OF EQUIPMENT

A. Unless otherwise indicated, mount all equipment and install in accordance with manufacturer's recommendations and approved submittals.

B. Maintain manufacture recommended minimum clearances for access and maintenance.

C. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

D. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in manufacturer's catalog.

E. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all equipment furnished under this Contract.

F. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, controls, etc.

END OF SECTION

SECTION 220700

PLUMBING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping Insulation.

B. Equipment Insulation.

C. Jackets and Accessories.

1.02 RELATED WORK

A. Division 09 - Painting: Painting Insulation Jacket.

B. Section 22 05 00 - Common Work Results for Plumbing.

C. Section 22 10 00 - Plumbing Piping.

D. Section 22 30 00 - Plumbing Equipment.

1.03 REFERENCES

A. ASTM B209 - Aluminum and Aluminum-alloy Sheet and Plate.

B. ASTM C450 - Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.

C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

D. ANSI/ASTM C533 - Calcium Silicate Block and Pipe Thermal Insulation.

E. ANSI/ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.

F. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation.

G. ANSI/ASTM C552 - Cellular Glass Block and Pipe Thermal Insulation.

H. ANSI/ASTM C553 - Mineral Fiber Blanket Thermal Insulation.

I. ANSI/ASTM C578 – Rigid, Cellular Polystyrene Thermal Insulation.

J. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).

K. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

L. ASTM C1136 - Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

M. ASTM C1427 – Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.

N. ASTM D635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.

O. ASTM E84 – Test Method for Surface Burning Characteristics of Building Materials.

P. ASTM E96 - Test Methods for Water Vapor Transmission of Materials.

Q. UL 723 – Test for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include product description, thermal performance, thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

A. Applicator: Company specializing in piping insulation application with three years minimum experience.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Materials: Flame spread/smoke developed rating of 25/50 in accordance with UL 723, or ASTM E84.

D. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

1.06 DELIVERY STORAGE AND HANDLING

A. Division 01 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Shipment of materials from manufacturer to installation location shall be in weather tight transportation.

D. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

1.08 FIELD MEASURMENTS

A. Verify field measurements prior to fabrication.

1.09 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Johns Manville

B. Owens Corning

C. IMCOA.

D. K-Flex USA.

E. Substitutions: Under provisions of Division 01.

2.02 INSULATION - PIPING

A. Type A: Glass fiber, rigid, molded, non-combustible insulation; ANSI/ASTM C547; 'k' value of 0.23 at 75º F, rated from 0º F to 850º F, vapor retarder jacket of Kraft paper bonded to aluminum foil, self-sealing lap and butt strips; Johns Manville "Micro-Lok" or approved equal.

B. Type B: Expanded polystyrene; ANSI/ASTM C578; rigid closed cell; maximum water vapor transmission rating of 0.1 perms; 'k' value of 0.23 at 75º F.

C. Type C: Flexible unicellular polyolefin; ASTM C1427; 'k' value of 0.25 at 75º F ASTM C518; moisture vapor transmission of zero perm-inch ASTM E96; rated to 210º F; IMCOA “Imcolock” or approved equal.

D. Type D: Elastomeric foam; EPDM-based closed-cell flexible foam, ASTM C534; flexible cellular elastomeric in sheet or pre-formed tube, ’k’ value of 0.26 at 75º F, max. service temp - 300º F, ASTM C534; max. flame spread = 50, max. smoke developed = 50, ASTM E84; UV-resistant coating/jacketing if exposed to sunlight; K-FLEX USA “Insul-Tube”, or approved equal.

2.03 INSULATION - EQUIPMENT

A. Type E: Reusable Valve Wrap Insulation Covers: Removable and reusable wraps packaged with a 1” thick fiberglass blanket insert to completely cover the insulated equipment. The outer cover of the shall be made of DuPont Tychem® QC that is secured with a Velcro closure. Tychem® QC consists of a durable Tyvek® substrate quality coated with polyethylene that is impermeable to water. K= .28 @ 100º F; Temperature Limits 0°F to 450°F; Water Vapor Transmission ASTM E 96 0.01 Perms at 37.8C/100F-RH/100%; Breaking Strength Grab (md/cd) ASTM D5034-90 43/49 lbs; Tearing Strength Trapezoid (md/cd) ASTM D1117-80 7/5 lbs; Weatherable Grade; UV resistant; White/gloss finish; UL25/50 rating and are non-combustible per ASTM E 136. NOSWEAT Reusable Valve Wraps or approved equal.

2.04 FIELD APPLIED JACKET

A. PVC Jackets and solvent welding adhesive: One piece, pre-molded type, Johns Manville “Zeston 2000”, fitting covers and jacketing material. Johns Manville “Perma-Weld” solvent welding adhesive.

2.05 INSULATION ACCESSORIES

A. Adhesives: Waterproof and fire-retardant type.

B. Joint Tape: Glass fiber cloth, open mesh.

C. FSK Joint Tape; ASTM C1136 Foil-Scrim-Kraft (FSK) lamination coated with solvent acrylic pressure sensitive adhesive; capable of adhering to fibrous and sheet metal surfaces; tri-directionally reinforced 2x3 squares per inch fiberglass scrim; 9.5 mils thick, -40 to 240º F service temperatures; Venture Tape “1525CW” or approved equal.

D. Tie Wire: Annealed steel, 16 gauge.

E. Insulated pipe supports: Calcium silicate with galvanized steel jacket (min. 24 gauge); ANSI/ASTM C533; rigid white; 'k' value of 0.37 at 100º F, rated to 1,200º F; Thermal Pipe Shields “T-2000 Calsil” or equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Install materials after piping and equipment has been tested and approved.

B. Clean surfaces for adhesives.

C. Prepare surfaces in accordance with manufacturer's recommendations.

3.02 INSTALLATION - PIPING

A. Install materials in accordance with manufacturer's recommendations, building codes and industry standards.

B. Continue insulation vapor barrier through penetrations except where prohibited by code.

C. Locate insulation and cover seams in least visible locations.

D. Neatly finish insulation at supports, protrusions, and interruptions.

E. Provide insulated cold pipes conveying fluids below ambient temperature with vapor retardant jackets with self-sealing laps. Insulate complete system, including under fitting jackets.

F. For insulated pipes conveying fluids above ambient temperature, secure jackets with self-sealing lap or outward clinched, expanded staples. Bevel and seal ends of insulation at equipment, flanges, and unions. Insulate complete system, including under fitting jackets.

G. Provide insulated piping supports on piping 1-½" inches diameter larger. Insulated piping supports shall not be less than the following lengths:

1-½" to 2-½" pipe size	10" long

H. Fully insulate all piping including all spaces under jacketing.

I. Jackets:

For pipe exposed in mechanical equipment rooms or in finished spaces below 10 feet above finished floor, finish with PVC jacket and fitting covers or metal jacket.

3.03 SCHEDULE – PIPING

PIPING	TYPE	PIPE SIZE INCH	MINIMUM INSULATION THICKNESS INCH
Domestic Cold Water	A,B,C,D	All Sizes	1”
Vent Through Roof	A,B,C,D	All Sizes	1”

3.04 INSTALLATION - EQUIPMENT

A. Install materials in accordance with manufacturer's instructions.

B. Do not insulate factory insulated equipment.

C. Apply insulation as close as possible to equipment by grooving, scoring, and beveling insulation, if necessary. Secure insulation to equipment with studs, pins, clips, adhesive, wires, or bands. Minimum 2" overlap on blanket material.

D. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor barrier cement.

E. Do not insulate over nameplate or ASME stamps. Bevel and seal insulation around such.

F. When equipment with insulation requires periodical opening for maintenance, repair, or cleaning, install insulation in such a manner that it can be easily removed and replaced without damage.

3.05 SCHEDULE - EQUIPMENT

EQUIPMENT	INSULATION TYPE	THICKNESS INCH
Domestic Cold Water Valves	E	1"

END OF SECTION

SECTION 221000
PLUMBING PIPING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Water Piping.

B. Valves.

C. Backflow Preventers.

D. Water Hammer Arrestors.

E. Cleanouts.

F. Electric Trap Primer.

1.02 RELATED WORK

A. Section 220500 - Common Work Results for Plumbing.

B. Section 223000 - Plumbing Equipment.

1.03 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be “lead free” in accordance with the Safe Drinking Water Act, Section 1417. “Lead free” materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include data on pipe materials, pipe fittings, valves and accessories.

1.05 WARRANTY

A. Polypropylene pipe and fittings shall be covered by a factory warranty for 30 years to be free of defects in materials or manufacturing.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Store and protect products under provisions of Division 01.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 PRODUCTS

2.01 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74 service weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets.

B. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies, Husky Series SD 4000 or approved equal.

C. ABS Schedule 40 Cellular Core (Foam Core) Pipe: Pipe and fittings shall be manufactured from ABS compound with a cell class of 42222 for pipe and 32222 for fittings as per ASTM D 3965 and conform with National Sanitation Foundation (NSF) standard 14. ASTM D 2661 Fittings. Joints: ASTM D 2235 solvent welded.

D.

2.02 DOMESTIC WATER PIPING, ABOVE GRADE

A. Polypropylene Pipe:

1. Polypropylene (PP-RCT) piping in SDR 11 accordance ASTM F2389. Pipe shall be shall have NSF 14 and 61 listings for potable water use.
2. Pipe and fittings shall be manufactured from a beta crystalline PP-RCT resin meeting the short-term properties and long-term strength requirements of ASTM F 2389 and CSA B137.11. The piping shall be extruded with a middle layer that has glass fiber content to restrict thermal expansion.
3. Fittings shall be manufactured from a PP-RCT resin meeting the short-term properties and long-term strength requirements of ASTM F 2389. All fittings shall comply with NSF 14, ASTM F 2389 and CSA B137.11. Fittings may be either socket fusion through nominal 5 inch, electrofusion through 8 inch or butt fusion in nominal 2 inch through 24 inch sizes. Electrofusion may also be performed in nominal sizes 10 inch through 24 inch by means of the use of electrofusion couplings as applied on butt fusion fittings and pipe.
4. Acceptable Manufacturers: Aquatherm, Nupi.

2.03 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 2 Inches and Under: 150 psig malleable iron unions..

2.04 ACCEPTABLE MANUFACTURERS - ALL VALVE TYPES

A. Apollo.

B. FNW.

C. Hammond.

D. Milwaukee.

E. NIBCO.

F. Red-White Valve Corp.

G. Substitutions: Under provisions of Division 01.

2.05 BALL VALVES

A. Up to 2 Inches: 600 PSI CWP Lead free bronze two piece body, full port, forged lead free brass ball, Teflon seats and adjustable packing, lever handle, solder, threaded or press-fit ends.

2.06 SWING CHECK VALVES

A. Up to 2 Inches: 200 PSI CWP lead free bronze swing with PTFE disc, solder, screwed or press-fit ends.

2.07 SPRING LOADED CHECK VALVES

A. Up to 2 inches: 250 PSI CWP Lead free bronze spring loaded with PTFE seat, solder, screwed or press fit ends.

2.08 WATER PRESSURE REDUCING VALVES

A. Up to 2 Inches: Lead free cast copper silicon alloy, stainless steel and thermoplastic internal parts, reinforced EPDM diaphragm and valve disk, stainless steel strainer, NPT or solder ends. Watts Regulator LF123LP series or approved equal.

2.09 ACCEPTABLE MANUFACTURERS - BACKFLOW PREVENTERS

A. Watts.

B. Febco.

C. Colt.

D. Substitutions: Under provisions of Division 01.

2.10 BACKFLOW PREVENTERS

A. General: Backflow preventers shall conform to the applicable requirements of AWWA C510. Furnish a certificate of Full Approval or a current Certificate of Approval for each design, size, and make of backflow preventer being provided for the project. The certificate shall be from the

Foundation for Cross- Connection Control and Hydraulic Research, University of Southern California, and shall attest that this design, size, and make of backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. A Certificate of Provisional Approval is not acceptable in lieu of the above. IAPMO (UPC) approved.

B. Reduced Pressure Backflow Preventers: ANSI/ASSE 1013; FDA approved epoxy coated cast iron (4" or larger) or bronze body (3" and smaller) with bronze and stainless steel internal parts and stainless steel springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve which opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks; Watts Regulator Series 909 or approved equal.

2.11 ACCEPTABLE MANUFACTURERS - WATER HAMMER ARRESTORS

A. J.R. Smith.

B. Zurn.

C. Mifab.

D. Substitutions: Under provisions of Division 01.

2.12 WATER HAMMER ARRESTORS

A. ANSI A112.26.1; sized in accordance with PDI WH-201, pre-charged suitable for operation in temperature range -100ºF to 300ºF and maximum 250 psig working pressure; Series 5000 manufactured by J.R. Smith or approved equal.

2.13 DRAIN VALVES

A. Bronze body, chrome plated brass ball, RPTFE seals and stuffing box ring, stainless steel handle with vinyl cover. 3/4” NPT x 3/4” Hose thread, with duct cover and chain, sweat ends. Apollo 78-100 Series or approved equal.

2.14 ACCEPTABLE MANUFACTURERS - CLEANOUTS

A. J.R. Smith.

B. Zurn.

C. Mifab.

D. Substitutions: Under provisions of Division 01.

2.15 CLEANOUTS

A. Exterior Surfaced Areas: Round cast iron access frame and non-skid cover, bronze plug, vandal resistant screws. J.R. Smith Model 4251 or approved equal.

2.16 ACCEPTABLE MANUFACTURERS – TRAP PRIMER VALVES

A. Precision Plumbing Products, Inc.

B. Mifab.

C. Zurn.

D. Substitutions: Under provisions of Division 01.

2.17 ELECTRONIC TRAP PRIMERS

A. Electronic Trap Primer: Trap primer as manufactured by Precision Plumbing Products or equal. Surface mounted in NEMA-1 cabinet with cover plate. UL listed. Provide manifold with number of connections as indicated on the drawings. Precision Plumbing Products, Inc. Model MPB-500 or approved equal.

2.18 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

2.19 INSTALLATION

A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

B. Route piping in orderly manner and maintain gradient.

C. Install piping to conserve building space and not interfere with use of space.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors.

H. Slope water piping and arrange to drain at low points.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

J. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.

K. Install valves with stems upright or horizontal, not inverted.

L. Install water hammer arrestors complete with accessible isolation valve.

M. Support all piping in accordance with Uniform Plumbing Code and Manufacturer installation instructions. Where there is a conflict between requirements of the Uniform Plumbing Code and Manufacturer installation instructions, the more restrictive requirement shall apply.

N. Polypropylene piping shall not be installed in any locations used as a return air plenums. Transition to copper or steel piping prior to routing piping through a return air plenum.

O. Fusion Welding of Joints for Polypropylene Piping:

1. Install fittings and joints using socket-fusion, electro-fusion, or butt-fusion as applicable for the fitting or joint type. All fusion-weld joints shall be made in accordance with the pipe and fitting manufacturer's specifications and product standards.

2. Fusion-weld tooling, welding machines, and electrofusion devices shall be as specified by the pipe and fittings manufacturer.

3. Prior to joining, the pipe and fittings shall be prepared in accordance with ASTM F 2389 and the manufacturer's specifications.

4. Joint preparation, setting and alignment, fusion process, cooling times and working pressure shall be in accordance with the pipe and fitting manufacturer's specifications.

2.20 APPLICATION

A. Install unions downstream of valves and at equipment connections.

B. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install ball valve valves for throttling, bypass, or manual flow control services. (No globe valves permitted.)

2.21 TESTING

A. Test all water piping in accordance with Section 609 of the UPC. Submit a signed statement to the Engineer stating testing dates, procedure and initials of tester. The test pressure for a hydrostatic test shall be 1.5 times the design pressure or 150 psi, whichever is greater, and for an air test shall be 1.1 times the design pressure or 150 psi, whichever is greater.

2.22 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush, clean and disinfect the potable water system in accordance with Section 609 of the UPC. Submit a signed statement to the Engineer stating disinfection dates, procedure and initials of tester.

2.23 SERVICE CONNECTIONS

A. Provide new water service complete with reduced pressure backflow preventor and water meter with by-pass valves. Provide 18 gauge galvanized sheet metal sleeve around service main to 6 inch above floor. Size for minimum of 2 inches of insulation around piping. Provide close fitting galvanized sheet metal escutcheon. Seal water tight.

END OF SECTION

SECTION 224000
PLUMBING FIXTURES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Floor Drains.

B. Catch Basins.

C. Hose Bibbs.

D. Hub Drains.

1.02 RELATED WORK

A. Section 220500 - Common Work Results for Plumbing.

B. Section 220529 - Hangers and Supports for Plumbing Piping and Equipment.

C. Section 220800 - Commissioning of Plumbing.

D. Section 221000 - Plumbing Piping.

E. Section 223000 - Plumbing Equipment.

1.03 REFERENCES

A. ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.

B. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.

C. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.

D. ANSI A112.21.1 - Floor Drains.

1.04 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

B. Trim: By same manufacturer for each product specified throughout.

1.05 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include sizes, rough-in requirements, service sizes, and finishes.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include fixture trim exploded view and replacement parts lists.

C. Provide Manufacturer's parts list and maintenance information on specialties.

1.07 WARRANTY

A. Provide manufacturer's warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 ANGLE STOPS AND SUPPLY RISERS

A. Quarter-turn lead free brass ball valve with convertible loose key handle, chrome plated copper, or braided stainless supply risers and chrome plated brass escutcheons.

2.02 ACCEPTABLE MANUFACTURERS - FLOOR DRAINS, DRAINS, INTERCEPTORS AND ACCESSORIES

A. J.R. Smith.

B. Zurn.

C. Josam.

D. Mifab.

E. Substitutions: Under provisions of Division 01.

2.03 FLOOR DRAINS

A. FD-1: ANSI A112.21.1; lacquered cast-iron two-piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer and trap primer connection as indicated; Model 2005-A manufactured by J.R. Smith.

2.04 ACCEPTABLE MANUFACTURERS - CATCH BASINS

A. J.R. Smith.

B. Zurn.

C. Substitutions: Under provisions of Division 01

2.05 CATCH BASINS

A. FS-1: Polyester resin fiberglass catch basin, Duco coated steel frame with integral installation brackets and secured galvanized steel grate, 8" pipe adaptor; Model 9812-880-CB24 manufactured by J.R. Smith.

2.06 ACCEPTABLE MANUFACTURERS – HUB DRAINS

A. J.R. Smith.

B. Zurn.

C. Substitutions: Under provisions of Division 01

2.07 HUB DRAINS

A. HD-1: 4" outlet (6" dia. top size), Type 304 stainless steel hub drain with schedule 10 buttweld outlet; Model 9654 manufactured by J.R. Smith.

2.08 ACCEPTABLE MANUFACTURERS - HOSE BIBBS

A. Woodford.

B. J.R. Smith.

C. Josam.

D. Mifab.

E. Substitutions: Under provisions of Division 01.

2.09 HOSE BIBBS

A. Exterior Hose Bibb (HB-1): ANSI/ASSE 1019; non-freeze, self-draining type with chrome plated lockable recessed box hose thread spout, removable key, and vacuum breaker in conformance with ANSI/ASSE 1011; Model B65 manufactured by Woodford.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate forming of floor construction to receive drains to required invert elevations.

3.02 INSPECTION

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

B. Verify adjacent construction is ready to receive rough-in work of this Section.

3.03 INSTALLATION

A. Install each fixture with removable p-trap for servicing and cleaning.

B. Provide angle stop and supply risers at each fixture. Provide chrome plated escutcheons for both hot and cold water supplies and waste piping.

C. Install components level and plumb

D. Install and secure fixtures in place with wall or floor carriers, supports as per the manufacturer’s instructions.

E. Solidly attach floor mounted water closets to toilet flange with non-corroding t-bolts, washers and acorn nuts.

F. Seal fixtures to wall and floor surfaces with silicone sealant, color to match fixture.

G. Mount fixtures above finished floor in accordance with Architectural.

H. Install specialties in accordance with manufacturer's instructions to permit intended performance.

3.04 ADJUSTING AND CLEANING

A. Adjust stops, valves or flow control valves for intended water flow rate to fixtures without splashing, noise, or overflow.

B. Remove and clean all aerators and filters from faucets and other plumbing fixtures after the domestic water system has been tested, flushed and disinfected as per Section 221000.

C. At completion remove all visible stickers and tags not intended to be left in place, thoroughly clean all surfaces of plumbing fixtures.

END OF SECTION

SECTION 230500
COMMON WORK RESULTS FOR HVAC

PART 1 GENERAL

1.01 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to this work.

1.02 WORK INCLUDED

A. The work to be included in these and all other mechanical subsections shall consist of providing, installing, adjusting and setting into proper operation complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 01 of the specifications is to be specifically included as well as all related drawings.

1.03 RELATED WORK

A. Related Work Specified Elsewhere:

1. Fire Suppression Specifications: Division 21.
2. Plumbing Specifications: Division 22.
3. Electrical Specifications: Division 26.
4. Motors and Connections: Division 26.
5. Starters and Disconnects: Division 26.

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all mechanical equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric switches, electrical components, wiring and any other miscellaneous Division 23 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

1.04 REFERENCED CODES - LATEST ADOPTED EDITION

A. NFPA 70 National Electrical Code (NEC).

B. IMC International Mechanical Code.

C. UPC Uniform Plumbing Code.

D. IFC International Fire Code.

E. IBC International Building Code.

1.05 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 01, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

C. Show the location of all valves and their appropriate tag identification.

D. At completion of project, deliver these drawings to the Owner and obtain a written receipt.

1.06 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be provided in electronic PDF Format. The data in the electronic

file shall be arranged and indexed under basic categories in order of the Specification Sections. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. Only submit on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

E. Submit product data for:

1. Hangers and Supports for HVAC Piping and Equipment.
2. Vibration and Seismic controls for HVAC Piping, Ductwork and Equipment.
3. Identification for HVAC Piping, Ductwork and Equipment.

F. Provide shop drawings with calculations for selection of seismic/wind restraints in accordance with IBC and ASCE 7, certified by a qualified professional engineer, licensed in the State of Alaska. Seismic calculations shall be based upon Seismic Category D. All components shall utilize an IP of 1.0 for seismic calculations.

1.07 OPERATING AND MAINTENANCE MANUALS

A. See General Conditions and the General Requirements in Division 01 regarding Operating and Maintenance Manuals.

B. Submit maintenance manuals to the Engineer covering all equipment, devices, etc. installed by the Contractor.

C. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The Operation and maintenance manuals shall be provided in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. The manual shall contain, but not limited to, the following types of information:

1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
2. Catalog cuts of all equipment, etc. installed (Marked to identify the specific items used).
3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.
4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. All manufacturers' warranties and guarantees.
6. Contractors Warranty Letter.

1.08 HANDLING

A. See General Conditions and the General Requirements in Division 01 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

1.09 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 01 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 01, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment. The Owner/Engineer shall be the final authority regarding acceptability of substitutes.

1.10 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences, which may be found, shall be submitted to the Owner/Engineer for consideration before proceeding with the work.

1.11 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed, and handled as recommended by the manufacturer, unless specifically called out otherwise. Advise the Owner/Engineer of any such conflicts before installation.

1.12 PERMITS, FEES, ETC.

A. The Contractor under each Division of these specifications shall arrange for a permit from the local authority. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these specifications.

1.13 TESTING

A. The Contractor under each section shall perform the various tests as specified and required by the Architect, Engineer and as required by applicable code, the State and local authorities. The Contractor shall furnish all labor, fuel and materials necessary for making tests.

1.14 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

1.15 SCHEDULE OF WORK

A. The work under the various sections must be expedited and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting scheduled completion dates, and to avoid delaying any other trade. The Architect will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process work so as to ensure the proper execution of it.

1.16 COOPERATION AND CLEANING UP

A. The Contractor for the work under each section of the specifications shall coordinate the Contractors work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on the work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the Architect, clear any designated areas or area of materials and debris. On completion of any portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

1.17 WARRANTY

A. Unless a longer warranty is hereinafter called for, all work, materials and equipment items shall be warrantied for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Owner/Engineer, shall be repaired and/or replaced to the complete satisfaction of the Owner/Engineer. Guarantee shall be in accordance with Division 01.

1.18 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 01, Project Closeout; before acceptance and final payment, the Contractor shall furnish:

1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
2. Contractors One Year Warranty.
3. All Manufacturers' Guarantees.
4. Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.01 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.02 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed.

B. No solder or flux containing lead shall be used on this project.

C. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

2.03 ELECTRICAL MOTORS

A. Motors: Furnish electric motors designed for the specific application and duty applied, and to deliver rated horsepower without exceeding temperature ratings when operated on power systems with a combined variation in voltage and frequency not more than + 10% of rated voltage. Motors for pumps and fans shall be selected to be non-overloading.

B. Verify from the drawings and specifications the available electrical supply characteristics and furnish equipment that will perform satisfactorily under the conditions shown and specified.

C. All motors for use with equipment with variable frequency drives shall be inverter ready motors. Verify compatibility and sizing of motor with variable frequency drive.

D. Size motors for 1.15 service factor and not to exceed 40º C temperature rise above ambient.

E. Fractional horsepower motors to have self-resetting thermal overload switch.

F. Provide Premium Efficiency, motors for all three phase motors one horsepower and larger. Standard efficiency motors will not be acceptable.

2.04 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

A. Plastic Nameplates: Laminated plastic with engraved letters.

B. Plastic Tags: Laminated plastic with engraved letters, minimum 1-1/2 inches diameter.

C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering.

D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

2.05 PIPE HANGERS AND SUPPORTS

A. Acceptable Manufacturers:

1. Anvil.
2. PHD Manufacturing, Inc.
3. Michigan Hanger Company.
4. B-Line Systems, Inc.

B. Design hangers to allow installation without disengagement of supported pipe.

C. Strut Type Pipe Hanging System: Unistrut P-1000 series; framing members shall be No. 12 gage formed steel channels, 1-5/8 inch square, conforming to ASTM A 653 GR33, one side of channel shall have a continuous slot with inturned lips; framing nut with grooves and spring 1/2 inch size, conforming to ASTM 675 GR60; screws conforming to ASTM A 307; fittings conforming to ASTM A 575; all parts enamel painted or electro-galvanized.

2.06 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, or continuous threaded.

2.07 ANCHOR BOLTS

A. Anchor (Expansion) Bolts: Shall be carbon steel to ASTM A 307; nut shall conform to ASTM A194; shall be drilled-in type. Design values for shear and tension shall be not more than 80 percent of the allowable load.

2.08 FLASHING

A. Metal Flashing: 26-gauge minimum galvanized steel.

B. Metal Counter Flashing: 22 gauge minimum galvanized steel.

C. Flexible Flashing: 47-mil thick sheet butyl, compatible with roofing.

D. Caps: Steel, 22-gauge minimum; 16 gauge at fire resistant elements.

2.09 EQUIPMENT CURBS

A. Fabricate curbs of concrete, unless specifically called out otherwise.

2.10 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18 gauge galvanized steel for 4 inch diameter and larger, 22 gauge up to 3" diameter.

C. Caulk: Fire stop sealant in compliance with ASTM E814, UL 1479 and Division 07.

2.11 FORMED STEEL CHANNEL

A. Manufacturers:

1. Allied Tube & Conduit Corp.
2. B-Line Systems.
3. Midland Ross Corporation, Electrical Products Division
4. Unistrut Corp.
5. Subsitutions under provisions of Division 01.

B. Product Description: Galvanized 12 gauge (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

2.12 ACCEPTABLE MANUFACTURERS: SEISMIC RESTRAINT

A. Vibration isolators and Seismic Restraint shall be manufactured by:

1. Amber/Booth.
2. Cooper Industries.
3. International Seismic Application Technology.
4. Kinetics Noise Control.
5. Mason Industries.
6. Vibro-Acoustics
7. Substitutions: Items of same function and performance are acceptable in conformance with Division 01.

2.13 SEISMIC BRACING AND SUPPORT OF SYSTEMS AND COMPONENTS

A. General:

1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.
4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the applicable building code and as summarized in installation requirements.
5. The total height of the structure (h) and the height of the system to be restrained within the structure (z) shall be determined in coordination with architectural plans and the General Contractor.

B. Friction from gravity loads shall not be considered resistance to seismic forces.

2.14 SEISMIC BRACING COMPONENTS

A. Steel strut shall be 1-5/8 wide in varying heights and mig-welded combinations as required to meet load capacities and designs indicated. A material heat code, part number, and manufacturer's name shall be stamped on all strut and fittings to maintain traceability to material test reports.

1. Material for epoxy painted strut: ASTM A1011, SS, Grade 33.
2. Material for pre-galvanized strut: ASTM A653, SS, Gr. 33.
3. Material for Hot-Dip Galvanized strut: ASTM A1011, SS, Grade 33 and hot-dip galvanized after fabrication in accordance with ASTM A123.
4. Material for fittings and accessories: ASTM A907 Gr. 33, Structural Quality or ASTM A1011, SS. Gr.33.
5. Fittings and accessories: Products shall be of the same manufacturer as strut and designed for use with that product.

PART 3 EXECUTION

3.01 DRAWINGS

A. The drawings are partly diagrammatic, not necessarily showing all offsets or exact locations of piping and ducts, unless specifically dimensioned. The contractor shall provide all materials and labor necessary for a complete and operable system. Complete details of the building which affect the mechanical installation may not be shown. For additional details, see Architectural, Structural, Civil and Electrical Drawings. Coordinate work under this section with that of all related trades.

3.02 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the IMC, UPC, IBC, NEC, NFPA, IECC, IFGC and IFC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

D. Install in accordance with manufacturer's instructions.

3.03 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, ducts, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with current ADA and ANSI 117.1 standards.

3.04 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Mechanical Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of two hours of on site instruction to the owner designated personnel.

C. When required by individual specification sections provide additional training on HVAC systems and equipment as indicated in the respective specification section.

D. Provide schedule for training activities for review prior to start of training.

3.05 SYSTEM ADJUSTING

A. Each part of each system shall be adjusted and readjusted as necessary to ensure proper functioning of all controls, proper air distribution, elimination of drafts, noise and vibration.

3.06 CUTTING, FITTING, REPAIRING, PATCHING AND FINISHING

A. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

B. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for ducts and piping.

C. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

3.07 PAINTING

A. Perform all of the following painting in accordance with provisions of Division 09 with colors as selected by the Architect. Provide the following items as a part of mechanical work:

1. Factory applied prime and finish coats on mechanical equipment.
2. Factory applied prime and finish coat on all air registers, grilles and diffusers, unless otherwise specified.
3. Factory applied prime coat on access doors.
4. Pipe identification where specified.

B. If factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

3.08 IDENTIFICATION

A. Tag all valves with heat resistant laminated plastic labels or brass tags engraved with readily legible letters. Securely fasten to the valve stem or bonnet with beaded chain. Seton 250-BL-G, or 2961.20-G, 2” round or equal.

B. Label all equipment with heat resistant laminated plastic labels having engraved lettering ½" high. If items are not specifically listed on the schedules, consult the Engineer concerning designation to use. Seton engraved Seton-Ply nameplates or equal.

C. Identify piping to indicate contents and flow direction of each pipe exposed to view by a labeled sleeve in letters readable from floor at least once in each room and at intervals of not more that 20' apart and on each side of partition penetrations. Coloring scheme in accordance with ANSI A13.1-1981, Seton Opti-Code or equal.

3.09 PIPE HANGERS AND SUPPORTS

A. Support piping as follows:

Pipe Size	Max. Hanger Spacing	Hanger Diameter
½ to 1-¼ inch	6'-0"	3/8"

B. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-½ inch minimum vertical adjustment.

E. Support vertical piping at every floor.

F. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

3.10 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of where shown on plans and where required by equipment manufacturer installation instructions.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Provide housekeeping pads of concrete, minimum 6 inches thick and extending 6 inches beyond supported equipment anchors.

D. Anchor (Expansion) Bolts: Install anchor bolts for all mechanical equipment, piping and ductwork as required. Tightly fit and clamp base-supported equipment anchor bolts at all equipment support points. Provide locknuts where equipment, piping, and ductwork is hung. Install anchor (expansion) bolts in holes drilled in concrete where necessary to hang piping or ductwork, or to anchor stationary equipment from existing concrete slabs.

3.11 FLASHING

A. Provide flexible flashing and metal counter-flashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

3.12 SLEEVES

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Set sleeves in position in construction. Provide reinforcing around sleeves.

C. Where piping penetrates floor, ceiling, or wall, install sleeve, close off space between pipe and adjacent work with fire stopping insulation and caulk seal.

3.13 SEISMIC RESTRAINT

A. General:

1. All equipment, piping and ductwork shall be restrained to resist seismic/wind forces per the applicable building code(s) as a minimum. Restraint attachments shall be made by bolts, welds or a positive fastening method. Friction shall not be considered. All attachments shall be proven capable of accepting the required wind load by calculations. Additional requirements specified herein are included specifically for this project.
2. Install seismic and wind restraint devices per the manufacturer's submittals. Any deviation from the manufacturer's instructions shall be reviewed and approved by the manufacturer.
3. Attachment to structure for suspended equipment, pipe and duct: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
4. Wall penetrations may be used as bracing locations provided the wall can provide adequate resistance without significant damage.
5. Coordinate sizes and locations of cast-in-place inserts for post-tensioned slabs with seismic restraint manufacturer.
6. Provide hanger rod stiffeners where indicated or as required to prevent buckling of rods due to seismic forces.
7. Where rigid restraints are used on equipment, ductwork or piping, support rods for the equipment, ductwork or piping at restraint locations must be supported by anchors rated for seismic use. Post-installed concrete anchors must be in accordance with ACI 355.2.
8. Ensure housekeeping pads have adequate space to mount equipment and seismic restraint devices and shall also be large enough to ensure adequate edge distance for restraint anchor bolts to avoid housekeeping pad breakout failure.

B. Concrete Anchor Bolts:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid pre- or post-tensioned tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Mechanical Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.

C. Equipment Restraints:

1. Seismically restrain equipment all equipment. Install fasteners, straps and brackets as required to secure the equipment.
2. Install seismic snubbers on HVAC equipment supported by floor-mounted, non-seismic vibration isolators. Locate snubbers as close as possible to vibration isolators and attach to equipment base and supporting structure as required.
3. Install neoprene grommet washers on equipment anchor bolts where clearance between anchor and equipment support hole exceeds 1/8" (3.2 mm).

4. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

3.14 INSTALLATION OF EQUIPMENT

A. Unless otherwise indicated, mount all equipment and install in accordance with manufacturer's recommendations and approved submittals.

B. Maintain manufacture recommended minimum clearances for access and maintenance.

C. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

D. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, ductwork, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in manufacturer's catalog.

E. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all equipment furnished under this Contract.

F. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, controls, etc.

END OF SECTION

SECTION 230700

HVAC INSULATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Ductwork Insulation.

1.2 RELATED WORK

A. Division 09 - Painting.

B. Section 23 05 00 - Common Work Results for HVAC Systems.

C. Section 23 31 00 - HVAC Ducts and Casings.

D. Section 23 33 00 - Air Duct Accessories.

1.3 REFERENCES

A. ANSI/ASTM C553 - Mineral Fiber Blanket Insulation.

B. ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

C. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

D. ASTM E84 - Surface Burning Characteristics of Building Materials.

E. UL 723 - Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include product description, thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

A. Applicator: Company specializing in insulation application with three years minimum experience.

B. Materials: Flame spread/smoke developed rating of 25/50 in accordance with UL 723, ASTM E84.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

B. Shipment of materials from manufacturer to installation location shall be in weather tight transportation.

C. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesive, mastics, and insulation cements.

1.8 FIELD MEASURMENTS

A. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Certain-Teed.

B. Johns Manville.

C. Knauf.

D. Owens-Corning.

E. Manson.

F. Substitutions: Under provisions of Division 01.

2.2 INSULATION - DUCTWORK

A. Type K: Exterior FSK Duct Wrap: Flexible glass fiber; ASTM C553; commercial grade; 'k' value of 0.27 at 75º F, 0.6 lb./cu. ft. density. 0.00035 inch vinyl scrim facing with 2" stapling tab. Johns Manville "Microlite Standard Duct Wrap" or equal.

B. Type L: Exterior FSK Rigid Fiber Board Duct Insulation; ASTM C612, 'k' value of 0.23 at 75° F, 3.0 lb./cu. ft. density. 0.00035 inch foil scrim facing. Johns Manville "814 Spin-Glas" or equal.

2.3 FIELD APPLIED DUCTWORK JACKETS

A. Re-Wettable Canvas Jacketing: , Fiberglass cloth made from texturized yarns, impregnated throughout with an inorganic fire retardant asbestos free adhesive; 20x14 thread count, 14.5 oz./sq.yd, 0.04 inch thickness, 1,000º F upper temperature limit; GLT Products "Style 1989" or approved equal.

2.4 INSULATION ACCESSORIES

A. Adhesives: Waterproof and fire-retardant type.

B. Lagging Adhesive: Fire resistive to ASTM E84 and UL 723.

C. Impale Anchors: Galvanized steel, 12 gauge, self-adhesive pad.

D. Joint Tape: Glass fiber cloth, open mesh.

E. FSK Joint Tape; ASTM C1136 Foil-Scrim-Kraft (FSK) lamination coated with solvent acrylic pressure sensitive adhesive; capable of adhering to fibrous and sheet metal surfaces; tri-directionally reinforced 2x3 squares per inch fiberglass scrim; 9.5 mils thick, -40 to 240º F service temperatures; Venture Tape "1525CW" or approved equal.

F. Tie Wire: Annealed steel, 16 gauge.

PART 3 - EXECUTION

3.1 PREPARATION

A. Install materials after ductwork has been tested and approved.

B. Clean surfaces for adhesives.

C. Prepare surfaces in accordance with manufacturer's recommendations.

3.2 INSTALLATION – DUCTWORK INSULATION

A. Install materials in accordance with manufacturer's instructions.

B. Provide insulation with vapor barrier when air conveyed may be below ambient temperature. Continue insulation with vapor barrier through penetration.

C. Duct Exterior Insulation (Type K,L) Application:

1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.

2. Secure insulation without vapor barrier with staples, tape, or wires.

3. Install without sag on underside of ductwork. Use mechanical fasteners to prevent sagging. Secure insulation with mechanical fasteners on 15 inch centers maximum, on bottom and side of ductwork with dimension exceeding 20 inches. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

4. Maximum 25% compression.

D. Where canvas jacketing is indicated, apply mastic in sufficient thickness to completely cover the texture of the canvas material.

3.3 SCHEDULE - DUCTWORK

DUCTWORK	TYPE	INSULATION THICKNESS	FINISH
Outside Air Intake and Supply Air Ducts	L	2" Rigid	CANVAS

END OF SECTION

SECTION 230993

SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exhaust Fans.

B. Electric Unit Heaters.

C. Space Heaters.

1.02 RELATED SECTIONS

A. Section 230500 - Common Work Results for HVAC.

1.03 SYSTEM DESCRIPTION

A. This Section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other Sections.

1.04 SUBMITTALS

A. Submit under provisions of Division 01.

B. Submit product data and diagrams indicating mechanical system controlled and control system components. Label with settings, adjustable range of control and limits. Include written description of control sequence.

C. Include flow diagrams for each control system, graphically depicting control logic.

D. Include draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.

1.05 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Division 01.

B. Accurately record actual setpoints and settings of controls, including changes to sequences made after submission of shop drawings.

PART 2 PRODUCTS

2.01 THERMOSTATS

A. Line voltage thermostat compatible with unit heaters. Setpoint range: 50 deg F to 80 deg F minimum setpoint adjustment range. Removable setpoint adjustment knob.

2.02 HUMIDISTATS

A. NEMA 1 Enclosure, UL listed, 8amp rating, 10-90% RH control dial range, 5% RH differential, Snap Acting SPDT switch, 40-125 Deg F Operating Range.

PART 3 EXECUTION

3.01 SEQUENCE OF OPERATIONS

A. Refer to sequence of operations on mechanical drawings.

END OF SECTION

SECTION 231113
FACILITY FUEL-OIL PIPING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Fuel Oil Piping - Above Ground.

B. Fuel Oil Above Ground Tanks.

C. Unions and Flanges.

D. Valves.

E. Pipe Hangers and Supports.

F. Relief Valves.

G. Strainers.

H. Flexible Connectors.

I. Fuel Oil Dearator / Filter.

J. Above Ground Storage Tanks.

1.02 RELATED WORK

A. Section 230500 - Common Work Results for HVAC.

1.03 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME B16.3 - Malleable Iron Threaded Fittings.
2. ASME B31.1 - Power Piping.
3. ASME B31.9 - Building Services Piping.
4. ASME B36.10M - Welded and Seamless Wrought Steel Pipe.
5. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.

B. ASTM International:

1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

C. American Welding Society:

1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.

D. International Mechanical Code - IMC, latest adopted edition.

E. National Fire Protection Association:

1. NFPA 30 - Flammable and Combustible Liquids Code.
2. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.

F. Underwriters Laboratories Inc.:

1. UL 567 - Pipe Connectors for Flammable Liquids and Combustible Liquids and LP-Gas.
2. UL 842 - Valves for Flammable Fluids.
3. UL 913 - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations.

1.04 SUBMITTALS

A. Submittal Procedures under provisions of the Division 01.

B. Product Data:

1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
2. Valves: Submit manufacturer's catalog information with valve data and ratings for each service.
3. Fuel Piping Specialties: Submit manufacturer's catalog information including capacity, rough-in requirements, and service sizes.
4. Above Ground Tanks: Submit manufacturer's catalog information for tank including shop drawing.

C. Test Reports: Submit written test results for piping system pressure test.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of valves, piping system, and system components.

B. Operation and Maintenance Data under provisions the Division 01. Submit spare parts lists, exploded assembly views, for tank and inventory leak detection.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 31.

B. Perform Work in accordance with authority having jurisdiction.

1.07 QUALIFICATIONS

A. Installer: Company specializing in performing work of this section with minimum three years documented experience or approved by manufacturer.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle under the provisions of the Division 01.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Protect piping and fittings from soil and debris with temporary end caps and closures. Maintain in place until installation.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Under the provisions of the Division 01.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 COORDINATION

A. Under the provisions of the Division 01.

1.12 WARRANTY

A. Under the provisions of the Division 01.

PART 2 - PRODUCTS

2.01 FUEL OIL PIPING - ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M or ASME B36.10M Schedule 40 black.

1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M wrought carbon steel and alloy steel welding type.
2. Joints Exterior: Welded or Viega MegaPress.
3. Joints in Mechanical Room: Threaded for pipe 2 inch and smaller or Viega MegaPress; welded for pipe 2-1/2 inches and larger.

2.02 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:

1. Ferrous Piping: Class 150, malleable iron, threaded.

2. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.03 GATE VALVES

A. No allowed.

2.04 GLOBE VALVES

A. Not Allowed.

2.05 BALL VALVES

A. 1/4 inch to 1 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body; chrome plated bronze ball, reinforced Teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, full port.

2.06 CHECK VALVES

A. Swing Check Valves

1. 2 inches and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, Buna-N disc, threaded ends.

B. Spring Loaded Check Valves:

1. 2 inches and Smaller: MSS SP 80, Class 150 bronze body, in-line spring lift check, silent closing, Buna-N disc, integral seat, threaded ends.

2.07 HANGERS AND SUPPORTS

A. Conform to NFPA 31.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.

2.08 FLEXIBLE CONNECTORS

A. Manufacturers:

1. Flex-Hose Co., Inc.
2. Flex-Weld, Inc.
3. The Metraflex Company.
4. Substitutions: Under the provisions of the Division 01.

B. 2 inches and Smaller: Corrugated Type 304 stainless steel inner hose with single layer of Type 304 stainless steel exterior braiding. Maximum working pressure 200 psig.

2.09 ACCEPTABLE MANUFACTURER – DE-AERATOR / FILTER

A. Tigerholm.

B. Substitutions: None.

2.10 DE-AERATOR FUEL FILTERS

A. UL listed fuel oil de-aerator, converts single pipe supply to two-pipe system complete with fusible valve and integral fuel filter, Tigerholm Tigerloop Combi.

2.11 ABOVE GROUND STORAGE TANK

A. Product Description: Provide UL Listed above ground double-wall secondary containment tank. The tank shall consist of an inner and outer steel tank; the tank shall be a UL 142 listed and meet the standards of NFPA 30 and 30A. The entire tank system, including the saddle and secondary containment, shall be listed by Underwriters Laboratories under UL® 142 Standard for Safety as a complete, indivisible unit. The skid mounted tank assembly shall bear the UL® listing mark.

B. Tank Configuration: As Indicated on Plans.

C. Primary Tank: Single wall steel tank constructed in accordance with UL 142 not less than 10 gauge thickness.

D. Outer Tank: Single wall steel tank constructed in accordance with UL 142 not less than 10 gauge thickness.

E. Lifting Lugs: shall be attached at the top of the tank ends. Each eye shall be capable of supporting the empty weight of tank and skids without permanent distortion.

F. Tank Saddles: Provide UL Listed horizontal tank saddles meeting the requirements of UL 142.

G. Weld Joints: All joints on the inner and outer shell and the tank heads shall be that required by UL 142 listing. In addition, all non-structural external seams shall be seal welded before painting. All weld spatter shall be removed and all sharp edges shall be rounded and smoothed by grinding. Flat unflanged heads are not permitted on either the inner or outer tank.

H. Tank Attachments and Penetrations: Piping penetrations shall be made through the top of the tank only. The secondary containment shall allow for the full recovery of a release into the annular space. An additional fitting shall be incorporated into the tank (typically located on the top of the opposite end of the tank from the monitor port) to allow for flushing of any product which may accumulate as the result of a release or accidental fill of the annular space. Each tank shall be equipped with lifting lugs adequate for the safe handling of the tank during installation. Each lifting lug must be designed to support the total weight of the dual wall tank. A minimum of two lifting lugs shall be provided on tanks having a rated capacity of more than 1100 gallons.

I. Finish: Factory painted with marine grade epoxy. A two-coat system shall be applied according to the manufacturer's recommendations. The first coat shall be a minimum 2 mil dry film thickness primer coat. A second coat shall be applied to a given total of 6 mils minimum dry film thickness. All exterior surfaces shall be cleaned and prepared by sandblasting in accordance with Steel Structures Painting SSPC-3 and thereafter, coated per the coating manufacturer's recommendations.

J. Material for all steel construction shall conform to ASTM-36. All pipe and fittings shall conform to schedule 40, seamless iron pipe. All pipe connections shall be screwed or welded except for the final connection to the tank which shall be an approved welded fitting.

K. Side Fill Package: The tank shall include a bottom filling connection and a spill containment vessel designed specifically for aboveground stationary storage tanks. The vessel shall employ a full diameter hinged and gasketed lid with a strong back and lockable latch. The bottom shall have both a 2” nipple to accommodate the specified overfill valve, and a 1” threaded opening for a drainback valve. Furnish fill containment assembly with capacity of not less than 20 gallons spill containment. Include quick disconnect hose coupling with dust plug, check valve, shut-off valve, ground stud, 1 gpm hand pump for spill containment with shut-off and check valve. Positive fill limiting valve set to activate at 90-95% tank capacity, liquid level clock gauge, flexible hose connection. Factory assembled piping and fittings.

L. Normal Vent: Furnish each compartment of primary tank with 2 inch updraft venting device exhausting upward at elevation of at least 12 feet aboveground. Size vent in accordance with NFPA 30.

M. Vent Cap: Upward "V" design, steel cap and body, removable 30 mesh brass screen. Slip on style with set screw. Grooved drain lip extended beyond base.

N. Emergency Vents: Furnish each compartment of primary tank with emergency vents sized in accordance with NFPA 30. Do not use access openings for emergency venting purposes. OPW 301 or equal.

O. Leak Gauge: 2 inch top mounted leak gauge used for monitoring leaks between primary and outer tanks. Krueger sentry gauge or equal.

P. Provide one spare 4" tapping on tank.

Q. Drop Tube: Lightweight aluminum tube, buna gasket and adaptors as necessary for fill box or sufficient length to extend to six inches above tank bottom.

R. Accessories:

1. Level Gauge: Mechanical float activated level gage capable of indicating approximate fluid level in tank reading in feet and inches. Gauge to be readable up to 20 feet away within 1/8".

Gauge to be able to be rotated 360 deg after mounting. Standard float to pass through a 2" opening. Body to be aluminum with stainless steel float and cable. Morrison Bros. Co. Fig 818 or equal.

2. Tank Decals: Furnish warning and tank identification signs located prominently on tank following fire code requirements.
3. Fill Alarm: Whistles type alarm to whistle while tank is filled. Stops whistling when fuel has reached capacity level. Cast iron with corrosion resistant finish. King fill alarm model 4516 or equal.
4. Overfill prevention valve complete with tank adapter valve terminates flow of product when the liquid level reaches a preset warning level (90-95%). Valves to have built in bleed hole to provide anti-syphoning protection. Valve to be rated for a maximum pressure of 100 psi. OPW 61fSTOP or equal.

S. Signage: All tanks shall be labeled in accordance with the International Fire Code. Provide standard manufactured adhesive labels.

PART 3 - EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install hangers and supports in accordance with ASTM F708, MSS SP 69 and MSS SP 89.

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place hangers within 12 inches of each horizontal elbow.

D. Install hangers to allow 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

E. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

3.03 INSTALLATION - ABOVEGROUND PIPING

A. Install fuel oil piping in accordance with IMC and NFPA 31.

B. Route piping in orderly manner and maintain gradient.

C. Install piping to conserve building space and not interfere with use of space.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Sleeve pipe passing through partitions, walls and floors.

G. Provide clearance for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, weld, and apply one coat of zinc rich primer.

J. Prepare pipe, fittings, supports, and accessories not pre-finished, ready for finish painting.

K. Install identification on piping systems.

L. Install valves with stems upright or horizontal, not inverted.

M. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

END OF SECTION

SECTION 233100
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Duct Materials.
2. Ductwork Fabrication.

1.02 REFERENCES

A. ASTM International:

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - HVAC Air Duct Leakage Test Manual.
2. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

C. Underwriters Laboratories Inc.:

1. UL 181 - Factory-Made Air Ducts and Connectors.

1.03 DEFINITIONS

A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.

B. Low Pressure: Three pressure classifications: ½ inch WG positive or negative static pressure and velocities less than 2,000 fpm; 1 inch WG positive or negative static pressure and velocities less than 2,500 fpm and 2 inch WG positive or negative static pressure and velocities less than 2,500 fpm.

C. Medium Pressure: Three pressure classifications: 3 inch WG positive or negative static pressure and velocities less than 4,000 fpm, 4 inch WG positive static pressure and velocities greater than 2,000 fpm, 6 inch WG positive static pressure and velocities greater than 2,000 fpm.

D. High Pressure: 10 inch WG positive static pressure and velocities greater than 2,000 fpm.

1.04 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.05 SUBMITTALS

A. See General Conditions and the General Requirements in Division 01 regarding submittals.

B. Product Data: Submit data for duct materials.

1.06 CLOSEOUT SUBMITTALS

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.07 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.09 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. Division 01 - Product warranties.

PART 2 PRODUCTS

2.01 DUCT MATERIALS

A. Galvanized Steel Ducts: ASTM A653/A653M galvanized steel sheet, lock-forming quality, having G90 zinc coating of in conformance with ASTM A90/A90M.

B. Fasteners: Rivets, bolts, or sheet metal screws.

C. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.02 DUCTWORK FABRICATION

A. Fabricate and support rectangular ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible and ASHRAE handbooks, except as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.

C. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width. Where not possible and where rectangular elbows are used, provide airfoil turning vanes. Where acoustical lining is indicated, furnish turning vanes of perforated metal with glass fiber insulation.

D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30° divergence upstream of equipment and 45°convergence downstream.

E. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

F. Provide standard 45-degree lateral wye takeoffs. When space does not allow 45-degree lateral wye takeoff, use 90-degree conical tee connections.

G. Provide easements where low pressure ductwork conflicts with piping and structure. Where easements exceed 10 percent duct area, split into two ducts maintaining original duct area.

H. Use crimp joints with or without bead for joining round duct sizes 12” and smaller with crimp in direction of airflow.

I. Use double nuts and lock washers on threaded rod supports.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify sizes of equipment connections before fabricating transitions.

3.02 INSTALLATION

A. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

C. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 12” and smaller.

D. Install duct hangers and supports in accordance with SMACNA.

E. Use double nuts and lock washers on threaded rod supports.

3.03 SCHEDULES

A. Ductwork Material Schedule:

Air System	Material
Outside Air/Supply	Galvanized Steel
Exhaust	Galvanized Steel

END OF SECTION

SECTION 233300
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Grilles, Registers, Diffusers.
2. Back-draft Dampers.
3. Control Dampers.

1.02 REFERENCES

A. Air Movement and Control Association International, Inc.:

1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.03 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Division 01 - Product Requirements: Product storage and handling requirements.

B. Protect dampers from damage to operating linkages and blades.

C. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

D. Storage: Store materials in a dry area indoor, protected from damage.

E. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

1.05 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.06 COORDINATION

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work where appropriate with building control Work.

1.07 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – GRILLES, REGISTERS AND DIFFUSERS

A. Price.

B. Titus.

C. Substitutions: Under provisions of Division 01.

2.02 GRILLES, REGISTERS AND DIFFUSERS

A. Refer to air inlet/outlet schedules on mechanical drawings for basis of design model numbers. Provide specified model and accessories or equivalent product from the acceptable manufacturers listed.

2.03 BACK-DRAFT DAMPERS

A. Manufacturers:

1. Ruskin.
2. Greenheck.
3. Penn.
4. Substitutions: Division 01 - Product Requirements.

B. Gravity backdraft dampers, size 18 x 18 inches or smaller, furnished with air moving equipment, may be air moving equipment manufacturer's standard construction.

C. Fabricate multi-blade, parallel action gravity balanced backdraft dampers of 16 gauge galvanized steel, or extruded aluminum, with center pivoted blades of maximum 6" width, with felt of flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure.

2.04 CONTROL DAMPERS – ACCEPTABLE MANUFACTURERS

A. Manufacturers:
1. Ruskin.
2. Greenheck.
3. Tamco.
4. Substitutions: Division 01 – Product Requirements.

2.05 CONTROL DAMPERS

A. Multi-blade, opposed blade action, control dampers of extruded aluminum, with airfoil type blades of maximum six inch width, blades positioned across short air opening dimension, field replaceable extruded vinyl sealed edges, linked together in rattle-free manner, non-corrosive molded synthetic bearings, square or hexagonal axles for positive locking connection to blades and linkage, with documented leakage rate not to exceed 6 CFM/sq. ft. at 4" W.G.

PART 3 EXECUTION

3.01 EXAMINATION

A. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.02 INSTALLATION

A. Install in accordance with manufacturer installation instructions and SMACNA HVAC Duct Construction Standards - Metal and Flexible.

END OF SECTION

SECTION 233400
HVAC FANS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Centrifugal square inline fans

B. Related Sections:
   1. Section 230500 - Common Work Results for HVAC.
   2. Section 233100 - HVAC Ducts and Casings.
   3. Section 233300 - Air Duct Accessories.
   4. Division 26 - Equipment Wiring Connections: Execution and product requirements for connecting equipment specified by this section.

1.02 REFERENCES

A. American Bearing Manufacturers Association:
   1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
   2. ABMA 11 - Load Ratings and Fatigue Life for Roller Bearings.

B. Air Movement and Control Association International, Inc.:
   1. AMCA 99 - Standards Handbook.
   2. AMCA 204 - Balance Quality and Vibration Levels for Fans.
   3. AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
   4. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.
   5. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

C. American Refrigeration Institute:
   1. ARI 1060 - Air-to-Air Energy Recovery Ventilation Equipment Certification Equipment Program.

D. National Electrical Manufacturers Association:
   1. NEMA MG 1 - Motors and Generators.
   2. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. Underwriters Laboratories Inc.:
   1. UL 705 - Power Ventilators.

1.03 SUBMITTALS

A. Product Data: Submit data on each type of fan and include accessories, fan curves with specified operating point plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, electrical characteristics and connection requirements.

B. Manufacturer's Installation Instructions: Submit fan manufacturer’s instructions.

1.04 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.05 QUALITY ASSURANCE

A. Performance Ratings: Conform to AMCA 210.

B. Sound Ratings: AMCA 301, tested to AMCA 300.

C. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 705.

D. Balance Quality: Conform to AMCA 204.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01 in factory-fabricated protective containers, with factory-installed shipping skids and lifting lugs.

B. Protect motors, shafts, and bearings from weather and construction dust.

1.08 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.09 WARRANTY

A. Provide warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Greenheck Corp.

B. Loren Cook Company.

C. Twin City.

D. Substitutions: Under provisions of Division 01.

2.02 GENERAL

A. Fans used shall not decrease motor size, increase noise level, or increase tip speed by more than 10 percent, or increase inlet air velocity by more than 20 percent, from specified criteria. Fans shall be capable of accommodating static pressure variations of plus or minus 10 percent.

B. Base performance on sea level conditions unless otherwise noted.

C. Statically and dynamically balance fans to eliminate vibration or noise transmission to occupied areas.

2.03 CENTRIFUGAL SQUARE INLINE FANS

A. Product Description: Direct drive with galvanized steel housing, removable access doors on 2 sides, inlet and outlet duct collar, horizontal hanging brackets.

B. Fan Wheel: Backward inclined centrifugal type, aluminum construction.

C. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

D. Motor and Drive Mounting: Out of air stream.

E. Motor: Electronically commutated variable speed.

F. Bearings: ABMA 9 life at 200,000 hours.

G. Accessories:

1. VARI-GREEN HOA Controller.
2. Backdraft damper.
3. Motor cover.
4. Disconnect Switch: Factory wired, NEMA ICS 2, AC general purpose Class A, manually operated unit with number of poles as required by the load served, full-voltage controller for fractional horsepower induction motors with thermal overload unit Type 3R enclosure with red pilot light.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify exhaust hoods are installed and dimensions are as instructed by manufacturer.

3.02 PREPARATION

A. Coordinate with other trades for installation of wall openings.

3.03 INSTALLATION

A. Secure wall fans to structure.

B. Install backdraft dampers on exhaust fans.

C. Install backdraft dampers on discharge of exhaust fans.

3.04 DEMONSTRATION

A. Demonstrate fan operation and maintenance procedures.

3.05 PROTECTION OF FINISHED WORK

A. Do not operate fans for until ductwork is clean, filters in place, bearings lubricated, and fan has been test run under observation.

END OF SECTION

SECTION 238200
CONVECTION HEATING AND COOLING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electric Unit Heaters.

B. Oil Fired Space Heaters.

1.02 RELATED SECTIONS

A. Section 230993 - Sequence of Operation for HVAC Controls.

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Indicate mechanical and electrical service locations and requirements, specifically indicating deviations from indicated products.

1.05 PROJECT RECORD DOCUMENTS

A. Submit record documents under provisions of Division 01.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include manufacturer’s descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.

1.07 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years’ experience.

1.08 REGULATORY REQUIREMENTS

A. Conform to applicable code for internal wiring of factory wired equipment.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Store and protect products under provisions of Division 01.

C. Protect units from physical damage by storing in protected areas and leaving factory covers in place.

1.10 SEQUENCING AND SCHEDULING

A. Install after walls and ceiling are finished and painted. Avoid damage.

1.11 WARRANTY

A. Provide one year manufacturer's warranty under provisions of Division 01.

PART 2 PRODUCTS

2.01 MANUFACTURERS – ELECTRIC UNIT HEATERS

A. Square D.

B. Marley.

C. Substitutions: Under provisions of Division 01.

2.02 ELECTRIC UNIT HEATERS

A. Assembly: UL listed and labeled assembly with terminal box and cover, and built-in controls.

B. Coil: Copper-brazed steel fins with steel sheathed tubular elements.

C. Cabinet: Powder-coated heavy-gauge steel cabinet. Provide with ceiling mounting bracket.

D. Provide with disconnect switch.

2.03 OIL FIRED SPACE HEATERS

A. Direct vent UL Listed oil fired space heater, minimum 87% AFUE efficiency, integral controls with 7-day programmable night setback thermostat, power failure recovery system. 120 VAC power supply. Provide with direct vent kit, UL approved fuel oil lifting pump by same manufacturer as space heater, pump shall have double safety control, power surge protection, overheating protection, over flood prevention.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work and opening dimensions are instructed by the manufacturer.

B. Verify that required utilities are available, in proper location, and ready for use.

C. Beginning of installation means installer accepts existing surfaces.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install equipment in strict compliance with state and local codes and applicable NFPA standards.

C. Maintain manufacturer's recommended clearances around sides and over top of equipment.

D. Install components that were furnished loose with equipment for field installation.

E. Provide all interconnecting electrical control and power wiring. Provide field wiring and conduits for connection to thermostat.

F. Protect units with protective covers during balance of construction.

3.03 CLEANING

A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.

B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.

END OF SECTION

SECTION 260126
MAINTENANCE TESTING OF ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Feeder Megohm Testing.

B. Receptacle Branch Circuit Testing.

C. Electrical Service Ground Testing.

D. Phase Rotation.

E. Additional Testing and Maintenance Requirements in Individual Equipment and System Sections.

1.03 REFERENCES

A. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. ANSI/IEEE Std 81-1983 Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

C. ANSI/TIA/EIA – 568-B.1 and Addendums, General Cabling System Requirements.

1.04 SUBMITTALS

A. Submit data under provisions of Division 01 and Section 260500.

B. Product Data: Submit technical information for each test instrument to include manufacturer, model number, serial number, ratings, accuracy, and National Institute of Standards and Technology (NIST) Traceable calibration certification.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit Test Reports per Section 260500.

1.06 COORDINATION

A. Provide written 72 hours advance notice of all tests to be performed to allow Owner's Representative to witness testing.

1.07 REQUIRED TEST INSTRUMENTS

A. MEGOHMMETER.

1. Product Description: 1000 Volt DC, portable, insulation and resistance test Megohmmeter.
2. Equipment Accuracy:
    a. 2000 Megohm Range - 3% of full Scale.

B. BRANCH CIRCUIT ANALYZER

1. Product Description: Branch circuit analyzer capable of receptacle testing of voltage drop under load, hot-neutral-ground conductor resistances, common mode (N-G) Voltage, and G.F.C.I. trip point.
2. Manufacturer: Ideal SureTest. Model: 61-164 ST-1THD Wiring/Harmonic Distortion Analyzer or approved equal.
3. Equipment Accuracy:
    a. Accuracy 1% full scale ± 1 digit True RMS.

C. GROUND RESISTANCE CLAMP-ON METER

1. Product Description: Digital, direct reading clamp-on resistance ground tester.
2. Manufacturer: AEMC. Model: 3711 or approved equal.

3. Equipment Accuracy:
    a. 1.0 to 50.0 Ohms ± (1.5% + 0.1 Ohm).
    b. 50.0 to 100.0 Ohms ± (2.0% + 0.1 Ohm).
    c. 100 to 200 ± (1.5% + 0.1 Ohm).
    d. 200 to 400 Ohms ± (1.5% + 0.1 Ohm).
    e. 400 to 600 Ohms ± (1.5% + 0.1 Ohm).

D. MULTIMETER
1. Product Description: Digital True RMS Multimeter.
2. Equipment Accuracy:
    a. AC Voltage Range: 0.75% ± 3 last single digits at 60 Hz.
    b. AC Current Range: 0.90% ± 3 last single digits at 60 Hz.
    c. DC Voltage Range: 0.25% ± 1 last single digit.
    d. DC Current Range: 0.75% ± 1 last single digit.
    e. Resistance Ranges: 0.50% ± 1 last single digit.
    f. Frequency Range: 0.10% ± 1 last single digit @ 60 Hz.

1.08 TEST INSTRUMENT CALIBRATION

A. All test equipment shall be in good mechanical and electrical condition.

B. Provide calibration for each test instrument directly traceable to the National Institute of Standards and Technology (NIST) of higher accuracy than that of the instrument tested.

C. Provide calibration labels visible on all test equipment. Records, which show date and results of instruments calibrated or tested, shall be kept up-to-date.

D. Calibrate instruments in accordance with the following frequency schedule:
1. Field instruments: 12 months maximum.
2. Up-to-date instrument calibration instructions and procedures shall be maintained for each test instrument with the equipment.

1.09 MINIMUM REPORT INFORMATION

A. Report Criteria: After each test, promptly submit one copy of report to the Owner's Representative. Provide form with the minimum following information:
1. Date issued.
2. Project title and number.
3. Name and Model of Tester and witnesses.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Type of inspection or test.
7. Date of test.
8. Results of tests.
9. Indicate compliance or non-compliance with Contract Documents.
10. Final adjustment setting values where applicable.

B. Submit copy of all tests performed in the O&M manual.

1.10 GENERAL REQUIREMENTS

A. Submit test results within 3 working days of each test and included in the O&M manual.

B. Provide qualified personnel at site to perform all testing.

C. Perform specified testing of products in accordance with specified standards or as denoted in this specification whichever is more stringent.

D. Promptly notify Owner's Representative of irregularities or non-conformance of Work or products.

E. Perform additional tests when test is performed incorrectly, deemed inaccurate, or incorrectly documented.

F. The Contractor shall provide all forms, instrumentation and test equipment, loads, and other consumables required to demonstrate the systems to Owner's Representative satisfaction.

G. Perform and submit all testing prior to substantial completion and system acceptance.

H. Retest all material, cables etc that are disturbed after testing.

I. Replace and retest all material installed which does not meet or exceed the minimum acceptable limits set forth in this specification in accordance with the contract original requirements at no additional charge to Contract Sum/Price.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FEEDER CONDUCTOR TEST

A. Tests Criteria:

1. Use Megohm meter to test all conductors sized #6AWG and larger.
2. Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential 1000 volts DC for 600 volt rated cable.
3. Perform test immediately after installation.
4. Clean exposed cable ends with clean cloth and alcohol.
5. Test duration shall be one minute.
6. Disconnect conductors from all equipment.
7. Record the resistance of the insulated conductor under test with all other conductors connected together and to ground (metallic raceway, grounding conductor, etc.).
8. Perform continuity test to insure correct cable connection.
    a. Submit test results to Owner's Representative.

B. Test Values:

1. Minimum insulation-resistance value: 50 megohms.
2. Investigate deviations between adjacent phases.

C. Test each new three phase circuit and feeder for consistent phase rotation for the entire power system with a phase rotation meter.

D. Correct conductor phase relationship to provide proper phase rotation.

E. Record the rotation sequence on the interior door of new equipment.

F. Submit test results of the new equipment Owner's Representative.

3.02 RECEPTACLE GROUND FAULT CIRCUIT INTERRUPTER TEST

A. Test Criteria:

1. Use Branch Circuit Analyzer to perform test of each GFCI protected receptacle.
2. Record trip level in ma for each outlet.
3. Submit test results to Owner's Representative.

B. Test Values:

1. Trip Range: Between 6-9 mA.

3.03 ELECTRICAL SERVICE GROUND TEST

A. Test Criteria:

1. Use ground resistance clamp-on meter to measure the resistance of service ground with meter clamped between system neutral bond and each grounding electrode. Perform this test on new or existing services and all separately derived systems.
2. Record resistance value in Ohms.
3. Submit test results to Owner's Representative.

B. Test Values:

1. Maximum ground resistance: 10 Ohms.

3.04 PHASE ROTATION TEST

A. Test each three phase circuit and feeder for consistent phase rotation for the entire power system with a phase rotation meter.

B. Bump test each motor for proper rotation prior to use.

C. Correct conductor phase relationship to provide proper phase rotation.

D. Record the rotation sequence on each panelboard, MDP and Service circuit schedule.

E. Submit test results of each panelboard, MDP and Service to the Owner's Representative.

END OF SECTION

SECTION 260500
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. General Requirements specifically applicable to Division 26, in addition to Division 10 provisions.

B. The electrical system equipment and installation shall comply with all provisions and requirements of this specification, as well as any and all applicable national, state and local codes and standards.

1.03 WORK SEQUENCE

A. Construct Work in sequence under provisions of Division 10.

1.04 COORDINATION

A. Coordinate the Work specified in this Division under provisions of Division 10.

B. Prepare drawings showing proposed rearrangement of Work to meet job conditions, including changes to Work specified under other Sections. Obtain permission of Engineer prior to proceeding.

1.05 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code, latest adopted edition including all state and local amendments.

B. NECA - Standard of Installation.

C. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. Electrical Reference Symbols: The Electrical "Legend" on drawings is standardized version for this project. All symbols shown may not be used on drawings. Use legend as reference for symbols used on plans.

E. Electrical Drawings: Drawings are diagrammatic; not intended to show all features of work. Install material not dimensioned on drawings in a manner to provide a symmetrical appearance. Do not scale drawings for exact equipment locations. Review existing conditions and adjust work to conform. Field verification of dimensions, locations and levels is directed.

1.06 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 70.

B. Conform to the latest adopted edition of the International Building Code and the International Fire Code including all state and local amendments thereto.

C. Obtain electrical permits, plan review, and inspections from authority having jurisdiction.

1.07 SUBMITTALS

A. Submit inspection and permit certificates under provisions of Division 10.

B. Include certificate of final inspection and acceptance from authority having jurisdiction.

C. Submittal review is for general design and arrangement only and does not relieve the Contractor from any requirements of Contract Documents. Submittal not checked for quantity, dimension, fit or proper operation. Where deviations of substitute product or system performance have not been specifically noted in the submittal by the Contractor, provisions of a complete and satisfactory working installation is the sole responsibility of the Contractor.

D. In addition to requirements referenced in Division 10, the following is required for work provided under this division of the specification.

1. Provide material and equipment submittals containing complete listings of material and equipment shown on Electrical Drawings and specified herein.
2. Submittals shall be provided in PDF format with each section indexed in the PDF document. Submittals for Division 26 shall be complete and submitted at one time. Unless given prior approval, partial submittals will be returned unreviewed.
3. Clearly identify all material and equipment by item, name or designation used on drawings and in specifications.
4. Submit only pages which are pertinent; mark catalog sheets to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring diagrams and controls; component parts; finishes; dimensions; and required clearances.
5. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
6. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
7. Coordinate submittals with requirements of work and of Contract Documents.
8. Certify in writing that the submitted shop drawings and product data are in compliance with requirements of Contract Documents. Notify Engineer in writing at time of submittal, of any deviations from requirements of Contract Documents.
9. Do not fabricate products or begin work which requires submittals until return of submittal with Engineer acceptance.
10. Equipment scheduled by manufacturer's name and catalog designations, manufacturer's published data and/or specification for that item, in effect on bid date, are considered part of this specification. Approval of other manufacturer's item proposed is contingent upon compliance therewith.

1.08 SUBSTITUTIONS

A. In accordance with the General Conditions and the General Requirements, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment.

1.09 PROJECT RECORD DRAWINGS

A. Maintain project record drawings in accordance with Division 10.

B. In addition to the other requirements, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all electrical work which will become permanently concealed. Show routing of work in permanently concealed blind spaces within the building. Show complete routing and sizing of any significant revisions to the systems shown.

C. Record drawing field mark-ups shall be maintained on-site and shall be available for examination of the Owner’s Representative at all times.

1.10 OPERATION AND MAINTENANCE MANUALS

A. Provide operation and maintenance manuals for training of Owner's Representative in operation and maintenance of systems and related equipment. In addition to requirements referenced in Division 10, the following is required for work provided under this section of the specifications.

B. Manuals shall be separate from work furnished under other divisions. Prepare a separate chapter for instruction of each class of equipment or system. Index and clearly identify each chapter and provide a table of contents.

C. Unless otherwise noted in Division 10, provide one copy of all material for approval.

D. Provide the following items in sequence for each chapter shown in Table of Contents:

1. Describe the procedures necessary for personnel to operate the system including start-up, operation, emergency operation and shutdown.
    a. Give complete instructions for energizing equipment and making initial settings and adjustments whenever applicable.
    b. Give step-by-step instructions for shutdown procedure if a particular sequence is required.
    c. Include test results of all tests required by this and other sections of the specifications.
2. Maintenance Instructions:
    a. Provide instructions and a schedule of preventive maintenance, in tabular form, for all routine cleaning and inspection with recommended lubricants if required.
        1) Provide instructions for minor repair or adjustments required for preventive maintenance routines, limited to repairs and adjustments which may be performed without special tools or test equipment and which requires no special training or skills.
        2) Provide manufacturers' descriptive literature including approved shop drawings covering devices used in system, together with illustrations, exploded views, etc. Also include special devices provided by the Contractor.
        3) Provide any information of a maintenance nature covering warranty items, etc., which have not been discussed elsewhere.
        4) Include list of all equipment furnished for project, where purchased, technical representative if applicable and a local parts source with a tabulation of descriptive data of all electrical-electronic spare parts and all mechanical spare parts proposed for each type of equipment or system. Properly identify each part by part number and manufacturer.

1.11 DEMONSTRATION OF ELECTRICAL SYSTEMS

A. During substantial completion inspection:
    1. Conduct operating test for approval under provisions of Division 10.
    2. Demonstrate installation to operate satisfactorily in accordance with requirements of Contract Documents.
    3. Should any portion of installation fail to meet requirements of Contract Documents, repair or replace items failing to meet requirements until items can be demonstrated to comply.
    4. Have instruments available for measuring light intensities, voltage and current values, and for demonstration of continuity, grounds, or open circuit conditions.
    5. Provide personnel to assist in taking measurements and making tests.

1.12 CERTIFICATE OF COMPLETION

A. Submit, at time of request for final inspection, a completed letter denoting all work has been completed in accordance with the Contract Documents.

1.13 WARRANTY

A. In addition to the requirements of Division 10, or as specified in other sections, warrant all materials, installation and workmanship for one (1) year from date of acceptance.

B. Copies of manufacturer product warranties for all equipment shall be included in the operation and installation manuals.

1.14 INSTRUCTION OF OPERATING PERSONNEL

A. In accordance with the requirements of Division 10 and this section provide services of qualified representative of supplier of each item or system listed below to instruct designated personnel of Owner in operation and maintenance of item or system.

B. Make instruction when system is complete, of number of hours indicated, and performed at time mutually agreeable.

System or Equipment	Hours of Instruction
Standby Generator & ATS	4
Motor Control Centers & VFDs	8

C. Certify that an Anchorage based authorized service organization regularly carries complete stock of repair parts for listed equipment or systems, that organization is available and will furnish service within 48 hours after request. Include name, address and telephone number of service organization.

D. Have approved operation and maintenance manuals and parts lists for all equipment on hand at time of instruction.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. All Materials and Equipment shall be new.

B. All Materials and Equipment shall be listed by Underwriter's Laboratories or equivalent third party listing agency for the use intended.

C. Materials and Equipment shall be acceptable to the authority having jurisdiction as suitable for the use intended when installed per listing and labeling instructions.

D. No materials or equipment containing asbestos in any form shall be used. Where materials or equipment provided by this Contractor are found to contain asbestos such items shall be removed and replaced with non-asbestos containing materials and equipment at no cost to the Owner.

E. In describing the various items of equipment, in general, each item will be described singularly, even though there may be numerous similar items.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Install Work using procedures defined in NECA Standard of Installation and/or the manufacturer's installation instructions.

3.02 TESTS

A. Perform tests in accordance with Section 260126 – Testing and Maintenance of Electrical Systems and the individual Division 26 Sections.

B. Notify the Owner’s representative at least 72 hours prior to conducting any tests.

C. Perform additional tests required under other sections of these specifications.

D. Perform all tests in the presence of the Owner's representative.

3.03 PENETRATIONS OF FIRE BARRIERS

A. All holes or voids created to extend electrical systems through fire rated floors, walls or ceiling shall be sealed with an asbestos-free intumescent fire stopping material capable of expanding 8 to 10 times when exposed to temperatures 250ºF or higher.

B. Materials shall be suitable for the fire stopping of penetrations made by steel, glass, plastic and shall be capable of maintaining an effective barrier against flame, smoke and gases in compliance with the requirements of ASTM E814 and UL 1479.

C. The rating of the fire stops shall be the same as the time-rated floor, wall or ceiling assembly.

D. Install fire stopping materials in accordance with the manufacturer's instructions.

E. Existing fire rated walls are not shown on the Drawings and shall be field verified by the Contractor. For bid purposes, assume all walls requiring electrical penetrations carry a two-hour fire rating.

END OF SECTION

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Building Wire.

B. Cable.

C. Wiring Connections and Terminations.

1.03 RELATED SECTIONS

A. Section 260126 – Maintenance Testing of Electrical Systems.

B. Section 260553 – Identification for Electrical Systems.

C. Section 263200 – Packaged Generator Assemblies.

D. Section 263600 – Transfer Switches.

1.04 REFERENCES

A. Federal Specification FS-A-A59544 – Cable and Wire, Electrical (Power, Fixed Installation).

B. Federal Specification FS-J-C-30B – Cable Assembly, Power, Electrical.

C. ANSI/NEMA WC 70-2009 – Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.

D. NETA ATS – Acceptance testing specifications for Electrical Power Distribution and Systems.

E. NFPA 70 – National Electrical Code.

F. NFPA 262 – Standard Method of test for flame travel and smoke of wires and cables for use in air-handling spaces.

G. UL 62 – Flexible Cords and Cables.

H. UL 83 – Thermoplastic Insulated Wire and Cable.

I. UL 1063 – Standard for Machine and Tool Wire and Cable.

J. UL 1479 – Standard for Fire Tests of Through Wall Penetration Fire Stops.

K. UL 1581 – Reference Standard for Electrical Wires, Cables and Flexible Cords.

1.05 SUBMITTALS

A. Submittals are not required for this section.

PART 2 PRODUCTS

2.01 BUILDING WIRE

A. Thermoplastic-insulated Building Wire: NEMA WC 70.

B. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation, XHHW-2 or as indicated.

C. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THHN/THWN or XHHW-2. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid or stranded conductor.

D. Branch Circuit Wire Color Code:

1. Color code wires by line or phase as follows:

a. Black, red, blue and white for 120/208V systems.

b. Brown, orange, yellow and gray for 277/480V systems.

2. For conductors 4 AWG and larger, identify with colored phase tape at all terminals, splices, and boxes.
3. Grounding conductors 4 AWG and larger, use green tape at both ends and at all other visible points in between, including pull and junction boxes.

E. Control Circuits: Copper, stranded conductor 600 volt insulation, THHN/THNN or XHHW-2.

2.02 REMOTE CONTROL AND SIGNAL CABLE

A. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600 volt insulation, rated 90º C, individual conductors twisted together, shielded, and covered with an overall PVC jacket; UL listed.

B. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90º C, individual conductors twisted together, shielded or unshielded (as required), and covered with a PVC jacket; UL listed.

C. Plenum Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90º C, individual conductors twisted together, shielded or unshielded (as required), and covered with a nonmetallic jacket; UL listed for use in air handling ducts, hollow spaces used as ducts, and plenums.

2.03 WIRING CONNECTIONS AND TERMINATIONS

A. For conductors 8 AWG and smaller:

1. Dry interior areas: Spring wire connectors, pre-insulated “twist-on” rated 105 degrees C per UL 468C. Where stranded conductors are terminated on screw type terminals, install crimp insulated fork or ring terminals. Thomas & Betts Sta-Kon or equal.
2. Motor connections: Spring wire connectors, pre-insulated “twist-on” rated 105 degrees C per UL 468C. Provide a minimum of 8 wraps of Scotch 33+ electrical tape around conductors and connector to eliminate connector back off.
3. Wet or exterior: Spring wire connectors, pre-insulated “twist-on”, resin filled rated for direct burial per UL 486D.

B. For conductors 6 AWG and larger:

1. Bus lugs and bolted connections: 600 V, 90 degrees C., two hole long barrel irreversible compression copper tin plated. Thomas & Betts or approved equal.
2. Two way connector for splices or taps: 600 V, 90 degrees C., compression long barrel, copper tin plated. Thomas & Betts or approved equal. Insulate with Scotch 23 rubber insulating base covering and Scotch 33+ outer wrap.
3. Cam-style Receptacles: 600V NEMA 3R rated suitable for use with Type W cable, tool-less assembly/disassembly, double cam style, withstand 1,000lbs of pulling force in locked position, high conductivity brass contacts, watertight elastomeric insulators, color coded Brown-Orange-Yellow-Gray (or White) and Green, female connectors suitable for use with male connectors provided within the Manual Transfer Switches, Eaton Crouse-Hinds Cam-Lok J-Series E-Z1016 or approved equal. Size cam-style receptacles to match Type W cable as shown on the Drawings.

PART 3 EXECUTION

3.01 GENERAL WIRING METHODS

A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 18 AWG for control wiring.

B. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere, 277 volt branch circuit home runs longer than 200 feet.

C. Splice only in junction or outlet boxes.

D. Neatly train and lace wiring inside boxes and equipment.

E. Make Conductor lengths for parallel circuits equal.

F. Do not share neutral conductors. Provide a dedicated neutral conductor for each branch circuit that requires a neutral.

G. Coordinate with manufacturers/suppliers for all required interconnecting wiring between equipment (ie generator, ATS, load banks, etc.).

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Verify that raceway is complete and properly supported prior to pulling conductors. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

B. Do not install XHHW-2 conductors when ambient temperatures are below –5 degrees C and THHN/THWN conductors when ambient temperatures are below 0 degrees C.

C. Conductors shall be carefully inspected for insulation defects and protected from damage as they are installed in the raceway. Where the insulation is defective or damaged, the cable section shall be repaired or replaced at the discretion of the Owner and at no additional cost to the Owner.

D. Place an equal number of conductors for each phase of a circuit in same raceway or cable.

E. Route conductors from each system in independent raceway system and not intermix in the same raceway, enclosure, junction box, wireway, or gutter as another system unless otherwise shown on the plans.

F. Completely and thoroughly swab raceway system before installing conductors.

3.03 CABLE INSTALLATION

A. Use suitable cable fittings and connectors.

B. After cam-style connectors are installed on portable power cable, neatly wrap and package cables and turn over to Owner for their future use.

3.04 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Thoroughly clean wires before installing lugs and connectors.

C. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

D. Do not exceed manufacturer's recommended pull tensions.

3.05 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Division 10 and Sections 260500 and 260126.

B. Inspect wire and cable for physical damage and proper connection.

C. Torque conductor connections and terminations to manufacturer's recommended values.

3.06 WIRE AND CABLE INSTALLATION SCHEDULE

A. All Locations: Building wire in raceways.

END OF SECTION

SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Power System Grounding.

B. Electrical Equipment and Raceway Grounding and Bonding.

1.03 RELATED SECTIONS

A. Section 260126 – Maintenance Testing of Electrical Systems.

B. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

C. Section 262416 – Panelboards.

D. Section 262419 – Low-Voltage Motor Control Centers.

E. Section 262726 – Wiring Devices.

F. Section 262816 – Enclosed Switches and Circuit Breakers.

G. Section 263200 – Packaged Generator Assemblies.

H. Section 263600 – Transfer Switches.

1.04 REFERENCE STANDARDS

A. ANSI/NEMA GR-1, Ground Rod Electrodes and Ground Rod Electrode Couplings.

B. ANSI/NFPA 70 – National Electrical Code.

C. ASTM B 3 – Standard Specification for Soft or Annealed Copper Wire.

D. AWS A5.8/A5.8M – Specification for Filler Metals for Brazing and Braze Welding.

E. IEEE Std 81 – Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

F. IEEE Std 142 – Recommended Practice for Grounding of Industrial and Commercial Power System.

G. UL 467 – Standard for Grounding and Bonding Equipment.

1.05 SYSTEM DESCRIPTION

A. Provide a complete grounding system for new equipment as required by State and Local Codes, NEC, applicable portions of other NFPA codes, and as indicated herein. Disconnect, extend and reconnect existing grounding electrode conductors as noted on the Drawings.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Submit product data for ground rods.

PART 2 PRODUCTS

2.01 MATERIALS

A. Solid Ground Rods: ANSI/NEMA GR-1, copper-encased steel, ¾ inch diameter, minimum length 10 feet. Ground rods shall be clean and smooth.

B. Bonding Conductors: Stranded bare copper wire for sizes No. 6 AWG and larger diameter, unless otherwise noted on the Drawings. Insulated conductors shall have a green outer jacket or be marked with green tape at both ends and all junction/pull boxes within the system.

C. Grounding Conductors: Copper conductor bare or green insulated.

D. Mechanical Grounding and Bonding Connectors: Non-reversible crimp type lugs only. Use factory made compression lug for all terminations.

E. Exothermic Grounding and Bonding Connectors: AWS A5.8/A5.8M Exothermic welded type. Welding procedure shall include the proper mold and powder charge and shall conform to the manufacturer's recommendations.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide and install grounding components in accordance with this specification and as noted on the Drawings.

B. Provide a separate, insulated equipment-grounding conductor in all feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Multiple conductors on single lug not permitted. Each grounding conductor shall terminate on its own terminal lug.

C. Bond together exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing and fuel systems.

D. Grounding conductors for branch circuits shall be sized in accordance with NEC.

E. Grounding conductor is in addition to neutral conductor and in no case shall neutral conductor serve as grounding means.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Provide grounding system test in accordance with Section 260126.

END OF SECTION

SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Section includes hangars and supports for Power Systems.

B. Conduit Supports.

C. Formed Steel Channel.

D. Spring Steel Clips.

E. Sleeves.

F. Mechanical Sleeve Seals.

1.03 RELATED SECTIONS

A. Section 260533 – Raceway and Boxes for Electrical Systems.

B. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

C. Section 262100 – Low-Voltage Electrical Service Entrance.

D. Section 262416 – Panelboards.

E. Section 263200 – Packaged Generator Assemblies.

F. Section 263600 – Transfer Switches.

1.04 REFERENCES

A. International Building Code (IBC), Chapter 16 – Structural Design.

1.05 SUBMITTALS

A. Submittals not required for this section.

1.06 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

B. Perform Work in accordance with the NEC and Division 26 requirements.

PART 2 PRODUCTS

2.01 CONDUIT SUPPORTS

A. Manufacturers:

1. Allied Tube & Conduit Corp.
2. Minerallac Fastening Systems.
3. O-Z Gedney Co.
4. Substitutions: per Division 10

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F, self-locking.

2.02 FORMED STEEL CHANNEL

A. Manufacturers:

1. B-Line Systems.
2. Allied Tube & Conduit Corp.
3. Unistrut Corp.
4. Substitutions: per Division 10.

B. Product Description: Galvanized 12 gage) thick steel. With holes 1-1/2 inches on center.

2.03 SLEEVES

A. Sleeves Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

B. Sleeves Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

C. Fire-stopping Insulation: Glass fiber type, non-combustible.

2.04 MECHANICAL SLEEVE SEALS

A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Division 10: Verification of existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

3.02 PREPARATION

A. Obtain permission from Owner’s Representative before using powder-actuated anchors.

B. Obtain permission from Owner’s Representative before drilling or cutting structural members.

3.03 INSTALLATION - GENERAL

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts, beam clamps, or spring steel clips.

B. Use toggle bolts or hollow wall fasteners in hollow masonry partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

C. Do not support raceways or boxes from ceiling suspension wires or suspended ceiling systems. Provide support from building structure independently to allow ceiling removal and replacement without removal of electrical system. If dedicated support wires are used, wires and wire clips must be painted or color-coded.

D. Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling suspension system.

E. Do not penetrate by drilling or screwing into metal roof decking. All penetrations into metal roof decking must be approved by the Project Manager in writing.

F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

I. Securely fasten equipment to building structure in accordance with manufacturer's recommendations and to provide necessary earthquake anchorage.

J. Provide wall attached fixtures and equipment weighing less than 50 pounds with backing plates of at least 1/8" x 10" sheet steel or 2" x 10" fire retardant treated wood securely built into the structural walls. Submit attachment details of heavier equipment for approval.

K. Earthquake Anchorages:

1. Equipment weighing more than 50 pounds shall be adequately anchored to the building structure to resist lateral earthquake forces.

2. Total lateral (earthquake) forces shall be 1.5 times the equipment weight acting laterally in any direction through the equipment center of gravity. Provide adequate backing at structural attachment points to accept the forces involved.

L. Power-driven fasteners are prohibited for tension load applications (such as supporting luminaries or conduit racks from ceiling above). Use drilled-in expansion anchors, or drilled and screw-in anchors such as Kwik-Con II or Tapcon.

3.04 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with adjustable interlocking rubber links.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Where conduit or raceway penetrates ceiling, or wall, close off space between conduit or raceway and adjacent work with suitable fire proofing and/or sealing methods as noted within 260500. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

E. Install chrome plated steel escutcheons at finished surfaces.

END OF SECTION

SECTION 260533
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Conduit.

B. Fittings and Conduit Bodies.

C. Pull and Junction Boxes.

1.03 RELATED SECTIONS

A. City of Valdez Standard Specifications – Division 20 – Earthwork.

B. Section 260500 – Common Work Results for Electrical.

C. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

D. Section 260526 – Grounding and Bonding for Electrical Systems.

E. Section 260529 – Hangers and Supports for Electrical Systems.

F. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

G. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

B. American Society for Testing and Materials (ASTM):

1. ASTM A 123 – Specification for Zinc Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strip.

C. National Electrical Manufacturers Association (NEMA):

1. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
2. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
3. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

D. Underwriters Laboratory (UL):

1. UL 6 - Rigid Steel Conduit, Zinc Coated.
2. UL 514B – Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

E. National Fire Protection Association (NFPA):

1. NFPA 70 - National Electrical Code.

F. International Building Code (IBC):

1. IBC chapters 16 and 17 seismic requirements.

1.05 RACEWAY AND BOX INSTALLATION SCHEDULE

A. Raceway Minimum Size:

1. Below Grade: Provide 1 inch minimum, unless otherwise noted.
2. Above Grade or Slab on Grade: Provide 1/2 inch minimum, unless otherwise noted. Raceway may be reduced to ½ inch for final connection of raceway up to 6 feet for connection to fixture or device where maximum conduit entry size is ½ inch.

B. Underground more than 5 feet from foundation wall:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or Schedule 40 plastic conduit.
    a. Provide detectable warning tape over all underground raceways.
    b. Provide 3-inch minimum spacing between raceways.
    c. Provide 3/4 inch minus material 6 inches above and below conduit. Backfill remaining trench free of debris or rocks greater than 1 inch in diameter.
2. Boxes and Enclosures: Provide concrete type 1A handhole

C. Under or in concrete slab, or underground within 5 feet of foundation wall:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or Schedule 40 plastic conduduit. All conduit in contact with concrete or block shall be rigid steel conduit half lapped wrapped with pipe wrap or be plastic-coated conduit. Provide transition to rigid steel conduit 12 inches prior to exit penetration through foundations, concrete walls, or block walls. Provide transition to rigid steel conduit elbow and riser for penetration through slab. Arrange raceway so the curved portion of bend is not visible above finished slab.
2. Boxes and Enclosures: Provide concrete tight cast and sheet metal steel metal boxes.

D. In or through CMU walls:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit. All conduit in contact with concrete or block shall be rigid steel conduit half lapped wrapped with pipe wrap.
2. Boxes and Enclosures: Provide concrete tight cast and sheet metal steel metal boxes.

E. Outdoor Above Grade, Damp or Wet Interior Locations:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit.
2. Boxes and Enclosures: Provide weatherproof NEMA 3R metallic enclosures, unless otherwise noted on the drawings.
3. Fittings: Provide galvanized malleable iron with gaskets. Provide Myers threaded hubs for all conduit entries into exterior enclosures.

F. Concealed Dry Locations:

1. Raceway: Provide rigid steel conduit, intermediate metal conduit or electrical metallic tubing.
2. Boxes and Enclosures: Provide sheet-metal boxes.
3. Fittings: Provide galvanized malleable iron and steel.

G. Exposed Dry Locations:

1. Raceway: Provide rigid steel conduit or intermediate metal conduit. Electrical metallic tubing may be used where exposed conduit is allowed and where not subject to damage.
2. Boxes and Enclosures: Provide sheet-metal boxes with raised steel covers.
3. Fittings: Provide galvanized malleable iron and steel.

H. Hazardous Locations (Classified Wiring):

1. Raceway: Provide rigid steel conduit.
2. Boxes and Enclosures: Provide galvanized malleable iron rated Class I Division 1, NEMA FB1. Provide seal-off fittings and manufacturer approved sealant where required by code.

I. Equipment Connections: Provide short extensions (three feet maximum) of flexible metal conduit for connections to light fixtures, motors, transformers, vibrating equipment or equipment that requires removal for maintenance or replacement. Use Liquidtight flexible conduit and fittings for motors and equipment in damp or wet locations or subject to spilling of liquids as at pumps, kitchen equipment, in mechanical rooms, boiler rooms, pump rooms, etc.

1.06 DESIGN REQUIREMENTS

A. Raceway Minimum Size:

1. Line Voltage Circuits: Raceway is sized on the drawings for copper conductors with 600-Volt type XHHW insulation, unless otherwise noted. Where a raceway size is not shown on the drawings, it shall be calculated to not exceed the percentage fill specified in the NEC Table 1, Chapter 9 using the conduit dimensions of the NEC Table 4, Chapter 9 and conductor properties of the NEC Table 5, Chapter 9.
2. Low-Voltage Circuits: Where installed in raceways, the raceway size shall be calculated to not exceed the percentage fill specified in the NEC Table 1, Chapter 9, using the conduit dimensions of the NEC Table 4, Chapter 9, and cable diameter provided by the manufacturer.

B. Box Minimum Size: Provide all boxes sized and configured per NEC Article 370 and as specified in this section.

C. Seismic Support: Provide support in accordance with section 260529 and 260548.

1.07 SUBMITTALS

A. Submittals not required for this section.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 PRODUCTS

2.01 RIGID METAL CONDUIT (RMC)

A. Rigid Steel Conduit: ANSI C80.1, UL 6.

B. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; Galvanized malleable iron with threaded hubs for all conduit entries. Provide threaded connections and couplings only. Set Screw and running thread fittings are not permitted.

C. Provide insulated throat bushings at all conduit terminations.

2.02 INTERMEDIATE METAL CONDUIT (IMC)

A. Product Description: ANSI C80.6, UL 1242; Galvanized Steel Conduit.

B. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; use fittings and conduit bodies specified above for rigid steel conduit.

C. Provide insulated throat bushings at all conduit terminations.

2.03 FLEXIBLE METAL CONDUIT (FMC)

A. Product Description: UL 1, FS WW-C-566; galvanized or zinc-coated flexible steel, full or reduced-wall thickness.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel or malleable iron with insulated throat bushings. Die cast zinc or threaded inside throat fittings are not acceptable.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Product Description: UL 360, flexible metal conduit with interlocked steel construction and PVC jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; liquid tight steel or malleable iron with insulated throat bushings. Die cast fittings are not acceptable.

2.05 ELECTRICAL METALLIC TUBING (EMT)

A. Product Description: ANSI C80.3, UL 797; galvanized steel tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel or malleable iron, compression type with insulated throat bushings. Zinc die cast, set screw, and indentor fittings are not acceptable.

C. Maximum size shall be 2". Provide factory elbows on sizes 1-½" and larger.

2.06 RIGID NONMETALLIC CONDUIT (RNC)

A. Product Description: NEMA TC 2; Schedule 40 PVC, rated for 90º C cable.

B. Fittings and Conduit Bodies: NEMA TC 3.

C. Provide PVC-coated rigid steel factory elbows for bends in all plastic conduit runs, regardless of length.

2.07 HIGH DENSITY POLYETHYLENE CONDUIT (HDPE)

A. Not approved for use on this project.

2.08 ELECTRICAL NONMETALLIC TUBING (ENT)

A. Not approved for use on this project.

2.09 PULL AND JUNCTION BOXES

A. Sheet Metal Pull and Junction Boxes: ANSI/NEMA OS 1, UL514A galvanized steel.

1. Minimum Size: 4 inches square or octagonal, 1-1/2 inches deep, unless otherwise noted.

B. Sheet Metal Boxes Larger Than 12 Inches in Any Dimension: Hinged enclosure, Hoffman or approved equal.

C. Non-Metallic Boxes for Outdoor Locations: NEMA 250, Type 3R, 4 or 4X, fiberglass or thermoset plastic, hinged door, lockable.

D. Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250, Type 4; flat-flanged, surface mounted junction box, UL listed as raintight:

1. Material: Galvanized cast iron.

2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover and screws.

E. Hazardous Locations: Suitable for use in Class I Division 1 and/or Class I Division 2 locations, as shown on the Drawings.

2.10 EXPANSION FITTINGS

A. Galvanized malleable iron, galvanized with grounding bond jumper.

2.11 RACEWAY SEALING FITTINGS

A. Galvanized malleable iron, filled with sealing compound.

B. Class I Division 1 boundaries and isolation of arcing devices use Class I Division 1 sealing compound.

2.12 BUSHINGS

A. Non-grounding: Threaded impact resistant plastic.

B. Grounding: Insulated galvanized malleable iron/steel with hardened screw bond to raceway and conductor lug.

2.13 LOCKNUTS

A. Threaded Electro Zinc Plated Steel designed to cut through protective coatings for ground continuity.

2.14 WIREWAY

A. Product Description: General purpose type wireway, NEMA 1 for indoors or NEMA 4 for outdoors. Size per NEC minimum fill capacity required.

B. Knockouts: Field-installed, no factory knockouts acceptable.

C. Cover: Screw cover.

D. Fittings and Accessories: Include factory couplings, offsets, elbows, adapters and support straps required for a complete system. Provide internal ground bonding jumper bonded to each section.

PART 3 EXECUTION

3.01 INSTALLATION

A. Ground and bond raceway and boxes in accordance with Section 260526.

B. Provide seismic support and fasten raceway and box supports to structure and finishes in accordance with Section 260529 and 260548.

C. Identify raceway and boxes with origin and destination in accordance with Section 260553.

D. Unless otherwise noted, do not inter-mix conductors from separate panelboards or any other system in the same raceway system or junction boxes.

E. Install raceway and boxes in hazardous locations in accordance with NEC Articles 500 and 501.

3.02 INSTALLATION - GENERAL RACEWAY

A. Install raceway for all systems, unless otherwise noted.

B. Install an equipment grounding conductor inside of all raceways containing line voltage conductors.

C. Raceway routing and boxes are shown in approximate locations unless dimensioned. Where raceway routing is not denoted, field-coordinate to provide complete wiring system.

D. Do not route raceways on floor or finished grade. Arrange raceway and boxes to maintain a minimum of 6 feet 6 inches of headroom and present a neat appearance. Install raceways level and square to a tolerance of 1/8” per 10 feet. Route exposed raceways and raceways above accessible ceilings parallel and perpendicular to walls, ceiling, and adjacent piping.

E. Maintain minimum 6-inch clearance between raceway and mechanical and piping and ductwork. Maintain 12-inch clearance between raceway and heat sources such as flues, steam pipes, heating pipes, heating appliances, and other surfaces with temperatures exceeding 104 degrees F.

F. Do not install raceway imbedded in spray applied fire proofing. Seal raceway penetrations of fire-rated walls, ceilings, floors in accordance with the requirements of Section 260500.

G. Where raceway penetrates fire-rated walls and floors, seal opening around conduit with UL listed firestop sealant or intumescent firestop, preserving the fire time rating of the construction. Install in accordance with Section 250500.

H. Raceways and boxes penetrating vapor barriers or penetrating areas from cold to warm shall be taped and sealed with a non-hardening duct sealing compound to prevent the accumulation of moisture, and shall include a vapor barrier on the outside.

I. Arrange raceway supports to prevent misalignment during wiring installation. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

J. Do not attach raceway to ceiling support wires or other piping systems and do not fasten raceway with wire or perforated pipe straps. Remove all wire used for temporary raceway support during construction, before conductors are pulled. Raceway shall be installed to permit ready removal of equipment, piping, ductwork, or ceiling tiles.

K. Group raceway in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps, as specified in Section 260529.

L. Cut conduit square; de-burr cut ends. Bring conduit to the shoulder of fittings and couplings and fasten securely. Where locknuts are used, install with one inside box and one outside with dished part against box.

M. Use threaded raintight conduit hubs for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations. Sealing locknuts are not acceptable.

N. Install no more than the equivalent of three 90-degree bends between boxes.

O. Install conduit bodies to make sharp changes in direction, such as around beams. “Goosenecks” in conduits are not acceptable.

P. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size.

Q. Provide protective plastic bushings or insulated throat bushings at each raceway termination not installed to an enclosure. Bushings shall be threaded to the raceway end or connector.

R. Avoid moisture traps; install junction box with drain fitting at low points in raceway system.

S. Install fittings and flexible metal conduit to accommodate 3-axis movements where raceway crosses seismic joints.

T. Install fittings designed and listed to accommodate expansion and contraction where raceway crosses control and expansion joints.

U. Use suitable caps to protect installed raceway against entrance of dirt and moisture.

V. Paint all exterior exposed conduit to match surface to which it is attached or crosses. Clean greasy or dirty conduit prior to painting in accordance with paint manufacturer's instructions. Where raceway penetrates non-rated ceilings, floors or walls, provide patching, paint and trim to retain architectural aesthetics similar to surroundings.

3.03 INSTALLATION – GENERAL BOXES

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance. All electrical box locations shown on Drawings are approximate unless dimensioned.

B. Coordinate layout and installation of boxes to provide adequate headroom and working clearance.

C. Provide knockout closures for unused openings.

D. Install boxes in walls without damaging wall insulation or reducing its effectiveness.

E. Install with minimum 24 inches separation in fire rated walls. Limit penetrations in fire rated walls to 16 square inches each and a maximum total combined penetration area of 100 square inches in any given 100 square feet of wall. Where penetrations are in excess of these requirements provided UL listed fire stop wrap acceptable to Authority having Jurisdiction.

F. Do not fasten boxes to ceiling support wires or other piping systems.

G. Support boxes independently of conduit.

H. Clean interior of boxes to remove dust, debris, and other material and clean exposed surfaces and restore finish.

I. Provide blank covers or plates for all boxes that do not contain devices.

3.04 INSTALLATION – BURIED CONDUITS

A. Excavation and backfilling shall be in accordance with these specifications and the applicable portions of the City of Valdez Standard Specifications – Division 20 - Earthwork:

1. Excavate and backfill as necessary for proper installation or work.
2. Provide bracing and shoring as necessary or required.
3. Compact backfill under footings, floor slabs and paving using materials and methods specified under Division 20, Earthwork.
4. All conduits outside the building perimeter shall be buried a minimum of 24 inches below grade, unless otherwise noted on the Drawings. Bottom of trench shall be smoothed and all rocks and cobbles 3 inches and larger shall be removed. Conduits shall be bedded in a minimum of 2 inches of sand and shall have a cover of 2 inches minimum of sand. Trench shall be backfilled with non-frost susceptible material and compacted.
5. Conduits below slab on grade shall be installed in the top 6 inches of classified material.

B. Damage to existing underground utilities shall be repaired immediately by the Contractor at no cost to the Owner.

END OF SECTION

SECTION 260548

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Seismic installation of electrical equipment.

1.03 RELATED SECTIONS

A. City of Valdez Standard Specifications – Division 30 – Portland Cement Concrete.

B. Section 260529 – Hangers and Supports for Electrical Systems.

C. Section 262419 – Low-Voltage Motor Control Centers.

D. Section 263200 – Packaged Generator Assemblies.

1.04 DESCRIPTION

A. Provide seismic anchorage and restraint of electrical systems including, equipment, raceways, etc. Coordinate with the civil/structural drawings for concrete housekeeping pads.

B. Seismic Category D, Hazard Zone 4:

1. All electrical items that are of Importance Factor (Ip) = 1.5 are required to be seismically braced. This applies to the following:

   a. The component is required to function for life safety purposes after an earthquake, including fire protection systems, fire alarm systems, emergency lighting, etc.

   b. The component contains hazardous materials.

   c. The component is in or attached to an Occupancy Category IV structure (Hospitals, fire station, police station, emergency shelters, etc. per ASCE 7-05, Table 1-1) and it is needed for continued operation of the facility or its failure could impair the continued operation of the facility.

C. All other electrical equipment shall be assigned a component importance factor (Ip) = 1.0 and are required to be seismically braced unless one of the following conditions is satisfied:

1. Component is MOUNTED (connection to structure) at less than 4' above the floor (to the center of gravity of the component), and weighs less than 400 lbs.

2. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 50 lbs (if it is concealed).

3. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 100 lbs (if it is exposed).

4. Flexible connections between the components and associated conduit are provided.

5. All runs or groupings of conduits on or off of trapezes shall be seismically braced, unless the distribution system (including conduit, wiring and fittings) weighs less than 5 pounds per linear foot.

D. In accordance with ASCE 7-10 13.6.4, all electrical components with Ip = 1.5 shall also satisfy the following requirements:

1. Provisions shall be made to eliminate seismic impact between components.

2. Loads imposed on the components by attached utility or service lines that are attached to separate structures shall be evaluated.

3. Electrical cabinet design shall comply with the applicable National Electrical Manufacturers Association (NEMA) standards. Cutouts in the lower shear panel that have not been made

by the manufacturer and reduce significantly the strength of the cabinet shall be specifically evaluated.

4. The attachments of additional external items weighing more than 100 lbs shall be specifically evaluated if not provided by the manufacturer.
5. Where conduit, cable trays, or similar electrical distribution components are attached to structures that could displace relative to one another and for isolated structures where such components cross the isolation interface, the components shall be designed to accommodate the seismic relative displacements defined in ASCE 7-10 Section 13.3.2.

E. Unless otherwise exempted above, electrical component supports and the means by which they are attached to the component shall be designed for the Seismic Category they are installed in accordance with ASCE 7-10 Section 13.6.5, which includes the following additional requirements:

1.05 REFERENCE STANDARDS

A. Seismic anchorage and restraints shall be designed and installed in accordance with codes and standards as enforced by authorities having jurisdiction in Valdez, Alaska.

B. Where applicable, building standards supersede those of other evaluation or listing agencies referenced in specification.

C. International Building Code (IBC), Chapter 16 – Structural Design.

D. ASCE 7-10 Chapter 13.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials and devices shall be in accordance with the City of Valdez Standard Specifications, applicable codes and standards, and shall be appropriate for intended use.

B. Concrete housekeeping pads, anchors, and attachments to building structure shall be as approved by building Civil/Structural engineer.

C. Seismic restraints used in conjunction with vibration isolators may consist of loose cables, telescoping pipes or box sections, angles or sections, flat plates used as limit stops or snubbers, or other types of housing used either integral with or separate from vibration isolators to accomplish necessary seismic restraint.

2.02 EQUIPMENT

A. Equipment available with seismic rating shall be provided with rating applicable to seismic zone of project location.

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure stationary equipment, raceways and equipment supports to structure, concrete bases, or special supports to provide protection against earthquakes and to restrain lateral or vertical movement. Where vibration isolators are used, seismic restraints shall be designed to limit lateral or vertical movement during earthquake without short-circuiting vibration isolation system.

B. Coordinate seismic restraint and concrete housekeeping pad requirements with a State of Alaska licensed Professional Structural engineer.

C. Seismic restraint methods and materials shall be supplementary to support devices specified in other sections of this specification and together shall serve as equipment support criteria.

D. Installation of devices shall be in accordance with seismic Structural engineer's drawings and details and in accordance with seismic guidelines.

E. Modify raceway and equipment locations as required for seismic restraint system.

F. Seismic restraint systems shall not interfere with installation of other building systems or access.

END OF SECTION

SECTION 260553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 WORK INCLUDED

A. Nameplates and Tape Labels.

B. Wire and Cable Markers.

C. Conduit Markers.

D. Underground Warning Tape.

1.03 RELATED WORK

A. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.

B. Section 260533 – Raceway and Boxes for Electrical Systems.

C. Section 262100 – Low-Voltage Electrical Service Entrance.

D. Section 262416 – Panelboards.

E. Section 262419 – Low-Voltage Motor Control Centers.

F. Section 262726 – Wiring Devices.

G. Section 262816 – Enclosed Switches and Circuit Breakers.

H. Section 263200 – Packaged Generator Assemblies.

I. Section 263600 – Transfer Switches.

1.04 SUBMITTALS

A. Submittals not required for this section.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 PRODUCTS

2.01 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved white letters on black background.

B. Letter Size:

1. 1/4-inch high letters for identifying individual panel or equipment.

2. 1/8-inch high letters for remaining lines with 1/8 inch spacing between lines.

C. Minimum nameplate size: 1/8 inch thick with a consistent length and height for each type of nameplate wherever installed on the project.

2.02 TAPE LABELS

A. Product Description: Adhesive tape labels, with 3/16 inch Bold Black letters on clear background made using Dymo RhinoPro 5000 label printer or approved equal.

B. Embossed adhesive tape will not be permitted for any application.

2.03 WIRE MARKERS

A. Power and Lighting Description: Machine printed heat-shrink tubing, cloth or wrap-on type, for all neutrals and Phase conductors.

2.04 UNDERGROUND WARNING TAPE

A. Product Description: Red, 6-inch wide, detectable.

B. Wording to read “Caution – Buried Electric Line Below”.

PART 3 EXECUTION

3.01 GENERAL INSTALLATION

A. Degrease and clean surfaces to receive nameplates and tape labels.

B. Install nameplates and tape labels parallel to equipment lines.

C. Underground Warning Tape Installation: Install underground warning tape along length of each underground conduit, raceway, or cable 6 to 8 inches below finished grade, directly above buried conduit, raceway, or cable.

3.02 NAMEPLATE INSTALLATION

A. Secure nameplates to equipment fronts using machine screws tapped and threaded into panelboard, or using rivets. The use of adhesives is not acceptable. Machine screws to not protrude more than 1/16 inch on back side.

B. Panelboard, Transformer, Transfer Switch, Generator and Load Bank Nameplates:

1. Provide nameplate for each panelboard with the following information:

a. Line 1: Panelboard name.

b. Line 2: Source(s) from which the equipment is fed.

c. Line 3: Voltage, phase and wire configuration (primary and secondary).

3.03 LABEL INSTALLATION

A. Conduit Feeder Labels - Provide conduit labels on all feeder raceways as follows:

1. Distribution Panels – “PANEL xxxx IN ROOM #xxx”.

2. Panelboards – “PANEL xxxx FED FROM MDP xxx”.

3.04 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identification shall be as follows:

1. Markers shall be located within one inch of each cable end, except at panelboards, where markers for branch circuit conductors shall be visible without removing panel deadfront.

2. Each wire and cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations.

3. Color code phases, neutral, and ground per NEC requirements and Section 260519.

4. For power circuits, identify with branch circuit or feeder number.

B. Provide pull string markers at each end of all pull strings. Marker shall identify the location of the opposite end of the pull string.

3.05 JUNCTION BOX IDENTIFICATION

A. Label each power junction box with the panelboard name and circuit number.

3.06 PANELBOARD IDENTIFICATION

A. Provide panelboard circuit directories in accordance with Section 262416.

B. Install one-line and panel map adjacent to each MDP.

END OF SECTION

SECTION 262100

LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Arrangement with Utility Company for disconnecting and reconnecting the permanent electric service to new service entrance equipment, including payment of Utility Company charges.

B. Underground service entrance.

1.02 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements and Section 260500 – Common Work Results for Electrical.

B. Section 260526 – Grounding and Bonding for Electrical System.

C. Section 260533 – Raceway and Boxes for Electrical Systems.

D. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

E. Section 260553 – Identifications for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NEMA 250 – 2003 Enclosures for Electrical Equipment (1000 Volts Maximum).

B. UL 50 – 1995 Enclosures for Electrical Equipment.

C. UL 414 – 1999 Standard for Meter Sockets.

1.04 SYSTEM DESCRIPTION

A. System Voltage: 480 volts, three phase, four-wire, 60 Hertz.

B. Service Entrance: Underground.

1.05 SUBMITTALS

A. Product Data: Submit product data for all components provided, showing electrical characteristics, material, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

B. Shop Drawings: Submit shop drawings and manufacturer's literature for circuit breaker disconnecting means, transformer rated meter base, and current transformer cabinet.

1.06 QUALITY ASSURANCE

A. Utility Company: Copper Valley Electric Association (CVEA).

B. Install service entrance in accordance with Utility Company's rules and regulations.

PART 2 PRODUCTS

2.01 METERING EQUIPMENT

A. Meter: Furnished and installed by the Utility Company.

B. Transformer Rated Meter Base: NEMA 3R, 13-terminal, transformer rated 20 amperes, 600 volts with mounting provisions to accommodate a covered test switch with test switch cover sealing provisions. The test switch mounting provisions shall accept a 10 pole covered test switch with a base dimension of 9.5 inches in width and a depth (the dimension from the rear edge of the test switch base to the top of the cover sealing stud) of no less than 3.375 inches. The lower cover of the meter socket shall seat fully with a covered test switch in place. Meet requirements of NEMA standards for watthour meter sockets-NEMA EI17-1978 (similar to EUSERC Drawing No. 339). The utility company will furnish and install the test switch and CT wiring.

C. Current Transformer Cabinet: NEMA 3R, UL 414 listed, minimum size as shown on the drawings. All current transformer cabinets and compartments shall have hinged front cover access to the current transformers. The hinged front cover shall be lockable and shall accept a padlock with a

shackle diameter of not less than 5/16 inch. Current transformer cabinets for services from 201 Amperes to 800 Amperes shall have ¼ x 20 mounting studs on the enclosure body spaced to accept a current transformer mounting base.

D. All removable covers for compartments containing un-metered conductors shall be sealable or lockable with sealable latches, stud and wing-nuts, sealing screws, or slot and tab devices. All top cover panels, side cover panels and rear cover panels providing access to un-metered conductors shall be secured in place with devices that cannot be loosened from the outside, screws or bolts requiring special tools for installation or removal are not acceptable alternates. No removable panel or cover requiring sealing or locking shall be located behind other panels, covers or doors except for rain-tight enclosures. Hinged cover panels shall be lockable on the side opposite the hinges. Hinged panel covers shall accept a padlock with a shackle diameter of not less than 5/16 inch. Stud and wing-nut sealing assemblies shall consist of a ¼ inch x 20 (minimum) stud and associated wing-nut, each drilled 0.0635 inch (minimum) for sealing purposes.

E. Current Transformer: Provided by Utility.

PART 3 EXECUTION

3.01 INSTALLATION

A. Make arrangements with Utility Company for disconnecting and reconnecting permanent electric service for the Project.

B. Underground: Modify and extend service entrance conduits to new building service entrance equipment. Utility Company will connect service lateral conductors to service entrance conductors.

C. Spray all exposed conductor sections and termination lugs with Scotch #1602 Ivi-Spray or approved equal red electrical sealer.

D. Meter sockets shall be installed with the centerline of the socket opening no more than 72 inches and no less than 60 inches above finished grade. The meter socket shall be installed with a minimum 10 inches of side clearance to each side of the socket. On current transformer rated meter sockets, the conduit connecting the meter socket and the current transformer cabinet shall be rigid steel or IMC and have a minimum diameter of 1 inch, shall not be longer than 25 feet, shall have no access points (junction boxes, condulets, etc.), and shall connect to the meter socket at a factory supplied knockout located below the test switch mounting provisions.

E. Wall mounted current transformer enclosures shall be mounted with the top of the cabinet no more than 96 inches above grade and the bottom of the cabinet no less than 16 inches above grade.

F. All service entrance equipment shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

END OF SECTION

SECTION 262416
PANELBOARDS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Lighting and Appliance Branch Circuit Panelboards.

1.03 RELATED SECTIONS

A. Section 260526 – Grounding and Bonding for Electrical Systems.

B. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCES

A. NEMA AB 1 - Molded Case Circuit Breakers.

B. NEMA PB 1 - Panelboards.

C. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

D. UL 50 – Enclosures for Electrical Equipment.

E. UL 67 – Panelboards.

F. UL 489 – Molded Case Circuit Breakers and Circuit Breaker Enclosures.

G. Federal Specification W-C-375B/Gen – Circuit Breakers, Molded Case, Branch Circuit and Service.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided which fall under this section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

C. Shop drawings: Submit shop drawings for each panelboard indicating features and device arrangement and size. Include outline and support point dimensions, voltage, main bus ampacity, and integrated short circuit ampere rating.

1.06 DELIVERY, STORAGE AND HANDLING

A. Store and protect products under provisions of General Conditions and Supplementary Conditions to the Contract.

B. Upon arrival at the site inspect equipment and report on any damage.

C. Handle carefully on site to avoid any damage to internal components, enclosures and finishes.

D. Store in a clean, dry environment. Maintain factory packaging and provide an additional heavy canvas or plastic cover to protect enclosures from dirt, water, construction debris and traffic.

1.07 OPERATION AND MAINTENANCE MATERIALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Provide product data and shop drawing information including replacement parts list.

C. Provide installation, operation and maintenance information per manufacturer.

D. Project record data: Submit final record panel schedules as hardcopy and in Microsoft Excel format.

1.08 WARRANTY

A. Manufacturer shall warrant specified equipment to be free of defects for a period of one year from the date of installation.

1.09 SPARE PARTS

A. Keys: Furnish 2 each to Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS - PANELBOARDS

A. Square D.

B. Substitutions: Under provisions of Division 01.

2.02 BRANCH CIRCUIT PANELBOARDS

A. Lighting and Appliance Branch Circuit Panelboards: NEMA PB 1; circuit breaker type.

B. Enclosure: NEMA PB 1; Type 1 or 3R as indicated on Drawings. Boxes shall be galvanized steel constructed in accordance with UL50 requirements. Interiors shall be field convertible for top or bottom incoming feed. Main lug interiors up to 400 amperes shall be field convertible to main breaker. Interior leveling provisions shall be provided for flush mounted applications.

C. Cabinet Size: 6 inches deep; 20 inches wide minimum.

D. Provide flush or surface cabinet front as indicated on the Drawings with door-in-door cover concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

E. Provide panelboards with copper bus, ratings as scheduled on Drawings. Provide one continuous bus bar per phase each. Panelboards shall have sequentially phased branch circuit connectors suitable for bolt-on branch circuit breakers. Bussing shall be fully rated.

F. Integrated Short Circuit Rating: Provide panelboards with short circuit ratings as shown on the Drawings. Minimum ratings shall be 10,000 amperes RMS symmetrical for 250 volt panelboards.

G. Main/Sub Feed Circuit Breakers: NEMA AB 1; Provide vertical mount main and/or sub feed circuit breaker in panelboards as shown on the drawings.

1. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free. Automatic tripping of the breaker shall be clearly indicated by the handle position. Contacts shall be nonwelding silver alloy and arc extinction shall be accomplished by means of DE-ION arc chutes.

2. Lugs shall be UL Listed to accept copper and aluminum conductors and shall be suitable for 90^{o}C rated wire, sized according to the 75^{o}C temperature rating per NEC Table 310-16. Lug body shall be bolted in place.

H. Branch Circuit Breakers: NEMA AB 1; Provide panelboards with bolt-on type thermal magnetic trip circuit breakers.

1. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free with common trip handle for all poles.

2. Lugs shall be UL Listed to accept copper and aluminum conductors and shall be suitable for 90^{o}C rated wire, sized according to the 75^{o}C temperature rating per NEC Table 310-16. Lug body shall be bolted in place.

3. Provide circuit breakers UL listed as Type SWD for lighting circuits.

4. Provide circuit breakers UL listed as type HACR for use with heating, air conditioning and refrigeration equipment.

5. Provide UL Class A ground fault interrupter circuit breakers where scheduled on Drawings.

2.03 PANELBOARD IDENTIFICATION

A. For each new panelboard and each existing panelboard where circuits are added or modified, provide typed schedule denoting each circuit load by the load type and final name and room number actually in use in the facility. Schedule shall not be typed with names shown on the Contract Drawings unless names are acceptable to the Owner.

B. Provide panel schedule in O&M manual for every new panelboard and every existing panelboard where circuits are added or modified.

C. Where more than one nominal voltage system is present on the premises, the conductor color-coding legend shall be permanently posted at each branch circuit and distribution panelboard per NEC requirements.

D. All panelboards shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

E. Provide electronic copies of all panel schedules in Microsoft Excel format, submitted with the O&M manuals.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1.

B. Height: 6 feet, 6 inches to top of panelboard.

C. Provide filler plates for unused spaces in panelboards.

D. Panel Schedules: Revise schedules to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.

B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

END OF SECTION

SECTION 262419
LOW VOLTAGE MOTOR CONTROL CENTERS

PART 1 GENERAL

1.01 SCOPE

A. The requirements of the contract, Division 26 applies to work in this section. Motor Control Centers as specified and as shown on the contract drawings shall be furnished and installed by the contractor.

B. Section 409010 Control Strategies Descriptions, Section 409100 Instrumentation, Control and Telemetry Systems, and the Instrumentation Drawing sheets supplement and provide the basis of required programming within the MCC. The manufacturer or its designated field service group shall program, test, commission and certify operation of the MCC equipment.

1.02 RELATED DOCUMENTS

A. Related sections include the following:

1. Section 260519 – Low-Voltage Electrical Power Conductors and Cables.
2. Section 260529 – Grounding and Bonding for Electrical Systems.
3. Section 260548 – Vibration and Seismic Controls for Electrical Systems.
4. Section 260553 – Identification for Electrical Systems.
5. Section 262923 – Variable-Frequency Drives.
6. Section 409010 – Control Strategies Descriptions.
7. Section 409100 – Instrumentation, Control and Telemetry Systems.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's printed product data.

B. Documents: Submit shop drawings for approval. Documents shall include all dimensions, weights, electrical ratings, wiring diagrams and required clearances.

1.04 RELATED STANDARDS

A. The Motor Control Center shall be manufactured and tested according to the latest applicable standards of the following agencies:

1. UL 845 – Motor Control Centers
2. NEMA ICS 18-2001 – Motor Control Centers
3. NEMA ICS 1-2001 – Industrial Control and Systems: General Requirements
4. NEMA ICS 2.3-2008 – Industrial Control and Systems: Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers

B. Manufacturer Seismic Qualification: The low voltage motor control center(s) shall meet and be certified to seismic requirements specified in the IBC 2012 International Building Code.

1. The low voltage motor control center(s) shall be complaint with IBC 2012 parameters:
   a. Building Occupancy Category (as defined in Table 1.1 from ASCE 2010): IV
   b. Seismic Design Category: D
   c. Site Class: C – Very dense soil and soft rock as defined in IBC 2006 Table 1613.5.2 Site Class Definitions
   d. Ip – Importance Factor: 1.5 – Components must function after an earthquake for life safety purposes (Building Occupancy Code IV).
   e. Ss: Mapped Spectral Accelerations for Short Periods at 0.2 seconds – 1.4g
   f. Sds – 5% Damped Design Spectral Response Accelerations for Short Periods at 0.2 seconds – 0.93g

g. z/h – Height factor ratio: 0.083. Note: Ratio is a calculated value equal to the floor the gear is installed on divided by 12. A 6th floor installation is a 0.5 value. A basement or ground floor installation is a 0.0 value.

1.05 QUALITY ASSURANCE

A. Manufacturer: For equipment required for the work of this section, provide products which are the responsibility of one manufacturer.

B. Manufacturer shall have had produced similar electrical equipment for a minimum of 5 years.

C. Manufacturer shall be ISO 9001; 2008 certified.

1.06 DELIVERY, STORAGE AND HANDLING

A. Handle and store equipment in accordance with manufacturer's Installation and Maintenance Manual. One (1) copy of this document shall be provided with the equipment at the time of shipment.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design is Siemens Tiastar for ultimate compatibility with the existing City of Valdez system components.

B. Alternative "or equal" equipment shall be submitted via variance request for Engineer and City of Valdez approval prior to award.

2.02 GENERAL REQUIREMENTS

A. STRUCTURES

1. The enclosure shall be NEMA Type 1A with gasketed doors. Vertical sections shall be constructed with steel divider sheet assemblies formed or otherwise fabricated to eliminate open framework between adjacent sections or full-length bolted-on side sheet assemblies at the ends of the MCC(s).
2. Vertical sections shall be 90" high excluding mounting sills, 20" wide and 20" deep for front mounting of units.
3. Vertical structures shall be divided into six (6) 12" space factors and shall accommodate six (6) full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters. MCC unit sizes shall be multiples of 1/2 space factor (6"). The vertical structures shall accommodate 6" high density and dual mounted units.
4. Back-to-back, front and rear unit mounting, structures shall be 21" deep maximum and shall accommodate 12 full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters per section.
5. Each standard 20" and 24" wide structure shall be supplied with a vertical wireway. 4" wide wireways shall be installed on 20" wide structures and 8" wide wireways on 24" wide structures. Wireways shall be completely isolated from all power busses. The rear surface of the vertical wireway shall be painted white. A minimum of three (3) formed wire cable supports, extending the full depth of the vertical wireway shall be supplied in each vertical section. A separate hinged door shall cover the vertical wireway.
6. Each standard structure shall be supplied with a 12 inch top and six (6) inch bottom horizontal wireway that are continuous for the entire length of the MCC. The minimum horizontal wireway opening between sections is 40 square inches for the top and 30 square inches for the bottom horizontal wireway. A hinged door shall be supplied to cover the top horizontal wireway.
7. Doors are to be hinged in a manner that allows for the removal of individual doors without the removal of any door above or below. Unit doors shall be hinged on the left and vertical wireway doors on the right for unobstructed access to the units and associated vertical wireway. All doors shall be mounted on removable pin-type hinges and secured with steel quarter-turn, indicating type fasteners.

8. Wireways shall be completely isolated from bus compartments by suitable barriers. Sliding barriers between the horizontal bus and top horizontal wireway are not acceptable.
9. Removable top cover plates shall be provided for conduit entry to the top horizontal wireway and shall provide a minimum of 116 square inches of area for conduit location. Top cover plates shall be fabricated from 13 gauge steel.
10. All MCC structures shall be supplied with 1-1/8" high X 3" wide base channel sills that are continuous for the entire length of the shipping split. The base channel sills shall be fabricated of 7 gauge steel and shall be suitable for grouting the base channel sills in place, welding to leveling plates or securing to the floor with 1/2" anchor bolts. MCC structures shall be supplied with reversible bottom end cover plates to cover the bottom horizontal wireway and ends of the base channel sills. The bottom end cover plates shall be factory installed to cover the ends of the base channel sills to prevent entrance of dirt and rodents into the MCC when installed flush on the floor and shall be removable to expose the ends of the base channel sills if they are to be grouted into the floor.
11. A removable, full length lifting angle shall be provided for each shipping split of each MCC. The lifting angle shall be bolted to each side sheet or divider sheet of the shipping split to evenly distribute the weight of the MCC during lifting.
12. MCC's shall be assembled in such a manner that it is not necessary to have rear accessibility to remove any internal devices or components.

B. BUSSING

1. The main horizontal bus shall be
    a. Tin plated copper rated at 400 amperes with a conductivity rating of 100% IACS. The horizontal bus bars shall be fully sized to carry 100% of the rated current the entire length of the MCC. Horizontal bus bars shall be mounted edge wise and located at the top of the MCC. Tapered horizontal bus is not acceptable.
    b. All power bus shall be braced to withstand a fault current of 42,000 RMS symmetrical amperes.
    c. The entire horizontal bus assembly must be located behind the top horizontal wireway at any amperage. Horizontal bus bars located behind usable unit space are not acceptable.
    d. The horizontal bus shall be isolated from the top horizontal wireway by a clear, flexible, polycarbonate, barrier allowing visual inspection of the horizontal bus without removing any hardware.
2. The vertical bus:
    a. Shall be rated 300 amperes. Vertical bus bars shall be fabricated of tin plated solid copper bars with a conductivity rating of 100% IACS.
    b. The vertical bus assembly shall be isolated from the unit mounting space by means of a full height steel barrier. Provisions shall be made to close off unused unit stab openings in the vertical bus barrier with removable covers.
3. All bus ratings are to be based on a maximum temperature rise of 65ºC over a 40ºC ambient temperature.
4. Horizontal to vertical bus and horizontal bus splice connections shall be made with two (2) 3/8" grade 5 bolts and conical washers at each connection point. All connecting hardware shall be designed to be tightened from the front of the MCC without applying any tools to the rear of the connection.
5. The horizontal ground bus shall be rated 300 amp copper.
6. The neutral bus connection shall be rated 400 amp copper.

C. UNITS

1. Plug-in units shall connect to the vertical bus by means of self-aligning, tin plated copper stab-on connectors provided with spring steel back-up springs to insure positive connection to the vertical bus.
2. When vertical ground bus is specified, plug-in units shall include a ground stab which engages the vertical ground bus before the power stabs engage the vertical bus when the unit is inserted into the structure. When the plug-in unit is withdrawn from the vertical bus, the vertical ground stab shall release after the power stabs.
3. The interior of all MCC units shall be painted white, including unit top and bottom plates or isolation barriers.
4. All plug-in units 12” tall and larger will include two (2) auxiliary handles to aid in installation, removal and transporting plug-in units.
5. All plug-in units will include a racking mechanism to assure full engagement with the stab-on connectors with the vertical bus.
6. Plug-in units shall be provided with interference mechanism type draw-out to prevent complete removal of the plug-in unit from the structure in one motion. The interference mechanism shall also provide clear indication when the plug-in unit has been withdrawn to the “TEST” position.
7. A mechanical interlock shall be supplied on all plug-in units to prevent insertion or removal of a unit from the structure when the unit operator handle is in the ON position. This interlock may not be defeated.
8. Each 12” tall and larger plug-in unit shall be secured in the structure by two (2) readily accessible devices, one of which is tool operated. These devices shall be located at the front of the unit.
9. Plug-in units with NEMA Type B or C wiring shall be supplied with unit terminal block mounted within the unit, adjacent to the vertical wireway. For non-high density units, the terminal blocks shall be mounted on a movable bracket that maintains the terminals inside the unit structure for normal operation and pivots into the vertical wireway exposing the terminals for wiring, test and maintenance.
10. All plug-in units shall include a positive means of grounding the unit to the structure at all times.
11. The MCC unit disconnect operator shall operate in a vertical, up-down, plane. 6” units shall operate in a horizontal motion. All unit disconnects shall remain engaged with the disconnect device at all times, regardless of the unit door position. The operating handles shall be interlocked with the unit door so that the door can neither be opened with the disconnect device in the ON position, nor can the disconnect device be turned ON with the unit door open except by operation of a defeater mechanism. Indication of the disconnect device shall be clearly indicated by the position of the operating handle. When applied with circuit breaker devices, the handle shall also provide clear indication of a circuit breaker trip.
12. When pilot lights, push buttons or sector switches are specified. The devices shall be mounted in a formed metal device panel that is capable of accepting four (4) such devices in any combination. The device panel shall be secured to the unit door for normal operation, or mounted on the plug-in unit as required for unit removal and bench testing.
13. Pilot devices shall be heavy duty, oil tight 30mm devices with a NEMA 4 rating. Pilot device contacts shall be rated at 10A, 600 VAC (NEMA A600). The pilot device bodies shall be fabricated from metal.
14. Unit identification nameplate shall be provided for each unit. Nameplates shall be a black surface with white core. Engraving shall cut through the black surface exposing white lettering of the unit designation. Nameplates shall be 1” tall by 3 1/2” wide. Adhesives or glues are not an acceptable means of mounting unit nameplates.

D. WIRING

1. The wiring shall be NEMA Class 1.
2. All internal wiring shall be labeled using heat shrink type material.

E. AUTOMATIC TRANSFER SWITCH

1. Provide Automatic Transfer Switch (ATS) section integral to MCC.
2. Ratings:
   a. Amperage as shown on the Drawings.
   b. Three switched poles, plus a solid neutral bus with lugs.
   c. Combination load inrush rating.
   d. 250% interrupting capacity.
   e. 42,000A Withstand Current Rating.
3. Product Options and Features:
   a. Microprocessor controls with digital display for status information.
   b. Transfer switch voltage sensors shall be close differential type providing source vailability information to the control system based upon the following functions:
      1.) Monitoring all phases of the normal source for under voltage conditions (adjustable for pickup in a range of 85 to 98% of the normal voltage leave and dropout in a range of 75 to 98% of normal voltage level).
      2.) Monitoring all phases of the standby source for under voltage conditions (adjustable for pickup in a range of 85 to 98% of the normal voltage leave and dropout in a range of 75 to 98% of pickup voltage level).
      3.) Monitoring all phases of the normal and standby sources for voltage imbalance.
      4.) Monitoring all phases of the normal and standby sources for loss of a single phase.
      5.) Monitoring all phases of the normal and standby sources for phase rotation.
      6.) Monitoring all phases of the normal and standby sources for over voltage conditions (adjustable for dropout over a range of 105 to 135% or normal voltage and pickup at 95 – 99% of dropout voltage level).
      7.) Monitoring of all phases of the normal and standby sources for over or under frequency conditions.
   c. The transfer switch shall incorporate adjustable time delays for generator set start (adjustable in a range from 0 – 15 seconds, set at 5 seconds); transfer (adjustable in a range from 0 – 120 seconds, set at 3 seconds); retransfer (adjustable in a range from 0 – 30 minutes, set at 5 minutes); and generator stop (cool down)(adjustable in a range of 0 – 30 minutes, set at 10 minutes).
   d. The transfer switch shall provide an isolated relay contact for starting of the generator set. The relay shall be normally held open, and close to start the generator set. Output contacts shall be form C.
   e. Provide one set of Form C auxiliary contacts on both sides operated by transfer switch position, rated 10 Amps, 250 VAC.
   f. Generator set exercise (test) with load mode: The control system shall be configurable to test the generator set under load. In this mode the transfer switch shall control the generator set in the following sequence:
      1.) Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program or when manually initiated by the operator.

2.) When the control system senses the generator set at rated voltage and frequency it shall operate to connect the load to the generator set.

3.) The generator set shall operate connected to the load for the duration of the exercise period. If the generator set fails during this period the transfer switch shall automatically reconnect the load to the normal source.

4.) At the completion of the exercise period the transfer switch shall operate to connect the load to the normal source.

5.) The transfer switch shall operate the generator set unloaded for the programmed cool down period and then remove the start signal from the generator set. If the normal source fails at any time when the generator set is running the transfer switch shall immediately connect the load to the generator set.

g. Generator set exercise (test) without load mode: The control system shall be configurable to test the generator set without transfer switch load connected. In this mode the transfer switch shall control the generator set in the following sequence:

1.) Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program or when manually initiated by the operator.

2.) When the control system senses the generator set at rated voltage and frequency it shall operate the generator set loaded by the automatic load bank only for the duration of the exercise period.

3.) At the completion of the exercise period the transfer switch shall remove the start signal from the generator set and shut the generator down. If the normal source fails at any time when the generator set is running the transfer switch shall immediately connect the load to the generator set.

h. Operator Panel: Provide with a control panel to allow the operator to view the status and control the operation of the transfer switch. The operator panel shall be a sealed membrane panel rated NEMA 3R that is permanently labeled for switch and control functions. The operator panel shall be provided with the following features and capabilities:

1.) High intensity LED lamps to indicate the source that the load is connected to and which sources are available. Source available LED indicators shall operate from the control microprocessor to indicate the true condition of the sources as sensed by the control.

2.) High intensity LED lamps to indicate that the transfer switch in “Not in Auto” and “Test/Exercise Active” to indicate that the control system is testing or exercising the generator set.

3.) “OVERIDE” pushbutton to cause the transfer switch to bypass any active time delays for start, transfer, and retransfer and immediately proceed with its next logical operation.

4.) “TEST” pushbutton to initiate a preprogrammed test sequence for the generator set and transfer switch. The transfer switch shall be programmable for test with load or test without load.

5.) “REST/LAMP TEST” pushbutton that will clear any faults present in the control or simultaneously test all lamps on the panel by lighting them.

6.) The control system shall continuously log information on the number of hours each source has been connected to the load, the number of times transferred, and the total number of times each source has failed. This information shall be available via the operator display panel.

7.) Alphanumeric display panel with pushbutton navigation to display all source and load information to include voltage, frequency, current, power, power factor, etc.

8.) Display panel shall allow user adjustments after entering an access code to change electrical parameters, set points, clock, load sequence, with and without load test times, etc.

9.) Display panel shall display service and fault history.

F. VARIABLE FREQUENCY DRIVES

1. Provide Variable Frequency Drive (VFD) sections with line side circuit breaker and disconnecting means.
2. VFDs shall be provided integral to the MCC meeting the requirements of Section 262923.

G. FEEDERS

1. Feeder disconnects shall be Siemens thermal-magnetic circuit breaker.

H. TRANSFORMERS

1. Provide transformer with primary overcurrent protection integral to MCC section in accordance with the Drawings.
2. Dry type transformers shall meet ANSI/NEMA ST 20 for factory-assembled, air cooled dry type transformers. Sized in accordance with the Drawings.

I. PANELBOARDS

1. Provide panelboard integral to MCC section in accordance with the Drawings.
2. Panelboards shall meet the applicable requirements of Section 262416.

2.03 NETWORK

A. The Siemens Smart Motor Control Center shall be connected to the control system via the ProfiNet switch located in the PLC enclosure.

B. Siemens tiastar Smart Motor Control Center is supplied with ***ProfiNet.*** The network shall be installed at the factory to provide simplify commissioning on site.

C. All programmable devices shall be configured per sheet I3 of the project drawings for interoperability of the MCC with the control system.

2.04 METERING

A. Multifunction digital-metering monitors shall be, microprocessor-based unit suitable for three or four wire systems. Units shall communicate via:

1. ProfiNet module

B. The meter shall mounted on the door and shall meter at the Main Lugs

C. Metering Equipment

1. Provide a multi-function, high accuracy digital power metering instrumentation module equipped with LCD display. The power metering module shall provide simultaneous measurements for current, voltage and power parameters. Power meter shall be Siemens type PAC4200 equipped with a communications port for Industrial Ethernet connection.

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation shall be per the manufacturer's recommendations, written instructions, final shop drawings, and contract documents. Installation shall be coordinated with adjacent work to ensure proper sequence of construction, clearances and support.

B. Provide concrete housekeeping pad below MCC in accordance with the Civil/Structural Drawings.

C. The Motor Control Center shall not be placed in hazardous locations. The location shall be well ventilated and free from humidity, dust, and dirt. The temperature shall be no less than 32°F and no greater than 104°F. Protection shall be provided to prevent moisture from entering the enclosure.

3.02 TESTING

A. Perform factory and installation tests in accordance with applicable NEMA and UL requirements.

B. Coordinate onsite testing activities with VFD and Generator manufacturer representatives, as applicable, for a complete and functional test of the MCC.

C. Provide onsite instruction for Owner personnel.

3.03 WARRANTY

A. Equipment manufacturer warrants that all goods supplied shall be free of non-conformities in workmanship and materials for one year from date of initial operation, and not more than eighteen months from date of shipment.

END OF SECTION

SECTION 262726
WIRING DEVICES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Wall Switches.

B. Receptacles.

C. Device Plates and Box Covers.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 - General Requirements and Section 260500 – Common Work Results for Electrical.

B. Section 260526 – Grounding and Bonding for Electrical Systems.

C. Section 260533 – Raceway and Boxes for Electrical Systems.

D. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCE STANDARDS

A. FS W-C-596 – Federal Specification for Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. FS W-S-896 – Federal Specification for Switches, Toggle (Toggle and Lock), Flush Mounted.

C. NEMA WD 1 - General Color Requirements for Wiring Devices.

D. ANSI/NEMA WD 6 – Wiring Devices – Dimensional Requirement.

E. UL 20 – General-Use Snap Switches.

F. UL 498 - Attachment Plugs and Receptacles.

G. UL 943 – Ground-Fault-Circuit-Interrupters.

1.05 SUBMITTALS

A. Submit information under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided that are specified in this section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

1.06 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations of new Reefer Pedestals on the project record drawings. Submit under Section 260500.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - WALL SWITCHES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Arrow Hart

E. Substitutions: Under provisions of Division 01.

2.02 WALL SWITCHES

A. Wall Switches for Lighting Circuits: UL 20; NEMA WD 1; and Federal Specification FS W-S-896 AC industrial grade snap switch with toggle handle, rated 20 amperes and 120-277 volts AC. Handle: White nylon. Provide single-pole, 3-way, or 4-way switches as indicated on Plans.

B. Pilot Light Type: UL 20; NEMA WD 1; and Federal Specification FS W-S-896 AC industrial grade snap switch, rated 20 amperes and 120-277 volts AC. Handle: Red pilot light toggle (illuminated when load is on). Provide single pole unless otherwise indicated on Plans.

2.03 ACCEPTABLE MANUFACTURERS - RECEPTACLES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Arrow Hart

E. Substitutions: Under provisions of Division 01.

2.04 RECEPTACLES

A. Convenience and Straight-blade Receptacles: UL 498, NEMA WD 1 and Federal Specification FS W-C-596 industrial grade receptacle.

B. Locking-Blade Receptacles: NEMA WD 5.

C. Convenience Receptacle Configuration: NEMA WD 1; Type 5-20R, white [ivory] nylon face.

D. Specific-use Receptacle Configuration: NEMA WD 1 or WD 5; type as indicated on Drawings, black phenolic face.

E. GFCI Receptacles: 20A, duplex convenience receptacle with integral class ‘A’ ground fault current interrupter, LED indicator lamp and integral lockout.

F. Weather-Resistant Receptacles: Listed to the weather-resistant supplement of UL498 and complying with the requirements of NEC 406.9.

2.05 DEVICE PLATES

A. Weatherproof Cover Plate: UL listed, cast aluminum, hinged outlet cover/enclosure, with gasket between the enclosure and the mounting surface, suitable for wet locations while in use and identified as “Extra Duty” per NEC 406.9 (B)(1).

B. Exposed Work Cover Plate: ½ inch raised, square, pressed, galvanized or cadmium plated steel cover plate supporting devices independent of the outlet box.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install wall switches 48 inches above floor, OFF position down.

B. Unless otherwise noted install wall switches within 6 inches of the door jamb on the strike side.

C. Install convenience receptacles 18 inches above floor, 4 inches above counters or backsplash, grounding pole on bottom.

D. Install specific-use receptacles at heights shown on Contract Drawings.

E. Unless otherwise noted, mounting heights are for finished floor to center line of outlet.

F. Drill opening for poke-through fitting installation in accordance with manufacturer's instructions.

G. Install decorative plates on switch, receptacle, and blank outlets in finished areas. Use midsize or jumbo plates for outlets installed in masonry walls, where required to cover up imperfections in the wall opening.

H. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

I. Install devices and wall plates flush and level.

J. Ground receptacles to boxes with a grounding wire. Grounding through the yoke or screw contact is not an acceptable alternate to the ground wire.

K. Install circuit label on each receptacle and light switch in accordance with Section 260553.

END OF SECTION

SECTION 262816
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Enclosed Circuit Breakers.

B. Enclosed Manual Motor Starters.

C. Enclosed Combination Magnetic Motor Starters.

D. Enclosures.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements and Section 260500 – Common Work Results for Electrical.

B. Division 23 – Heating, Ventilating, and Air Conditioning (HVAC).

C. Section 260526 – Grounding and Bonding for Electrical Systems.

D. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

E. Section 260553 – Identification for Electrical Systems.

1.04 REFERENCE STANDARDS

A. ANSI/UL 98 Enclosed and Dead Front Switches.

B. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

C. UL 489 – Molded Case Circuit Breakers and Circuit Breaker Enclosures.

D. NEMA AB-1 – Molded Case Circuit Breakers and Molded Case Switches.

E. NEMA IC 2 – Industrial Control Devices, Controllers, and Assemblies.

F. NEMA ICS 6 – Enclosures for Industrial Controls and Systems.

G. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

H. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.05 SUBMITTALS

A. Submit information under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Product Data: Submit product data for all components provided, showing electrical characteristics, material, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

C. Shop Drawings: Submit shop drawings include outline drawings with dimensions, and equipment ratings for voltage, capacity, horsepower, and short circuit current interrupting rating.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Square D.

B. Siemens.

C. Cutler Hammer.

D. Substitutions: Under provisions of Division 01.

2.02 ENCLOSED CIRCUIT BREAKERS

A. Molded case circuit breakers shall provide circuit overcurrent protection with inverse time and instantaneous tripping characteristics.

B. All circuit breakers shall have a quick-make, quick break over center toggle type mechanism and the handle mechanism shall be trip free to prevent holding contacts closed against a short circuit or sustained overload. All circuit breaker handles shall assume a position between "ON" and "OFF" when tripped automatically. Multiple pole circuit breakers shall be common trip such that an overload or short circuit on any one pole will result in all poles opening simultaneously. Arc extinction is to be accomplished by magnetic arc chutes. All ratings are to be clearly visible.

C. Circuit breakers shall have a minimum symmetrical interrupting capacity as indicated on the drawings. The interrupting rating of the circuit breakers shall be at least equal to the available short circuit current at the line terminals of the circuit breaker. Where indicated or allowed, circuit breakers shall be UL listed for series application.

D. Where indicated, circuit breakers shall be current limiting. Current limiting circuit breakers shall limit the let-through I^2t to a value less than the I^2t of one-half cycle wave of the symmetrical prospective current without any fusible elements when operating within its current range.

E. Where combination motor control is indicated on the drawings, instantaneous only circuit breakers shall be furnished as the means to provide short circuit protection. The magnetic trip settings for each phase shall be individually adjustable from the front of each circuit breaker.

F. Unless otherwise noted on the drawings, all circuit breakers 250A ampere frame and below shall have thermal-magnetic trip units, with inverse time-current characteristics.

1. Automatic operation of all circuit breakers shall be obtained by means of thermal-magnetic tripping devices located in each pole providing inverse time delay and instantaneous circuit protection. Instantaneous pick-up settings for each phase shall be individually adjustable on all frames 250A and above.

2. Circuit breakers shall be ambient compensating in that, as the ambient temperature increases over 40º C, the circuit breaker automatically derates itself to better protect its associated conductor.

3. Circuit breakers from 250 to 2000A frames shall have thermal magnetic interchangeable trip units. When reverse feed is indicated on the drawings, in accordance with UL, circuit breakers with sealed trip units shall be supplied.

G. Circuit breaker enclosure assembly shall be listed as service entrance rated.

2.03 MANUAL MOTOR STARTERS

A. Fractional Horsepower Manual Starter: NEMA ICS 2; AC general-purpose Class A manually operated, number of poles as required by the load served, full-voltage controller for fractional horsepower induction motors, with thermal overload unit, red pilot light, and toggle operator.

2.04 COMBINATION MAGNETIC MOTOR STARTERS

A. Magnetic Motor Starters: NEMA ICS 2; AC general-purpose Class A magnetic controller for induction motors rated in horsepower.

B. Full Voltage Starting: Non-reversing type.

C. Coil Operating Voltage: 120 volts, 60 Hertz.

D. Size: NEMA ICS 2; size as required by the load served.

E. Overload Relay: NEMA ICS 2; bimetal.

F. Combination Motor Starters: Combine motor starters with [non-fusible switch] [fusible switch] disconnect in common enclosure.

G. Auxiliary Contacts: NEMA ICS 2; two field convertible contacts in addition to seal-in contact.

H. Pushbuttons: NEMA ICS 2; START/STOP in front cover.

I. Indicating Lights: NEMA ICS 2; RUN: red LED light in front cover.

J. Selector Switches: NEMA ICS 2; HAND/OFF/AUTO, in front cover.

K. Control Power Transformers: 120 volt secondary, VA capacity as required by the load served in each motor starter.

2.05 ENCLOSURES AND ACCESSORIES

A. Enclosure materials:

1. Exterior Locations – NEMA ICS 6; Type 304 or 316 Stainless Steel, NEMA 3R rating (minimum).

2. Interior Non-Hazardous Locations – NEMA ICS 6; NEMA 1 or NEMA 12 rating.

3. Interior Hazardous Locations – NEMA ICS 6; NEMA 7,9 rating, Suitable for Class I, Division 2 locations as shown on the Drawings.

B. Unless otherwise noted, mechanical lugs shall be provided with all Molded Case Breakers.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install enclosed switches, circuit breakers, and motor starters were indicated on Drawings, and where required for NEC required disconnect of equipment specified under other divisions, but installed under Division 26.

B. Select and install heater elements in motor starters to match installed motor characteristics.

C. Provide neatly typed label inside each motor starter enclosure door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

D. Check and correct the rotation of all motors after final connections are made.

E. Ground and bond enclosures per Section 260526.

F. Install engraved nameplates per Section 260553.

G. All enclosed switches, circuit breakers, and motor starters shall have signage for arc hazard installed.

END OF SECTION

SECTION 262923
VARIABLE FREQUENCY MOTOR CONTROLLERS

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide complete simplex type Variable Frequency Drive (VFD) units and appurtenances including drive reactors, DC chokes, harmonic filters, enclosures, and certain auxiliary items, as indicated and as specified, to provide a complete operating system.

B. The Contractor and manufacturer of the driven equipment shall be responsible for the integration of VFD units with the driven equipment. VFD manufacturer is responsible for reviewing pump and motor data and coordinating with those manufacturers to ensure proper equipment selection. Installation of the units shall be the responsibility of the Motor Control Center manufacturer in accordance with Section 262419.

1.02 RELATED SECTIONS

A. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

B. Section 262419 – Low-Voltage Motor Control Centers.

1.03 REFERENCES

A. American Society for Testing and Materials International (ASTM):

1. D178: Standard Specification for Rubber Insulating Matting

B. National Electrical Manufacturers Association (NEMA):

1. ICS 2: Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 Volts.
2. AB 1: Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures.
3. KS 1: Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
4. MG 1: Motors and Generators.

C. National Fire Protection Association (NFPA):

1. 70: National Electrical Code (NEC).

D. Underwriter's Laboratories Inc. (UL):

1. 489: Molded-Case Breakers, Molded-Case Switches, and Circuit Breaker Enclosures.
2. 508: Electrical Industrial Control Equipment.

1.04 SEISMIC DESIGN REQUIREMENTS

A. Conform to the requirements within Section 260548.

1.05 SUBMITTALS

A. Submit shop drawings and manufacturers' product data in accordance with the requirements of Section 260500.

B. Submit all materials required for coordination with motor and driven equipment manufacturers promptly.

C. Complete list of equipment and materials, including manufacturer’s descriptive and technical literature, catalog cuts, and installation instructions for all major components.

D. Complete, project-specific wiring and schematic diagrams for the equipment furnished. Each wiring diagram shall be legible and not reduced from the original design drafted format. Provide a list of equipment on each wiring diagram for which it is applicable.

E. Panel layout and front view drawings.

F. Time versus current curves for protection devices.

G. Data sheets for all devices provided as part of the assembly.

H. All other details required to demonstrate that system has been coordinated and will properly function as a unit.

I. Provide data to verify that drives can be used for motor lead lengths up to 100 feet (30 meters) without output filters. Include information from the VFD manufacturer or output filter or reactor manufacturer (if required) stating that the motor terminal voltage limitations as defined by NEMA Standard MG 1, Part 31 are met. For VFDs located more than a cable length of 100 feet from the motor load, provide drawings which include information demonstrating that an output filter or reactor is included within the VFD.

J. Provide enclosure drawings and details showing all dimensions and construction details.

K. Submit harmonic analysis report for accepteance by Engineer prior to release of drives for fabrication. Analysis will show compliance with harmonics requirements specified herein including all voltages and current harmonics up to the 49th.

1. Submit voltage THD frequency scan of each type of VFD supplied for use in field testing.

L. Submit information relative to location and expertise of local service office and personnel.

M. Submit a Statement of Compliance indicating conformance to the Seismic Requirements specified. Certificate shall be signed and sealed by a Professional Structural Engineer holding current registration in the state for work of this project.

N. For informational purposes only, provide installation and anchoring details to meet earthquake requirements as specified and indicated on structural drawings.

O. For informational purposes only, submit manufacturer’s printed installation instructions.

P. Spare Parts Data: Submit a list of spare parts for the equipment specified.

Q. Operating and Maintenance Instruction Manuals:

1. Furnish:

a. Operating instruction manuals outlining step-by-step procedures required for system startup and operation.

b. Manufacturer's name, model number, service manual parts list.

c. Brief description of equipment and basic operating features.

d. Maintenance instruction manuals outlining maintenance procedures.

e. Troubleshooting guide listing possible breakdown and repairs.

f. Point-to-point connection wiring diagram for the system.

R. Performance Test Reports: Upon completion of installed system, submit in electronic .pdf form all shop and field tests performed to prove compliance with specified performance criteria.Submit copy of Pump, Motor and VFD Statement of Compliance Coordinate Certificate.

1.06 QUALITY ASSURANCE:

A. The Contractor shall ensure proper coordination and compatibility of motors specified herein with motor control equipment and the driven equipment as specified in Sections pertaining to the driven equipment.

B. Provide variable frequency drives in accordance with UL 508A, supplement SB, and Article 409 of the National Electrical Code (NEC). All VFD units shall be provided with a UL label.

C. Ensure that conduit size and wire quantity, size, and type are suitable for the equipment supplied. Coordinate all design information with the Electrical Contractor. Review the proper installation of each type of VFD unit with the equipment supplier prior to installation.

1. Services of Service Engineer, specifically trained on type of equipment specified. Person-day requirements listed exclusive of travel time.

a. Assist in location of devices, methods of mounting, field erection, etc.

(1) 1 person-day.

b. Functional Completion Testing, Startup, Commissioning, and Training for a maximum of six members of the Owner's staff at the facility site from the startup/testing service Engineer at the end of the start-up service.

(2) person-day.

c. Service-inspections during first year of operation, for use at Owner's request, and exclusive of repair, malfunction or other trouble-shooting service calls:

(1) 1 person-day.

d. Person-day is defined as one 8-hour day, excluding travel time.

1.07 DELIVERY, STORAGE AND HANDLING:

A. Shipping:

1. Ship equipment and materials, except where partial disassembly is required by transportation regulations or for protection, complete with identification and quantity of items.
2. Pack spare parts in containers bearing labels clearly designating contents and pieces of equipment for which intended.
3. Deliver spare parts after installation but as specified before start-up of drives. Deliver to Owner after completion of work.

B. Storage:

1. Inspect and inventory items upon delivery to site.
2. Store and safeguard equipment, material and spare parts.
   a. If the equipment cannot be placed into service after its receipt, store in a closed building or structure, in a clean, dry and ventilated area free from temperature, dirt and moisture extremes. Acceptable storage temperatures are from 32 degrees F to 104 degrees F with temporary heaters provided within enclosures to prevent condensation. Provide heavy plastic envelope directly over motor control center to protect against dust, dirt, and moisture. Provide lifting angles outside of envelope.

1.08 WARRANTY AND SERVICE

A. Guarantee components, parts, and assemblies supplied by manufacturer against defects in materials and workmanship for a period of 12 months after turning the equipment over to the Owner, and in this time period include onsite, parts and labor warranty. All labor to be performed by local factory trained service engineers.

B. Ensure that equipment manufacturer has local branch office staff with trained, full-time employees who are capable of performing testing, inspecting, repair, and maintenance services.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. All VFD units shall be the product of a single Manufacturer having at least 5 years commercial experience in the manufacture, operation and servicing of equipment of type, size, quality, performance, and reliability equal to that specified.

B. Variable Frequency Drive Units:

1. Eaton Corporation, Electric Drives Division.
2. Square D Company.
3. Siemens Inc.
4. Toshiba Industrial.
5. Or acceptable equivalent product.

C. VFD Input Filters and Output Filters/Reactors:

1. Trans-Coil, Inc.
2. MTE Corporation.
3. Power Quality International.
4. Or acceptable equivalent product.

2.02 HARMONIC SUPPRESSION EQUIPMENT

A. VFDs shall meet the requirments outlined in IEEE 519 for each individual unit and total harmonic current distortion and as specified herein. Total Demand Distortion (TDD) as defined in IEEE 519, caused by simultaneous operation of the VFDs, shall not exceed 5% at point of common coupling (PCC). If needed, provide harmonic filters as specified to meet these requirements.

B. Current distortion at the PCC will be in accordance with Table 262923-1.

Table 262923-1
Maximum Harmonic Current Distortion In Percent II Odd Harmonic

Ratio	5 to 9	11 to 15	17 to 21	23 to 33	35 +	TDD
Less than 20	4.0	2.0	1.5	0.6	0.3	5.0
20 to 50	7.0	3.5	2.5	1.0	0.5	8.0
50 to 100	10.0	4.5	4.0	1.5	0.7	12.0
100 to 1000	12.0	5.5	5.0	2.0	1.0	15.0
1000 +	15.0	7.0	6.0	2.5	1.4	20.0

Notes:

1. Even harmonics are limited to 25 percent of odd harmonics.
2. DC offset distortions not allowed.
3. Ratio = Isc/IL where:

   Isc = Maximum short circuit current at PCC.

   IL = Maximum demand load current at PCC (fundamental frequency component)

C. For each VFD unit, provide a harmonic analysis study at the PCC based on pre-submittal data.

1. The Contractor shall supply the following pre-submittal information to the VFD supplier to complete the harmonics study.
   a. Available fault current information from the electric utility and upstream transformer data.
   b. Distribution transformer sizes and impedances, if any.
   c. VFD input line reactor and/or isolation transformer sizes and impedances from the utility source to the VFD units.
   d. Conductor information between transformer secondary and generator terminals to the distribution buses and VFDs.
   e. Generator kW, impedance, subtransient reactance, generator constants for the condition when the electrical system is powered from the generator.
2. The results of the harmonics study shall verify that the total contribution of VFDs to system harmonic distortion complies with IEEE 519 and is within the limits of Table 262923-1. The study shall specify additional equipment required (e.g., filters) at each harmonic where harmonic reduction is required to insure compliance.

D. The study shall consider the following conditions:

1. The electrical system shall be powered by the electric utility, case 1, or solely by local generation, case 2.

2. The study shall include an explanation of all assumptions, sources of data, methodologies and formulas used in the study and a summary of the study results.
3. The Contractor shall supply all equipment required as a result of the final accepted harmonics study at no additional cost to the Owner.

2.03 PROVISIONS

A. Service Conditions:

1. Ambient Temperature Range: 0 degrees C to 40 degrees C.
2. Operational Humidity: Up to 90 percent non-condensing.
3. Environment: Indoor, normally environmentally controlled..
4. Altitude: Below 3,300 feet above sea level.
5. Input Power:
   a. Nominal Voltage: 480volt (plus 10 percent or minus 10 percent), 3-phase, 3 wire
   b. Nominal Frequency: 60 Hertz (plus or minus 3 Hertz.)
   c. Service provided from feeder breaker on MCC bus downstream of main distribution switchboard.
   d. Drives may be fed by an on-site standby diesel generator.

B. Drive System: 0-500 HP Units

1. Controller:
   a. Furnish solid state Pulse Width Modulated (PWM) controller with 6-pulse rectifier-grade phase-shifting transformer on the incoming line feeding IGBT output inverter section.
   b. Controller shall be constant volts per hertz control type.
   c. Controller ratings shall be as follows
      1) Input power supply: 460Vac +/-10% at rated load, 3 phase, 3 wire, 60 Hz.
      2) Output Power: 460Vac, 3-phase, 3-wire.
      3) Fault withstand: 65k symmetrical amperes or as shown in the Drawings.
      4) Input power surge protector.
      5) 20 Hz to 60 Hz continuous operating range.
      6) 115% overload rating for 100 seconds, 100 percent continuous rating.
      7) Voltage Dip Ride-Through: Continued operation with 40% dip in nominal line voltage. Output speed may decline during voltage dip only if current limit rating of the controller is exceeded.
      8) Power Loss Ride-Through: Minimum 3-cycle power loss ride-through without fault activation.
      9) Efficiency: minimum 97 percent at rated speed and torque; 88 percent at half-speed and 25 percent torque.
   d. VFD control shall ensure accurate zero to full load torque control at low frequencies, including zero speed, with torque repeatability accuracy of 2 percent or better and torque response time less than 20 ms.
   e. The drive unit shall be of modular design to provide for ease and speed of maintenance.
2. Three-phase PWM rectifier section shall be 6-pulse or higher full wave diode bridge. Provide multiple secondary integral transformer within enclosure at input bridge to provide appropriate phase shift.

a. As a minimum, the transformer shall provide for the cancellation of the 5th, 7th, 17th, 19th, positive and negative sequence harmonic currents at the primary connection.

b. The transformer shall reduce voltage and current distortion on the primary side and voltage distortion on the secondary side.

c. The design shall be optimized for harmonic rich and high neutral current environment.

d. Harmonic cancellation shall be by electromagnetic means only, capacitors or electronics are not acceptable.

3. The unit shall withstand drive output terminal line-to-line and line-to-ground short circuits without component failure during start-up and during operation. Drive to safely shutdown until short is cleared.

4. Controller shall initiate an orderly system shut-down which avoids component failure and requires manual reset under the following conditions:

a. Motor inverse time overload

b. Instantaneous overcurrent

c. Inverter fault

d. Overfrequency

e. DC Link overvoltage

f. Ground fault

g. Input undervoltage (up to 5 automatic resets upon return to normal).

5. The controller shall ride through and alarm on the following conditions:

a. Incorrect phase sequence

b. Input power loss of phase

6. For inverter rated squirrel cage motors, per NEMA Standard MG-1, Part 31.40.4.2, the following limit values at the motor terminals are to be observed:

a. For motors with base rating voltage less than or equal to 600 volts, the peak instantaneous voltage must be limited to 1600 volts or less, with a voltage rise time greater than or equal to 0.1 micro-seconds.

7. The VFD manufacturer shall guarantee that the required voltage limits will be met with the motor installed up to 100 cable feet (30 m) from the VFD drive unit. If the VFD manufacturer is not able to guarantee that the above voltage limits will be met, provide a drive output filter or reactor, appropriately rated, located within the VFD enclosure and near the VFD output terminals, which shall ensure that the limitations listed above are maintained. A device located at the motor terminals is not acceptable.

8. VFD shall be capable of full rated output when powered by incoming voltage with Total Harmonic Distortion (THD) in excess of 10 percent.

9. Furnish series choke and capacitors on dc bus to reduce ripple in rectifier output and to reduce harmonic distortion reflected into incoming power feeders.

10. Drive shall be blower-cooled with thermal detection and high-temperature cutout swtich.

C. Enclosure

1. VFDs shall be factory mounted within the Motor Control Center in accordance with Section 262419.

2.04 DRIVE PROTECTION

A. General:

1. Fault detection and trip circuits shall protect VFD and connected motor against line voltage transients, single-phase, power line overvoltage and undervoltage, output overvoltage and overcurrent, and VFD overtemperature.

a. The VFD shall employ three current limit circuits to provide trip free operation.

b. The slow current regulation limit circuit shall be adjustable to a minimum 125 percent of the VFD's variable torque current rating.

c. The rapid current regulation limit shall be adjustable to a minimum 170 percent of the VFD's variable torque current rating.

d. The current switch off limit shall be fixed at a minimum 225 percent of the VFD's variable torque current rating.

2. Internal Protection: Minimum circuitry as follows:

a. Current limiting, fast acting, semiconductor input fuses for protection of internal power semiconductors.

b. Instantaneous output overcurrent trip maximum: 200 percent.

c. DC bus and control circuit transformer fusing.

d. Grounded control chassis.

e. Under and over voltage trip, 3 phases.

f. Motor overload protection, with solid state relays.

g. Circuit breaker, with door interlocked handle. Provide means to allow entry into panel where required by authorized personnel. Circuit breaker to be rated 42,000 AIC minimum.

h. Fault reset push button.

i. Input power Surge Protective Device.

j. VFD overtemperature.

k. Input and output EMI/RFI filters. Manufacturer shall certify that filters suppress objectionable interference to AM and FM radio signals per:

1) IEC 61800-2 and –3

2) EN 50082-1 and –2

3) EN 61000-6-1, -6-2, and -6-4

4) EN 61800-3 A11

2.05 CONTROL INTERFACE

A. Password-protected, microprocessor-based digital control and diagnostic systems shall monitor its own control functions and diplay faults and operating conditions in plain English without use of codes.

1. The following features shall be available to operators:

a. Selectable frequency control with critical speed avoidance. Controller shall ignore any input command requiring the drive to operate within a specified band around critical frequencies

b. Start/Stop command

c. Acceleration/Deceleration rates

d. Minimum/maximum speed setpoints

e. Auto or Remote control mode selection.

2. Self-test software program shall verify proper operation of all controller components. A fault log shall record, store and display Mode, Elapsed Time Since Fault, and Fault Type for minimum 15 most recent fault events. The following indications shall be available for display:

a. Speed input command

b. Output current (amps)

c. Output frequency (Hz)
d. Input voltage (Vac)
e. Output voltage (Vac)
f. Total 3-phase power (kW and kVA or kW and power factor)
g. Power consumption (kW-hr)
h. Elapsed run time (hr/min/sec)
i. Motor speed (RPM)
j. DC bus voltage (Vdc)

B. Furnish the following control circuit components, mounted and wired within MCC or on the drive enclosure as necessary for a complete and functional system as specified.
1. Control power transformer sized by the drive manufacturer for energizing and operating the following control devices:
2. Contacts for remote indication of motor overload trip, power failure and other failure conditions.
3. Pilot lights for local indication of motor overload trip, power failure and other failure conditions. Devices shall be full-voltage LED cluster type, heavy duty, 30 mm oil tight units
4. Contacts for remote indication of control circuit being in AUTO or REMOTE mode.
5. Manual keypad or touchscreen interface, front-panel mounted, capable of controlling the VFD, setting drive parameters and displaying fault history.
6. Accept a grounded, isolated, 4-20 mA input remote speed control signal from an external device. Input shall be optically isolated from controller circuits.
7. Provide a 4-20 mA output signal proportion to VFD output frequency for remote speed indication.
8. Speed indicating meter in percent speed to indicate speed of the converter powered motor.
9. Run time meter, mechanical type, round, UL Certified, non-reset type, with register to indicate hours and tenths of hours up to 99,999.9 hours. shall be
10. Control circuits shall be physically isolated from power circuits.

C. Controller shall be equipped to communicate with Owner's control and monitoring system using Profibus/Profinet network protocol with configurable register capable of transmitting all available control, alarm, and diagnostic parameters.

2.06 SHOP TESTING

A. Provide a factory performance test for each variable frequency drive unit. The test to consist of simulating the expected load to be driven. The drive to operate the actual motor load through the expected speed ranges. Test length to be a minimum of two hours.

B. Provide a factory burn-in test for 24 hours minimum and a control and alarm test on each drive unit by simulating each control signal and each alarm function to verify proper and correct drive unit action.

C. Provide typical prototype factory test data for short circuit testing of each type of drive supplied. Data to verify that each drive can be started into a line-to-line fault and line-to-ground fault on the drive terminals. Each drive can be operating at full load and be subjected to a line-to-line fault and line-to-ground fault on the drive terminals. All phases (A, B & C) to be included in test data.

D. Provide certified documentation of all tests performed.

E. Provide above stated tests in addition to routine factory tests.

F. Owner shall witness all factory tests at his/her option. Notify Owner two weeks before all tests.

2.07 SPARE PARTS

A. Label all spare parts containers with manufacturer's name, manufacturer's local representative's name and contact information, and a complete list of all parts enclosed.

B. Provide one spare board and card of each type, one diode module, for each horsepower size drive. Spares will be color-coded or otherwise keyed to their original counterpart such that improper installation of spare cards is impossible. In addition to the cards, the manufacturer shall provide three spares for all expendable items such as pilot lamps, power fuses, and control fuses. Provide one spare keypad.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine VFD location for satisfactory preparation. Check conduits and raceway location for connection to units.

B. Visually inspect delivered unit(s) and accessories for conformance with specification and drawings.

C. Verify availability of appropriate pacing signal.

D. Maintain variable frequency drive in upright position at all times.

E. Protect variable frequency drive against damage. Store drive in clean, dry environment with temperature and humidity within range as specified by drive manufacturer. Energize space heaters during storage as recommended by manufacturer.

3.02 INSTALLATION

A. Erect, install, and start-up equipment.

B. The VFDs shall be installed as shown on the drawings, in accordance with the manufacturer's installation instructions, and accepted shop drawings.

C. Install VFDs to allow complete door swing required for component removal. This is specifically required where a VFD is set in the corner of a room.

D. Factory-trained service personnel, other than sales representatives, shall supervise field installation, inspect, make final adjustments and operational checks, make functional checks of spare parts, and prepare a final report for record purposes. Adjust control and instrument equipment until this equipment has been field tested.

3.03 FIELD TESTING

A. Perform testing checkout, and start-up for variable frequency drive equipment under technical direction of manufacturer's service engineer. Under no circumstances energize any portion of the drive system without authorization from manufacturer's technical representative.

B. Field Tests:

1. Test each drive over the total speed range that it will be required to operate through for the load being driven for a minimum of two hours. Determine for each drive, motor, and load combination the following at minimum speed, maximum speed, and at 1/3 and 2/3 points between the minimum and maximum speeds:
    a. Input power (kW), voltage, current and RMS power factor on the line side of the drive isolation device.
    b. Output to the driven load in kilowatts.
    c. For each drive, measure the harmonic voltage distortion and harmonic current distortion for each harmonic at the main distribution bus for maximum and minimum load conditions.
    d. Measure the total harmonic voltage distortion and total harmonic current distortion at each PCC for maximum and minimum load conditions.
2. Test each drive by using the actual control signal for remote and local operation.
3. Test each drive's alarm functions.

4. Perform all tests in the presence of the Engineer or Owner representative.
5. Perform the above test in addition to the manufacturer's normal field tests.
6. Submit final test report with summary comparing field test data with harmonic analysis design calculated values for each drive.
7. Testing determined not in compliance with Contract documents shall be repeated by the Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 263200
PACKAGED GENERATOR ASSEMBLIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Packaged diesel engine generator system.

B. Weatherproof/sound attenuated enclosure.

C. Genset accessories.

1.03 RELATED SECTIONS

A. Section 260519 - Low Voltage Electrical Power Conductors and Cables.

B. Section 260526 - Grounding and Bonding for Electrical Systems.

C. Section 260548 – Vibration and Seismic Controls for Electrical Systems.

D. Section 260553 - Identification for Electrical Systems.

E. Section 262419 – Low-Voltage Motor Control Centers for Automatic Transfer Switch Coordination.

1.04 REFERENCES

A. ANSI/NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA MG 1 - Motors and Generators

C. ANSI/NEMA AB 1 – Molded Case Circuit Breakers.

D. IEEE 446 – Recommended Practice for Emergency Standby Power Systems for Commercial and Industrial Applications

E. NPFA 70 – National Electric Code

F. NFPA 37 – Installation and Use of Stationary Combustion Engines

G. NFPA 110 – Emergency and Standby Power Systems

H. UL 2200 – Stationary Engine Generator Assemblies

1.05 SYSTEM DESCRIPTION

A. Packaged diesel engine generator systems to provide source of standby power for Well House #5 in Valdez, Alaska.

B. System Capacity: KW and KVA ratings as shown on the Drawings, at elevation of 300 feet above sea level and an ambient temperature between -20°F and 104°F.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 260500 – Common Work Results for Electrical and General Conditions and Supplementary Conditions to the Contract.

B. Contractor to coordinate with manufacturer(s) to provide shop drawings showing dimensioned plan and elevation views, interconnection points, electrical schematic and interconnection diagrams for connecting new generator to new automatic transfer switch.

C. Submit product data showing dimensions, weights, ratings, interconnection points and wiring diagrams for engine, generator, control panel, batteries, battery charger, exhaust silencer, sub-base fuel tank, fuel system controls and remote annunciator.

D. Submit manufacturer's installation instructions and Operation and Maintenance manuals to include normal operation, routing maintenance requirements, battery inspection and maintenance, system coolant and other fluid inspection and replacement, oil sampling and

analysis for engine wear and emergency maintenance procedures. Provide service manuals for engine, generator, radiator and fuel tank.

1.07 PROJECT RECORD DRAWINGS

A. Submit record documents showing the accurate location of engine generator and all mechanical/electrical connections and routing. Provide as-builts of interconnection diagrams.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in packaged engine generator systems with a minimum five years of documented experience.

B. Supplier: Authorized distributor of engine generator manufacturer with service facilities in Anchorage and authorized by the manufacturer to maintain and administer the warranty and employ factory certified mechanics to perform warranty work.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Store and protect products under provisions of General Conditions and Supplementary Conditions to the Contract.

B. Deliver generators, transfer switches and all associated accessories to site for storage prior to installation.

C. Accept packaged engine generator and all accessories on site in crates and verify no damage was incurred during shipping.

D. Store and protect onsite from damage, dirt and moisture.

1.10 WARRANTY

A. Supplementary Conditions: Product warranties and product bonds.

B. Provide manufacturer’s standard warranty for the generator, enclosure and transfer switch. Warranty shall include parts, labor, travel expenses and labor to remove/reinstall equipment.

1.11 EXTRA MATERIALS

A. Submit maintenance materials list.

B. Furnish a complete set of tools required for preventative maintenance of the engine generator system. Package tools in adequately sized metal tool box.

C. Provide a one year supply of each fuel filter, oil filter, and air filter element required for the engine generator. The supply shall be based on filter changes performed at manufacturer's suggested maintenance intervals.

1.12 MAINTENANCE SERVICES

A. Furnish service and maintenance of packaged engine generator system for one year from the Date of Substantial Completion. The maintenance service shall include two semi-annual inspections and test run the engine to perform manufacturer’s recommended preventative maintenance service on the equipment furnished.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Caterpillar as the Basis of Design.

B. Kohler.

C. Substitutions: Under provisions of Division 01.

2.02 ENGINE

A. Type: Water-cooled, inline or V-type, four stroke cycle, compression ignition diesel internal combustion engine.

B. Rating: Emergency power rated, sufficient to operate at 10 percent overload for one hour in 12 in accordance with ISO30461/1, AS2789, DIN6271 and BS5514 at specified elevation and ambient limits.

C. Fuel System: Appropriate for use of #2 diesel fuel.

D. Engine Speed: 1800 rpm.

E. Mounting: Provide unit with suitable spring-type vibration isolators and mount on structural steel base within the enclosure.

F. Governor: Isochronous type to maintain engine speed within .5 percent steady state and 5 percent no load to full load, with recover to steady state within 2 seconds following sudden load changes.

G. Safety Devices: Provide engine shutdown on high water temperature, high oil temperature, low oil pressure, overspeed, engine overcrank, low oil level and low water level. Limits to be selected by manufacturer.

H. Engine Starting: Electric DC starting system capable of three complete cranking cycles without overheating. Starters shall have positive engagement, number and voltage of starter motors in accordance with manufacturer's instruction. Include remote starting control circuit with MANUAL-OFF-REMOTE selector switch on engine generator control panel.

I. Engine Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity and performance. Unit shall be designed for operation on a single 208 VAC, single-phase power connection and shall be prewired to enclosure mounted junction box. Heater shall be install with isolation valves to isolate the heater for replacement of the element without draining the engine cooling system or significant coolant loss. Provide with thermostat installed at the engine housing and prewired to the control system.

J. Cooling System: Closed loop, liquid cooled. The generator set manufacturer shall provide prototype test data for the specific hardware proposed demonstrating that the machine will operate at rated standby load in an outdoor ambient condition of 40 deg C. Coolant shall be a solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer. Overflow tank size shall be adequate to contain expansion of total system coolant from cold start to 110 percent load condition. Expansion tank shall be constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock. Temperature control shall be self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

2.03 ENGINE ACCESSORIES

A. Fuel System: The engine fuel system shall be installed in strict compliance to the engine manufacturer's instruction.

B. Fuel Pump: An engine driven, mechanical, positive displacement fuel pump. Include fuel priming pump.

C. Fuel Filter: Provide with replaceable spin-on canister element. Provide Racor pre-filter, sized by manufacturer, with water shutdown sensor tied to control panel.

D. Air Cleaner: Provide replaceable dry element air cleaner with restriction indicator.

E. Water Pump: As selected by manufacturer.

F. Lube Oil Pump: Engine/skid mounted, positive displacement, mechanical, full pressure pump.

G. Lube Oil Filter and Strainer: As recommended by the engine manufacturer to provide adequate filtration for the prime mover to be used.

H. Lube Oil Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without the use of pumps, siphons, special tools, or appliances.

2.04 GENERATOR

A. ANSI/NEMA MG 1; three phase, six pole, reconnectible brushless synchronous generator with brushless exciter.

B. Rating: KW and KVA ratings as shown on the Drawings at .8 power factor, Voltage as shown on the Drawings, wye connected, 60Hz at 1800 rpm.

C. Insulation: ANSI/NEMA MG 1, Class B.

D. Temperature Rise: 105°C / Class B / standby.

E. Enclosure: ANSI/NEMA MG 1; open drip proof.

F. Permanent Magnet Generator (PMG) shall provide excitation power for optimum motor starting and short circuit performance.

G. Steady-State Voltage Operational Bandwidth: 0.5 percent of rated output voltage from no load to full load.

H. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 5 seconds. On application of a 100% load step the generator set shall recover to stable voltage within 10 seconds.

I. Steady-State Frequency Operational Bandwidth: 0.25 percent of rated frequency from no load to full load.

J. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.

K. Transient Frequency Performance: Not more than 15 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within 5 seconds. On application of a 100% load step the generator set shall recover to stable frequency within 10 seconds.

L. Output Waveform: At full load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for any single harmonic. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.

M. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 8 seconds without damage to generator system components. For a 1-phase, bolted short circuit at system output terminals, system shall regulate both voltage and current to prevent over-voltage conditions on the non-faulted phases.

N. Start Time: Comply with NFPA 110, Level 1, Type 10, system requirements.

O. Ambient Condition Performance: Engine generator shall be designed to allow operation at full rated load in an ambient temperature under site conditions, based on highest ambient condition. Ambient temperature shall be as measured at the air inlet to the engine generator for enclosed units, and at the control of the engine generator for machines installed in equipment rooms.

P. Alternator: The alternator shall produce a clean AC voltage waveform, with not more than 5% total harmonic distortion at full linear load, when measured from line to neutral, and not more than 3% in any single harmonic. Provide alternator with anti-condensation heater wired to enclosure panel.

Q. Alternator shall be capable of accepting full rated load in a single step and be capable of recovering to a minimum of 90% of rated no load voltage. Following the application of the specified kVA load at near zero power factor applied to the generator set.

R. Windings: Two-thirds pitch stator winding and fully linked armortisseur winding.

S. Generator Leads: The generator leads shall be brought out and terminated on a unit-mounted generator circuit breakers, quantity and sizes as shown on the Drawings. The generator leads shall have sufficient length to allow for any connection configuration.

2.05 ACCESSORIES

A. Enclosure: Cold-weather rated enclosure with 14-gauge steel or aluminum housing. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Instruments, control, and battery system shall be mounted within enclosure.

B. Enclosure Construction:

1. Louvers: Equipped with bird screen to permit air circulation when engine is not running while excluding birds and rodents.
2. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to prevent door to keep door open at 180 degrees during maintenance. Rain lips over all doors.
3. Exhaust muffler located within enclosure.
4. All hardware shall be stainless steel.
5. Mounting Base: Suitable for mounting on sub-base fuel tank.
6. A weather protective enclosure shall be provided which allows the generator set to operate at full rated load with a static pressure drop equal to or less than 0.5 inches of water.
7. Inlet ducts shall include rain hoods.
8. Enclosure color – white or other neutral color.

C. Engine Cooling Airflow through Enclosure: Housing shall provide ample airflow for engine generator operation at rated load in an ambient temperature of 40 deg C.

1. Louvers: Fixed-engine, cooling-air inlet and discharge.
2. Motorized Louvers (if required by Generator Enclosure manufacturer): At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating. Dampers shall be of a “fail open” design to allow airflow in the event of failure.

D. Enclosure Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 78 dBA measured at any location 7 m from the engine generator in a free field environment.

E. Enclosure Electrical Provisions: Package shall comply with the requirements of the National Electrical Code for all wiring materials and component spacing. Provide the following components:

1. Factory wired 120/208V connections to heaters, battery charger, controls, etc. shall be brought to two junction boxes for ease of field wiring connections. Two 20A, 120V circuits shall be provided by the Contractor from an external panel to the junction boxes as shown on the Drawings.

F. Sub-Base Tank: Provide a double-wall, all-welded construction, secondary containment type sub base-mounted fuel tank with a minimum of 24 hours capacity at full load rating of generator, suitable for use in seismic category D. The tank shall be constructed of corrosion resistant steel and shall be UL 142 listed and labeled. The secondary containment basin shall be sized at a minimum of 110% of the tank capacity to prevent escape of fuel into the environment in the event of a tank rupture. The tank shall have foundation to ground clearance for visual secondary leak detection, shall have the structural integrity to support the engine-generator set, shall be supplied by the engine-generator set manufacturer, and shall be installed before shipment. The tank shall have the following features; normal and emergency vents (extend vent piping to 12ft above grade per code requirements), lockable fuel fill, mechanical fuel level gauge, leak detector switch, fill port with overfill prevention valve, 5 gallon fill/spill dam or bucket, flexible fuel line connections, check valve, high and low fuel level alarm contacts and indicating lights, complete fuel tank and gravity drainage capabilities. All appurtenances shall meet all state and local codes.

G. Exhaust Silencer: Selected with performance as required to meet sound requirements of the application (78db max at 7m), sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements. For generator sets with outdoor enclosures the silencer shall be inside the enclosure.

H. Air-Intake Filter: Engine-mounted air cleaner with replaceable dry-filter element and restriction indicator.

I. Starting System: 12 or 24V, as recommended by the engine manufacturer: electric, with negative ground.

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum.
2. Cranking Cycle: As required by NFPA 110 for level 1 systems.
3. Battery Cable: Size as recommended by engine manufacturer for cable length as required. Include required interconnecting conductors and connection accessories.
4. Battery Compartment: Factory fabricated of metal with acid-resistant finish.
5. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation. The battery charging alternator shall have sufficient capacity to recharge the batteries with all parasitic loads connected within 4 hours after a normal engine starting sequence.

J. Battery Charger: Dual-rate, 10-Amp, current limiting type designed to float at 2.17 volts per cell and equalize at 2.33 volts per cell. Provide overload protection, full wave rectifier, DC voltmeter and ammeter, and 120 volts AC fused input. Provide wall-mounted enclosure to meet ANSI/NEMA 250, Type 1 requirements. Charger shall provide relay contacts for fault conditions as required by NFPA 110. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amp, 120 VAC, 30 VDC for remote indication of:

1. Loss of AC power: Red light.
2. Low battery voltage: Red light.
3. High battery voltage: Red light.
4. Power on: Green light, no relay contact.

K. Line Circuit Breakers: Quantity and size as shown on Drawings. NEMA AB 1 molded case circuit breakers on generator output with integral thermal trip in each pole; sized in accordance with ANSI/NFPA 70. Include battery-voltage operated shunt trip, connection to open circuit breaker on engine failure and connected to field provided remote generator shutdown. Mount units in enclosures to meet ANSI/NEMA 250, Type 1 requirements.

L. Engine-Generator Control Panel: NEMA 250, Type 1 generator-mounted control panel enclosure with UL508 listed and labeled microprocessor based control, designed to provide automatic starting, monitoring and control functions. Include provision for padlock and provide the following equipment and features:

1. Digital Frequency Meter: 45-65 Hz range, LED display.
2. AC Output Digital Voltmeter: LED display, 2 percent accuracy, with phase selector switch.
3. AC Output Digital Ammeter: LED display, 2 percent accuracy, with phase selector switch.
4. AC Output Digital Kilowatt Meter: LED display, 2% accuracy.
5. Output Voltage Adjustment: Via touchpad on control panel.
6. Push-to-test indicator lamps, one each for low oil pressure shutdown, high water temperature shutdown, high oil temperature shutdown, overspeed shutdown, overcrank shutdown, low water shutdown, low oil pressure pre-alarm and high water temperature pre-alarm, battery charger malfunction, low water temperature, and low fuel level.
7. Engine manual-off-remote selector switch.

8. Engine running time meter.
9. Oil pressure gauge.
10. Water temperature gauge.
11. Fuel pressure gauge.
12. Auxiliary Relay: 3PDT, operates when engine runs, with contact terminals prewired to terminal strip.
13. Remote Alarm Contacts: Pre-wire SPDT contacts to terminal strip for remote alarm functions required by ANSI/NFPA 99.
14. Auxiliary Contacts: Provide the following auxiliary contacts for generator monitoring by DDC system:
    a. Generator Status
    b. Generator Alarm
15. Overcrank protection with manual reset.
16. Trouble horn with silencing switch, red indicating light and reset switch.

M. Heaters: Provide manufacturer's recommended heaters with thermostatic controls to keep engine oil pan, engine block, generator controls, and generator windings within manufacturer's recommended temperature at -20°F. Prewire to junction boxes.

N. Mounting: The complete engine/generator package shall be mounted on a common, self-supporting, low profile, structural steel skid base with rubber in shear vibration isolators between the engine and base. The base shall extend from the rear end of the generator to the most forward point of the engine and shall be predrilled to accept up to a 4/0 AWG copper grounding conductor.

O. Load bank and Automatic Load Bank Controller:

1. Stationary Remote-Mounted Load Banks:

2. Capacity: 100 kW, 1.0 power factor.

3. Ratings: 480V, 3-phase, 3-wire, 60 Hz, Continuous Duty.

4. Load Steps: 5kW step resolution.

5. Airflow Requirements: Forced air, CFM as required by manufacturer. Provide factory wired internal fan to match load bank voltage/phase configuration.

6. Control Power: Internal from generator, fused circuits, controls operate at 120V via internal control power transformer.

7. Load Elements and Control: Open wire, helically wound, chromium alloy, UL recognized component. Provide branch circuit magnetic contactors with current limiting fused short circuit protection.

8. Wiring: Power wiring rated for 150 degrees C connected to power distribution block with compression terminals. Control wiring rated for 105 degrees C.

9. System Protection: Fan failure, fan motor overload, high exhaust temperature, high intake temperature, and airflow pressure differential switch. Circuits to disconnect load bank on alarm with alarms to display on Controller.

10. Interior Heater: Provide anti-condensation heater with thermostatic control, factory or field wired.

11. Enclosure: NEMA 3R, outdoor/weatherproof, powder-coated steel enclosure with removable access panels, and suitable for pad-mounting.

12. Automatic Load Bank Controller:

    1. Controller shall be capable of manual and automatic load control with PLC based color touchscreen with programmable softkeys.
    2. Automatic load leveling and load regulation shall maintain total generator load within a preset bandwidth. PLC controller senses generator load and automatically adds/subtracts load bank steps in order to maintain total generator load at a desired level.
    3. Auto Exercise option shall provide automatic incremental load step addition and subtraction during generator exercise.
    4. Controller senses amperes. Adjustable level and delay. Provide with control power on/off switch, manual/off/automatic load step switches, master load control switch, overtemp indicator and normal operation indicator.
    5. Mounting and Enclosure: Local, mounted on unit within weatherproof cover.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that concrete housekeeping pads are installed per civil/structural Drawings, surfaces are ready to receive work, and field dimensions are as shown within submittals. Ensure all conduits required to stub up through concrete housekeeping pads are installed and located per manufacturer requirements.

B. Verify that required utilities are available in proper locations and ready for use and all required utility agreements have been made prior to starting work (ie emergency generator and open transition transfer switch agreements).

C. Beginning of installation means installer accepts existing conditions.

3.02 INSTALLATION

A. Install new generator, accessories and interconnections in accordance with manufacturer's instructions and as shown on the Drawings.

B. Ground and bond generator and other electrical system components in accordance with NEC requirements and as shown on the Drawings.

3.03 FIELD QUALITY CONTROL

A. Generator system testing shall be performed in accordance with NFPA 110 requirements for Level 1 Systems, namely Part 7.13. Coordinate scheduling of testing with Owner and Authority Having Jurisdiction a minimum of seven (7) days prior to testing.

B. Perform the initial 1.5 hour on-site acceptance test utilizing all loads that are served by the EPSS, per NFPA 110 7.13.4.1. Record all values required within NFPA 110 7.13.4.1.4 (1) through (12).

C. Upon completion of the above test, provide a two (2) hour load test utilizing a portable load bank per NFPA 110 7.13.4.3 (note, generator shall be allowed to cool a minimum of 5 minutes prior to beginning the second test). Simulate power failure including operation of transfer switch, automatic starting cycle, automatic shutdown and return to normal. Demonstrate all automatic features as direct by the Owner. Load bank testing shall be performed as follows:

    13. 30 minutes at 50% rated load.
    14. 30 minutes at 75% rated load.
    15. 60 minutes at 100% rated load.

D. During the test record the following at 20 minute intervals:

    1. Kilowatts
    2. Amperes

3. Voltage
4. Coolant temperature.
5. Room temperature.
6. Frequency.
7. Oil Pressure

E. Furnish records of tests to the Owner.

3.04 MANUFACTURER'S FIELD SERVICES

A. Provide authorized manufacturer representative to prepare, start, test, and adjust systems in accordance with this specification.

B. Manufacturer’s representative shall also provide a minimum 4-hour (per generator) onsite training for the Owner’s personnel prior to project Final Completion. Coordinate onsite testing with Owner a minimum of 2-weeks in advance of scheduling.

3.05 ADJUSTING

A. Adjust generator output voltage and engine speed.

3.06 CLEANING

A. Clean engine and generator surfaces. Replace oil, oil filters and fuel filters after testing and commissioning.

END OF SECTION

SECTION 265000
LIGHTING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the City of Valdez Standard Specifications, apply to this Section.

1.02 SECTION INCLUDES

A. Interior and Exterior Luminaires and Accessories.

B. Lamp Modules.

C. Drivers.

D. Emergency Driver Power Supplies.

1.03 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under General Conditions of the Contract General Requirements, and Section 260500 – Common Work Results for Electrical.

B. Section 260519 – Low Voltage Electrical Power Conductors and Cables.

C. Section 260526 - Grounding and Bonding for Electrical Systems.

D. Section 260529 - Hangers and Supports for Electrical Systems.

E. Section 260533 – Raceway and Boxes for Electrical Systems.

F. Section 260553 – Identification for Electrical Systems.

G. Section 262726 – Wiring Devices.

1.04 DEFINITIONS

A. CCT: Correlated Color Temperature.

B. CRI: Color Rendering Index.

C. Driver: LED Power Supply.

D. Fixture: See "Luminaire."

E. IES: Illuminating Engineering Society of North America

F. IP: International Protection or Ingress Protection Rating.

G. Lamp Module: Replaceable LED board array/light engine including a plug-in connector.

H. LED: Light-emitting diode.

I. Lumen: Measured output of lamp and luminaire, or both.

J. Luminaire: Complete lighting unit, including lamp or lamp module, driver, reflector, and housing.

K. THD: Total Harmonic Distortion.

1.05 REFERENCE STANDARDS

A. NECA/IESNA 500 – Recommended Practice for Installation Indoor Commercial Lighting System.

B. IES TM-21-11 Projecting Long Term Lumen Maintenance of LED Light Sources.

C. IES LM-80 IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules.

D. UL 924 - Emergency Lighting and Power Equipment.

1.06 SUBMITTALS

A. Product Data: Submit the following:

1. Luminaires: Include manufacturer’s product data sheets and/or shop drawings including outline drawings showing support points, weights, and accessory information for each

luminaire type. Clearly indicate all options being provided. Arrange data for luminaires in the order of fixture designation.

2. Prior to preparing submittals, coordinate with the reflected ceiling plan for ceiling finishes and provide all necessary kits, brackets, stems, trim, etc. to install the specified fixtures in the ceilings provided. Clearly note these configurations on the product data sheets.

B. Shop Drawings: Provide detailed shop drawings for specialty luminaires as required by the manufacturer.

C. Warranty: Provide copies of manufacturer's warranty information for each luminaire. If warranty information is the same for a group of manufacturer's luminaires, provide a letter or schedule clearly indicating what warranty applies to each fixture.

D. LED Luminaire Substitutions: Due to the constantly evolving technology, it is difficult to evaluate a true "equal" LED luminaire since the wattage, LED life, lumen output, etc. vary significantly from fixture to fixture, even for luminaires that have a similar shape and style. The luminaires shown on the Plans in the Fixture Schedule are not intended to be sole sourced but are considered a Basis of Design. If a substitution is proposed by the contractor, it will be evaluated based on the following criteria:

1. Does it have the same basic shape/style and characteristics? Note that there may be space constraints above the ceiling.
2. Does the luminaire have the same (or superior) light output and distribution? If not, would it still produce enough light to illuminate the space per minimum IES recommendations or other project specific lighting levels? Note that the Engineer may request .ies files or lighting calculations be provided by the Contractor to evaluate substitution requests.
3. Does it use the same (or less) wattage than the specified fixture? If it uses slightly more power, does it provide enough value to the Owner by adding additional light to offset the additional power used? Is that appropriate for the project compliance requirements. (LEED, ASHRAE 90.1, etc.)
4. Does it have the same nominal color temperature and CRI values? Note that for certain luminaires this may be more important where [medical procedures are being performed or where] artwork or merchandise is illuminated.
5. Does it have an equal or better lamp life as calculated in accordance with IES TM-21 and LM-80?
6. Does the manufacturer offer an equal or better warranty than the specified fixture?
7. Are the LED lamps modules and LED boards field changeable? What guarantees does the manufacturer have that replacement parts will be available in the future?

1.07 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations and mounting heights of all lighting fixtures and accessories on the project record drawings. Update part numbers and description on the Lighting Fixture Schedule to match the actual luminaires installed. Submit under Section 260500.

B. Operation and Maintenance Manuals:

1. Provide recommended luminaire cleaning and re-lamping schedule. If any luminaire lenses require special lubricants for cleaning, include this in the schedule.
2. Provide detailed bill of materials for all items purchased in this section including distributor's contact name, phone number and pertinent information.
3. Provide luminaire manufacturer's installation instructions.
4. Provide manufacturer's step-by-step installation instructions showing how to replace the LED lamp modules and drivers for each luminaire.
5. Include any specific warranty information provided by the manufacturer for luminaires, LED boards and drivers.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site, store and protect in a clean, dry environment under provisions of General Conditions of the Contract.

1.09 EXTRA MATERIALS

A. Provide spare parts under provisions of Division 01.

B. Lenses: One of each size and type.

C. Drivers: One of each size and type installed.

PART 2 PRODUCTS

2.01 INTERIOR AND EXTERIOR LUMINAIRES AND ACCESSORIES

A. Luminaires: Provide UL listed luminaires as scheduled on the drawings or as approved equal.

B. Listing: Luminaires shall be listed for use in the environment in which they are installed. For example, luminaires installed in return air plenums, direct contact with insulation, or in hazardous, wet, damp, or corrosive locations shall be UL listed for such application.

C. Accessories: Provide all mounting kits, supports, interconnecting wiring, power supplies, trim kits, gaskets, etc. for a complete installation.

D. Housing:

1. Metal parts shall be free of burrs and sharp corners and edges. Form and support to prevent warping and sagging.

2. Doors, Frames and Other Internal Access: Smooth operating, free of light leakage under operating conditions. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

3. Luminaires shall be factory painted and free of discoloration. Color as scheduled.

2.02 LAMP MODULES – LED

A. All LED's shall be nominal 4000 degrees Kelvin (nominal) within a 3-step MacAdam Ellipse unless special circumstances require a different color temperature application, see Luminaire Schedule on Plans.

B. Color Rendering: Minimum CRI as scheduled on the Plans for each fixture. Under no circumstances shall the CRI be less than 70.

C. Lamp Life: Minimum lamp life shall be calculated in accordance with IES LM-80. Lamp life for each luminaire shall be equal or greater than scheduled on the Plans. Under no circumstances shall an interior luminaire have a minimum rated life (L70) less than 50,000 hours at 75 degrees F average indoor ambient temperature and an outdoor luminaire less than 75,000 hours at 40 degrees F average outdoor ambient temperature.

D. Replaceable: Unless otherwise scheduled, all LED modules shall be field replaceable with quick disconnect connections.

E. Luminaires and lamps installed outdoors shall be rated for starting and operating at a minimum of -20F.

2.03 DRIVERS - LED

A. LED Driver: Provide UL listed power supply as recommended by the LED fixture manufacturer for operation of the specified LED lamps. Power supply shall be integral to the luminaire unless otherwise noted on the Plans. Power supply shall be dual voltage (120/277V) where available or operate at the supply voltage indicated on the Plans.

2.04 EMERGENCY DRIVERS

A. LED Unit: UL listed self-contained emergency LED driver with automatic transfer to battery supply on power failure, optional test switch, AC ON pilot light, fully-automatic two-rate charger, Ni-cad battery, and power supply capable of operating an LED load of up to the rated fixture wattage (as

shown on the Plans) at rated current (700mA) for a minimum of 90 minutes. Bodine #BSL series or approved equal.

B. Test Switches:

1. Standard and Low-Profile Units:

a. Recessed Linear led Fixtures: Mount test switch in driver channel so that it is accessible from below. Affix red driver identification label (supplied with driver) to door trim on fixture to denote location of emergency driver.

b. Pendant Fixtures: Mount test switch in end cap of fixture, at end closest to driver. Affix red driver identification label (supplied with driver) to bottom of fixture housing below test switch to denote location of emergency driver.

2. High Output Unit: Self-testing, as specified above.

3. Recessed Downlights: Mount test switch in ceiling, in recessed single-gang box adjacent to downlight.

PART 3 EXECUTION

3.01 INSTALLATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction items that penetrate ceilings or are supported by them, including luminaires, occupancy sensors, HVAC equipment, smoke detectors, fire-suppression system, IP video cameras, and partition assemblies. Adjust locations as required.

B. Unless otherwise noted on Plans, provide drivers integral to luminaires, pre-wired and installed at the factory, suitable for use with the selected LED lamps.

C. Support surface-mounted luminaires directly from building structure. Install level and parallel/perpendicular with ceiling or wall surfaces.

D. Install recessed luminaires to permit removal from below. Use plaster frames in hard ceilings.

E. Support luminaires in suspended ceilings from structure above in accordance with Section 260529.

F. Rigidly align continuous rows of lighting fixtures for true in-line appearance.

G. Provide luminaire disconnecting means in the wiring compartment of each luminaire. Where the luminaire is fed from a multi-wire branch circuit, provide multi-pole disconnect to simultaneously break all supply conductors to the ballast, including the grounded conductor.

H. LED Power Supplies: Install power supplies to be readily accessible. Where power supplies are installed in plenum areas, provide plenum rated listing. Where remote power supplies are used, install in concealed, accessible locations or in utility room that provides adequate sound dampening. Locate driver to allow free air movement in accordance with manufacturer's installation instructions and securely mount to structure.

I. Mechanical Rooms: Lighting fixture locations shown on Plans in mechanical and electrical equipment rooms are approximate. Coordinate mounting height and location of lighting fixtures to clear mechanical, electrical and plumbing equipment and to adequately illuminate meters, gauges and equipment. Support all lighting fixtures independently of duct work or piping.

J. Tandem wiring: Provide factory harness for all tandem mounted light fixtures.

K. Support exterior surface-mounted luminaires directly from building structure. Maintain wall waterproofing.

L. Aim directional lampheads of emergency lighting units to illuminate the path of egress.

M. Install emergency driver {or single fixture emergency transfer device} in the driver channel of the fixtures [or the mounting tray of downlight fixtures] indicated on the drawings. Provide an unswitched source of power to the emergency driver from the same circuit that powers the fixture the driver is installed in.

N. Coordinate location of wall mounted emergency lighting units with mechanical equipment, ductwork, piping, or any other obstruction that would impact the lighting output.

O. Wiring installed between a luminaire and an emergency lighting inverter or remote emergency driver is considered “emergency” wiring and shall be separated from the normal wiring and installed in a dedicated raceway per NEC Article 700.

3.02 RELAMPING

A. Re-lamp or replace luminaires that have failed lamps at completion of work.

3.03 ADJUSTING AND CLEANING

A. Align luminaires and clean lenses and diffusers at completion of work. Clean paint splatters, dirt, and debris from installed luminaires.

B. Touch up luminaire finish at completion of work.

3.04 FIELD QUALITY CONTROL

A. Tests: Perform tests listed below according to manufacturer’s written instructions. Test unit functions, operations, and protective features. Adjust to ensure operation complies with Specifications. Perform tests required by NFPA 70, Articles 700 and 701. Perform tests on completion of unit installation and after building circuits have been energized. Provide instruments to permit accurate observation of tests. Include the following tests:

1. Simulate power outage: Verify proper operation of each individual emergency power supply.
2. Verify emergency supply duration.
3. Verify operation of remote test switches.
4. Provide reports for load test conducted on individual batteries.

B. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

3.05 ADJUSTING

A. Aim lamps on wall-mounted emergency lighting units to obtain the following illumination of egress pathway:

1. An average of 1 foot-candle.
2. A minimum at any point of 0.1 foot-candle measured along the path of egress at floor level.
3. Maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

B. Test emergency lighting equipment in accordance with the manufacturer’s instructions and NECA/IESNA 500.

3.06 DEMONSTRATION

A. Walk owner’s representative through the emergency lighting system. Note how to maintain, test and troubleshoot all units. Provide maintenance schedule for NFPA required testing and note locations of remote test switches, and which units have self-diagnostic features.

END OF SECTION

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
B. Design Mixtures: For each concrete mixture.
C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.
D. Vertical and Horizontal sealer/finish products: provide product literature, MSDS, and technical data information for each product.

1.3 INFORMATIONAL SUBMITTALS

A. Welding certificates.
B. Material certificates.
C. Material test reports.
D. Floor surface flatness and levelness measurements.
E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
   1. Location of construction joints is subject to approval of the Architect.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
B. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
   1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
   2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
F. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
   1. Portland Cement: ASTM C 150, Type I/II.
B. Normal-Weight Aggregates: ASTM C 33, graded.
   1. Maximum Coarse-Aggregate Size: 1 inch nominal.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.4 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

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2.5 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

2.7 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.8 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: As indicated.
2. Maximum Water-Cementitious Materials Ratio: As indicated.
3. Slump Limit: 4 inches 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

2.9 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

D. Form Liners: Units of face design, texture, arrangement, and configuration indicated. Furnish with manufacturer's recommended liquid-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent surface treatments of concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions. Refer to Section 07210 for vapor retarder specification

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

3.7 FINISHING FORMED SURFACES

A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view.
2. Panel surfaces shall be free of voids, holes, pockets and other surface deformations greater than 1/8 inch.
3. Surfaces of panels shall not project reinforcing patterns, floor joints or other projections or voids from the casting surface.
4. Cracks are not permissible in excess of 1/32 inch.
5. Surface repairs shall be performed in such a way as to prevent the projection of repair strokes through the intended finish.
6. Holes shall be filled with patching material to present a smooth surface ready for painting unless the designed finish is to result in exposed aggregates whereby the patching material shall match the intended color and texture.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

C. Seal exposed vertical surfaces with penetrating water repellant, silane-based sealer: Basis of Design—Sika Sikagard 705L Water Repellent Penetrating Sealer; complies with EN 1504-2.

3.8 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with thin-film-finish coating system.
2. Seal slab with penetrating water repellant, silane-based sealer: Basis of Design—Sika Sikagard 705L Water Repellent Penetrating Sealer; complies with EN 1504-2.
   a. Apply per manufacturer’s instructions.
   b. Protect slab during construction per manufacturer’s instructions.
3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.

E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.9 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.10 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.11 FIELD QUALITY CONTROL

A. Testing and Inspecting: Engage a qualified testing agency to perform field tests and prepare test reports.

END OF SECTION 033000

SECTION 051200
STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Structural steel.
   2. Grout.

1.2 DEFINITIONS

A. Structural Steel: Elements of the structural steel indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Shop Drawings: Show fabrication of structural-steel components.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.
B. Welding certificates.
C. Field quality-control and special inspection reports.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
B. Comply with applicable provisions of the following specifications and documents:
   1. AISC 303.
   2. AISC 360.
   3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. Plate and Bar: ASTM A 36/A 36M.
B. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade C, structural tubing.
C. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. Headed Anchor Rods: ASTM F 1554, Grade 36, straight.
   1. Finish: Plain.
B. Threaded Rods: ASTM A 36/A 36M.
   1. Finish: Plain.

2.3 PRIMER

A. Primer: SSPC-Paint 25, Type I, zinc oxide, alkyd, linseed oil primer.

2.4 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.5 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

2.6 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.7 SHOP PRIMING

A. Shop prime steel surfaces except the following:
   1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
   2. Surfaces to be field welded.
   3. Galvanized surfaces.
B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
   1. SSPC-SP 3, "Power Tool Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.8 SOURCE QUALITY CONTROL

A. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
   1. Liquid Penetrant Inspection: ASTM E 165.
   2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
   3. Ultrasonic Inspection: ASTM E 164.
   4. Radiographic Inspection: ASTM E 94.

B. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
   1. Set plates for structural members on wedges, shims, or setting nuts as required.
   2. Weld plate washers to top of baseplate.
   3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
   4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

3.3 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
   1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
   1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

3.4 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
   1. Verify structural-steel materials and inspect steel frame joint details.
   2. Verify weld materials and inspect welds.
   3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

END OF SECTION 05120

SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Framing with dimension lumber.
   2. Framing with engineered wood products.
   3. Rooftop equipment bases and support curbs.
   4. Wood blocking and nailers.
   5. Wood furring.
   6. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Engineered wood products.
   4. Power-driven fasteners.
   5. Powder-actuated fasteners.
   6. Expansion anchors.
   7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. For exposed lumber indicated to receive a stained or natural finish.
   3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
   1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, which meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 but Use Category UC3b for exterior construction and Use Category UC4a for items in contact with ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
E. Application: Treat items indicated on Drawings, and the following:

2.4 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.
1. Application: Interior partitions not indicated as load-bearing.
2. Species:
a. Northern species; NLGA.
b. Western woods; WCLIB or WWPA.
B. Framing Other Than Non-Load-Bearing Interior Partitions: No. 2 grade.
1. Application: Framing other than interior partitions.
2. Species: As Indicated.
C. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
1. Application: Exposed exterior framing indicated to receive a stained or natural finish.

2.5 ENGINEERED WOOD PRODUCTS

A. Engineered Wood Products, General: Products shall contain no urea formaldehyde.
B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
1. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal-depth members.
2. Modulus of Elasticity, Edgewise: 2,000,000 psi.

2.6 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Nailers.
   3. Rooftop equipment bases and support curbs.
   4. Cants.
   5. Furring.
   6. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
   1. Northern species; No. 2 Common grade; NLGA.
   2. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

2.7 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.8 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
   1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

2.9 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, provide products by the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   1. Cleveland Steel Specialty Co.
   2. KC Metals Products, Inc.
   3. Phoenix Metal Products, Inc.
   4. Simpson Strong-Tie Co., Inc.
   5. USP Structural Connectors.

C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

D. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
   1. Use for interior locations unless otherwise indicated.

2.10 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.

Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

F. Do not splice structural members between supports unless otherwise indicated.

G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
   1. NES NER-272 for power-driven fasteners.
   2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 061600
SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Wall sheathing.
   2. Roof sheathing.

B. Related Requirements:
   1. Section 06 10 00 "Rough Carpentry" for plywood backing panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
   3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.
   4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For following products, from ICC-ES:
   1. Preservative-treated plywood.
   2. Fire-retardant-treated plywood.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory."

2.2 WOOD PANEL PRODUCTS

A. Emissions: Products shall meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plywood: DOC PS 2.

C. Oriented Strand Board: DOC PS 2.

D. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
E. Factory mark panels to indicate compliance with applicable standard.

2.3 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.4 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
   1. Use treatment that does not promote corrosion of metal fasteners.
   2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
   3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
   4. Design Value Adjustment Factors: Treated lumber plywood shall be tested according ASTM D 5516 and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified.
C. Kiln-dry material after treatment to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.
D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.
E. Application: Treat plywood indicated on Drawings.

2.5 WALL SHEATHING

A. Plywood Wall Sheathing: Exposure 1, Sheathing.
   1. Span Rating: 32/16.
   2. Nominal Thickness: Not less than 15/32 inch.
B. Oriented-Strand-Board Wall Sheathing: Exposure 1, Sheathing.
   1. Span Rating: Not less than 32/16.
   2. Nominal Thickness: Not less than 15/32 inch.

2.6 ROOF SHEATHING

A. Plywood Roof Sheathing: Exposure 1 sheathing.
   1. Span Rating: Not less than 48/24.
   2. Nominal Thickness: Not less than 3/4 inch.
B. Oriented-Strand-Board Roof Sheathing: Exposure 1 sheathing.
   1. Span Rating: Not less than 48/24.
   2. Nominal Thickness: Not less than 3/4 inch.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

2.8 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:
1. Wall and Roof Sheathing:
a. Nail to wood framing.
b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 061600

SECTION 061753
METAL-PLATE-CONNECTED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Wood roof trusses.
   2. Wood truss overframing.
   3. Wood truss bracing.
   4. Metal truss accessories.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads indicated. Comply with requirements in TPI 1.

1.3 SUBMITTALS

A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.
B. Shop Drawings: Show fabrication and installation details for trusses.
   1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
   2. Indicate sizes, stress grades, and species of lumber.
   3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
   4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
   5. Show splice details and bearing details.
   6. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
C. Qualification Data: For metal-plate manufacturer and fabricator.
D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
   1. Metal-plate connectors.
   2. Metal truss accessories.

1.4 QUALITY ASSURANCE

A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
   1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
   2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
C. Comply with applicable requirements and recommendations of the following publications:
   1. TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
   2. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
   3. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER

A. Lumber: DOC PS 20. Provide lumber that complies with the applicable rules of any rules writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Provide dry lumber with 19 percent maximum moisture content at time of dressing.

B. Grade and Species: For truss chord and web members, provide dimension lumber of any species, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

C. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 6 Section Rough Carpentry.

2.2 METAL PRODUCTS

A. Connector Plates: Fabricate connector plates to comply with TPI 1 from hot-dip galvanized steel sheet complying with ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 coating designation; and not less than 0.036 inch thick.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Spenard Builders Supply, Inc.
   b. Builder's Choice

B. Fasteners: Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

1. Nails, Brads, and Staples: ASTM F 1667.
2. Power-Driven Fasteners: NES NER-272.
3. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

C. Metal Truss Accessories: Provide truss accessories made from hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable products by one of the following:
   a. KC Metals Products, Inc.
   b. Simpson Strong-Tie Co., Inc.
   c. USP Structural Connectors.
4. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.3 FABRICATION

A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wood trusses only after supporting construction is in place and is braced and secured.

B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

D. Install and brace trusses according to TPI recommendations and as indicated.

E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in truss accessories according to manufacturer's fastening schedules and written instructions.
F. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
   1. Install bracing to comply with Division 6 Section Rough Carpentry.
G. Install wood trusses within installation tolerances in TPI 1.
H. Do not cut or remove truss members.
I. Replace wood trusses that are damaged or do not meet requirements.

END OF SECTION 061753

SECTION 061800
GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes framing using structural glued-laminated timber.

B. Related Requirements:

1. Section 06 10 00 "Rough Carpentry" for dimension lumber items associated with structural glued-laminated timber.

1.3 DEFINITIONS

A. Structural Glued-Laminated (Glulam) Timber: An engineered, stress-rated timber product assembled from selected and prepared wood laminations bonded together with adhesives and with the grain of the laminations approximately parallel longitudinally.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data on lumber, adhesives, fabrication, and protection.
2. For connectors. Include installation instructions.

1.5 INFORMATIONAL SUBMITTALS

A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in AITC A190.1.

B. Material Certificates: For preservative-treated wood products, from manufacturer. Indicate type of preservative used and net amount of preservative retained.

C. Research/Evaluation Reports: For structural glued-laminated timber, from ICC-ES.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: An AITC- or APA-EWS-licensed firm.

1.7 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with provisions in AITC 111.

B. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Structural glued-laminated timber and connectors shall withstand the effects of structural loads shown on Drawings without exceeding allowable design working stresses listed in AITC 117 or determined according to ASTM D 3737 and acceptable to authorities having jurisdiction.

2.2 STRUCTURAL GLUED-LAMINATED TIMBER

A. General: Provide structural glued-laminated timber that complies with AITC A190.1 and AITC 117 or research/evaluation reports acceptable to authorities having jurisdiction.

1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.
2. Provide structural glued-laminated timber made from single species.
3. Provide structural glued-laminated timber made from solid lumber laminations; do not use laminated veneer lumber.
4. Provide structural glued-laminated timber made with wet-use adhesive complying with AITC A190.1.

B. Species and Grades for Structural Glued-Laminated Timber: Beams and headers shall be DF with structural properties as indicated in the drawings.

C. Appearance Grade: Exposed beams shall be Architectural Grade, complying with AITC 110.

2.3 TIMBER CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Products: Subject to compliance with requirements, provide products indicated on Drawings or comparable product by one of the following:

1. Simpson Strong-Tie Co., Inc.
2. USP Structural Connectors.

C. Provide bolts, 3/4 inch unless otherwise indicated, complying with ASTM A 307, Grade A; nuts complying with ASTM A 563; and, where indicated, flat washers.

D. Materials: Unless otherwise indicated, fabricate from the following materials:

1. Structural-steel shapes, plates, and flat bars complying with ASTM A 36/A 36M.
2. Round steel bars complying with ASTM A 575, Grade M 1020.

E. Finish steel assemblies and fast eners with rust-inhibitive primer, 2-mil dry film thickness.

2.4 MISCELLANEOUS MATERIALS

A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.5 FABRICATION

A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.
1. Dress exposed surfaces as needed to remove planing and surfacing marks.

B. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.

C. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit except for preservative-treated wood where treatment included a water repellent.

2.6 FACTORY FINISHING

A. Clear Finish: Manufacturer's standard, two-coat, clear varnish finish; resistant to mildew and fungus.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates in areas to receive structural glued-laminated timber, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.

B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing and finishing.
1. Predrill for fasteners using timber connectors as templates.
2. Finish exposed surfaces to remove planing or surfacing marks and to provide a finish equivalent to that produced by machine sanding with No. 120 grit sandpaper.
3. Coat cross cuts with end sealer.

D. Install timber connectors as indicated.
1. Unless otherwise indicated, install bolts with same orientation within each connection and in similar connections.
2. Install bolts with orientation as indicated or, if not indicated, as directed by Architect.

3.3 ADJUSTING

A. Repair damaged surfaces and finishes after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.4 PROTECTION

A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.
1. Coordinate wrapping removal with finishing work. Retain wrapping where it can serve as a painting shield.
2. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800

SECTION 409010
CONTROL STRATEGIES DESCRIPTIONS

PART 1 -- GENERAL

Well 5

New Well 5 automation system includes field sensors, instrumentation, control panels and integration into the City's existing comprehensive SCADA system. The automation system is interconnected with critical control devices including the motor control center (MCC) and provide autonomous control of the pumping systems based on locally sensed conditions.

Data from this site is routed from the Remote Telemetry Unit (RTU) via Cellular to the Master Telemetry Unit (MTU) located at City Sewer Treatment Plant (STP) and viewed through the SCADA graphic computers). Updates from this site are estimated at 5 seconds based on this design.

Primary hydraulic equipment at the station includes one 150hp variable speed pumps. The RTU control panel is designed for UL508 label compliance as it is not located in the hazardous.

Control system enclosures are rated NEMA type 4X stainless, for outdoor mounting, and NEMA type 12 inside the pump station. The RTU is indoors and contains input/output modules and a ProfiNet industrial Ethernet connection to provide pump control, flow and level monitoring.

Automation equipment used in this system is as manufactured by Siemens Industry, with the primary controller selected as a model S7-1500 in ET200SP form factor PLC to match City standard. A 12" color Human Machine Interface (HMI) graphic control screen is mounted on the control panel, providing an intuitive interface to the controller for viewing and changing operating parameters. The PLC, HMI, flowmeter, power meter, and motor starter variable frequency drive (VFD) equipment used on this project shall be network connected, and programmed using Siemens TIA Portal software as a fully integrated package.

The RTU logic is autonomous, operating the station independent of communication with the master system. The MTU may request changes to the pump start and stop levels, request pump alternation and reset alarm conditions only. The RTU programming has features to detect various abnormal operating conditions and take corrective action. Alarms detected at the station may be viewed locally on a message panel and viewed at the STP location using WinCC screen. Alarms and events monitored by the RTU include authorized entry and exit detection, air quality (smoke/temp), station high water (flood), operator in trouble, room temperature low, and equipment alarm conditions.

The control system shall connect using ProfiNet cabling for auto operation of the motor controllers and monitoring of the power metering unit, and the flowmeter. ProfiNet connectivity shall provide information required for determining pump efficiency and cost of pumping via the HMI panel. Faulting conditions of electronic motor starting equipment due to power outages shall be automatically reset by the control system without need for operator interaction. The SCADA system shall receive fault indication and be able to remotely reset fault conditions by operator action. The SCADA system shall relay applied horsepower, speed and efficiency data on screen. Utility and auxiliary power measurements shall be displayed on the touch panel and on the SCADA system.

1.01 SUBMERSIBLE LEVEL TRANSMITTER

A submersible level sensor is used to provide accurate level indication of aquifer well level. The level sensor is located a stilling well in the well casing. Design is based on a Keller Micro Level series submersible level measurement system.

1.02 DISCHARGE PRESSURE TRANSMITTER

An analog pressure transmitter measures pressure in the pipeline and provides an analog signal proportional to the pressure input. The two-wire 4-20mA signal is proportional to span and is battery backed during an outage to provide continuous measurement during a power outage. The instrument includes a digital LCD display showing measured pressure.

1.03 MAGNETIC FLOWMETER

Magnetic induction flowmeters are very accurate devices that measure the flow of water at a station. Proper flow conditions require straight pipe approach for a minimum of three pipe diameters upstream of the meter. Additional distance is often required when upstream piping contains throttled valves and skewed pipe angles. Accuracy of the flowmeter will be verified during startup by volumetric tests and proved to be within 1% of calculated volumes. The meter sensor shall be located in the meter vault and the flow transmitter mounted to the wall in the pump Station. Flow rate and totalizer data signals from this meter transmitter are fed to the RTU. Total flow is in 1000-gallon units. This meter requires 24Vdc power to operate. Design is based on Siemens FMT020 and FMS500 series equipment, with Profinet communication to the RTU

1.04 TEMPERATURE TRANSMITTER

The temperatures instrument measures indoor and outdoor temperature using RTD temperature sensors with a two-wire 4-20mA output, providing instantaneous temperature readings. The SCP standard display and SCADA computers will display the site current temperatures. Both indoor and outdoor temperatures are used in the control algorithm for the ventilation system.

1.05 HATCH/DOOR AJAR SENSOR

A mechanically actuated industrial limit switch mounted on the hatch access doors provide security for the wet well, vaults and building doors. Switch contact shall open as the hatch/door opens. Environment rating of the limit switch shall be Nema type 4 for the building interior, Nema type 6P with intrinsically safe barrier protection for the wet well and vault hatches.

1.06 AIR QUALITY / SMOKE SENSOR

The sensor is sensitive to both smoke and temperature. A red LED should flash four to six times per minute during normal operation. If the unit senses an alarm condition, the LED will illuminate and remain in the alarm state until reset by removing power. Any alarm condition sensed by this unit requires a reset action from the reset switch on the RTU.

1.07 FLOOD SENSORS

A float switch located 2” off the floor senses high water condition and provide notification to operations personnel via the SCADA system.

1.08 STATION SHUTDOWN

The red mushroom button is available on the SCP panel door and in the pipe gallery. When depressed, the alarm is transmitted to the Public Works Operations facility. In addition, pumps are stopped to secure station process operations.

WELL 4 / RESERVOIR 2

Well 4 Reservoir 2 Station, a new Remote I/O panel (RIO) will be installed at Reservoir 2. New conduit from Well 4 to Reservoir 2 will be installed that will provide 120vac and fiber between the sites. The new RIO panel will use Siemens Industry, with the primary controller selected as a model S7-1500 in ET200SP form factor remote I/O module to match City standard. The RIO will locally connect to a new pressure transmitter for reservoir level and overflow float to monitor tank overflow conditions, RIO panel temperature to control the RIO panel heater and provide low temperature alarms. Alarms, events and analogs will be displayed on the existing Well 4 RTU HMI and added to the SCADA system

1.09 PRESSURE TRANSMITTER (RESERVOIR LEVEL)

An analog pressure transmitter measures pressure in the pipeline, indicting reservoir level and provides an analog signal proportional to the pressure input / Reservoir level. The two-wire 4-20mA signal is proportional to span and is battery backed during an outage to provide continuous measurement during a power outage. The instrument includes a digital LCD display showing measured pressure.

1.10 TEMPERATURE TRANSMITTER

The temperatures instrument measures RIO temperature using RTD temperature sensors with a two-wire 4-20mA output, providing instantaneous temperature readings. The SCP standard display and SCADA computers will display the site current temperatures. The RIO enclosure temperature is used to control the enclosure heater.

1.11 RESERVOIR OVERFLOW SENSORS

A float switch located 2” – 6” below the overflow discharge piping senses high water condition and provide alarm and pump lockout notification to operations personnel via the SCADA system.

PART 2 -- WELL 5 MOTOR CONTROL CENTER INTERFACE

2.01 GENERAL

The MCC is a modular system, a specially designed electrical switchgear panel designed to work with line voltages and high amperages and containing motor starters for each pump unit. The MCC is connected to the PLC system via a digital interface to command the switchgear to actuate the motor(s) according to a prescribed algorithm and read complete power data. All motors are started with variable frequency drive units which allow for efficient operation of motors at a wide range of speed. Software in the PLC sequences the motor controllers and monitors for status and alarm conditions. Design is based on Siemens TIA Star MCC.

2.02 POWER METER

The power meter is located on the front panel of the MCC and monitors the 480V power on the load side of the ATS and manual transfer switch. The power meter provides harmonic distortion monitoring and site power consumption information. This meter also provides real time information about incoming utility power quality. The unit is self-contained and its readings and parameters are maintained in nonvolatile memory. All data is passed via ProfiNet connection including Volts L-L, Volts L-N, kW, kVAr, kVA, Amps, harmonic distortion and frequency. Design based on Siemens PAC3200 with ProfiNet interface.

2.03 VARIABLE FREQUENCY DRIVE

VFDs are designed to produce variable output flows from pump motors by varying the speed of the motor. The control system continually monitors the pressure and flow rate and adjusts the pump speed as required to maintain a constant pressure or flow setpoint. The VFD is configured to ramp the motor up to speed over a fifteen second time period to a minimum speed where flow is achieved. The ramping speeds are controlled by entries made in the VFD control panel. A drive fault will remove the motor start operation and signal the PLC system of the condition. The run indication is active when the start command is received and the drive has begun to pass energy to the motor.

The VFD system is equipped with a “Hand/Automatic” (HA) switch and an intelligent operator panel (IOP) on each motor controller’s panel door. Running and Fail conditions are displayed on the local keypad. In the “Auto” position, the pump motor will start and stop by command of the automation system PLC via the ProfiNet® network. In the “Hand” position, the motor is turned on and ramped up to the speed prescribed by the keypad buttons located on the controller.

The Drives have the following features: Automatic voltage adjustment within the power range. Self Tuning (Measurement of motor resistance & Speed loop optimization), 0.001 Hz setpoint resolution, Flying restart, Frequency avoidance, Kinetic buffering with power dip ride-through, Microprocessor based adjustable frequency drive with sinusoidal PWM current control, IGBT inverter bridge through entire power range, ProfiNet® communication for all control and status information, programming diagnostic port for RS232/485 with programming software, Warning and Fault messages viewable through the text / pgm display unit, and an External Fault Reset button. The unit shall be configured for: Minimum Frequency, Maximum Frequency, Voltage Boost/ Current Boost, Motor Overload, Overload Time, Slip Compensation Method, Analog Scaling, Acceleration Time, Deceleration Time, Frequency avoidance with adjustable bandwidth.

Design is based on Siemens G120 with PM240-2, CU-230P-2PN control unit and IOP-2 display.

A. Harmonic Filter

A passive harmonic filter system is included within the MCC bucket for each VFD and connected upstream of the VFD. The VFD is a 6-pulse input and at high amperage will require the filter to ensure compliance with harmonic distortion noise limits imposed by the power utility according to IEEE-519-1992. Filter integration with VFD shall be performed by the MCC manufacturer with the manufacturer providing unit responsibility.

The VFD assembly includes an output contactor to activate the capacitor bank in the harmonic filter when the drive is up to speed and to monitor input from the filter. The operator should hear the contactor engage when the drive exceeds 60% load and release when load falls below 50% load. The harmonic filter is equipped with a thermal sensor to sense high temperature in the filter. High temperature switch breaks the enable logic in the VFD and provides a shutdown of the VFD as an "external fault". All other inputs and outputs to the drive are derived via the ProfiNet® network.

B. Additional VFD Programming
Logic within the VFD system shall be independent of the network connection such that the features are functional in manual operation or without network cabling.

1. Provide logic within the VFD to automatically restart following a power failure or brown out condition, with up to 3 restarts, one minute apart.
2. Provide logic in the VFD to sequence the capacitor bank.
3. Configure data exchange values listed on the project drawings.
4. Configure for direct fixed speed operation of the pump when the "high float" operation is active. (Applicable for sewage pumps only).

PART 3 -- PUMP CONTROL ALGORITHMS

The Well pump is controlled by a variable frequency drive motor controller, adjusting the motor RPM as necessary to maintain the required flow rate. The VFD is an energy efficient method of flow production when operating a well at less than full capacity.

3.01 STARTUP PROCEEDURE

A. Manually operated valves must be set for discharge to the system. Any valves redirecting water from the standard flow path will cause the well pump to alarm and shutdown as the system will detect out of normal conditions.

B. No critical alarms active (lo-lo aquifer level, hi-hi reservoir level, motor controller fault, overtemperature, phase/power failure, or shutdown/OIT). Critical alarms constitute a "Well System Shutdown" alarm.

C. Minimum time exceeded since last motor operation. Following each time the motor stops, a minimum rest period is required to expire. Time is user adjustable, recommended to be twice the observed time for flow to pass through the pump bowls and come to a stop. Typical values are 2.0 to 5.0 minutes.

D. Flow pathway valves open and ready to accept flow.

E. Destination reservoirs are not at high-high level.

3.02 PUMP OPERATION

A. Upon startup of the pump, motor speed immediately moves to minimum operating speed (default 50% speed) to provide needed water lubrication in the pump bowls, pump control valve is commanded open, and then flow is slowly ramped to desired flow rate setpoint and discharge pressure is monitored continuously.

B. Pump efficiency is continuously monitored and provides low efficiency warning and low-low efficiency process shutdown alarms.

C. Flow is allowed to increase to meet flow setpoint at a rate of 1000gpm/min (adjustable).

D. A change to flow routing sensed by valve position feedback that removes a pathway to the reservoir will initiate a latched alarm and a normal shutdown sequence.

E. High-High pressure in the discharge pipeline or low-low level in the pump supply source initiates a latched alarm and alarm shutdown sequence. In a alarm shutdown condition, the automation provides a controlled stop of operation, ramping flow to avoid pressure surging. High warning conditions are provided for each variable to provide advance notification of pending shutdown conditions. Shutdown alarms require operator reset to allow return to automatic operation.

F. Hand (or manual) operation of the VFD at the motor controller is discouraged and should only be considered when the user is aware of all process conditions that are described in the operating narrative. Hand position at the VFD will bypass process safety responses including vibration, temperature and flow path verification.

3.03 PUMP SHUTDOWN SEQUENCE

A. When the auto-call signal is de-activated or if the VFD selector is placed to the Off position, the VFD ramps the motor speed down at a 1%/sec rate until reaching the minimum speed of the motor at which time, the pump control valve is commanded close and the motor is de-energized and will spin to a stop based on inertia.

B. The automation system tracks the time when the motor is stopped and will not allow an automatic restart until the minimum off-time period is exceeded.

3.04 INDIVIDUAL PUMP CONTROL FEATURES

A. Override Control Using Local HOA Switches

The local Hand position will allow the operator to override the PLC and run the pumps as desired. The Off condition is reached by placing the VFD selector switches into the Hand position and then pushing the red 'O' button. The start command is selected by depressing the green 'I' button while in the 'Hand' position. All automatic control in the RTU requires the associated equipment switches to be placed in the "Auto" position. The RTU monitors the switch position by sensing if the control voltage in the MCC is on and passes this information to the MTU for operator information. The RTU is electrically disconnected when the switch is placed in the Hand. This allows for the operator to manually control the pumps at any pump station without intervening in the RTU or MTU operation.

B. Pump Operation Checks and Safety Features

For a pump to be called to run from the RTU, the PLC must recognize the pump as qualified to start. The pump must not have a "too many starts" alarm, exceeding the manufacturer's recommended number of starts within a given time and the pump must not have a command failure alarm, when the pump fails to respond to control commands from the RTU/MTU. The pump VFD is also monitored for fault conditions and a fault condition will prevent the pump start.

C. Pump Failure Conditions

Pump failure alarms may be caused by a number of events. All events may not place the equipment at risk, but all warrant the operator's time to investigate the situation. When a pump is failed, the RTU sends this data out to the MTU immediately for action. The two failure conditions used by these RTUs are Fail to Command and Too Many Starts.

1. Too Many Starts Alarm

This alarm monitors the number of starts of each pump. If any pump exceeds three starts in a ten-minute period, this alarm becomes active. Similar to the Fail to Start Alarm, the Too Many Starts Alarm (or Start Limit) will be displayed locally on the touch panel under the Alarm Message Log. This alarm will automatically clear after ten minutes or may be reset using the Reset push button on the panel face.

2. Fail to Command Alarm

The RTU monitors the status of each motor by the run feedback. If the pump operating status is not in sync with the RTU command, the RTU initiates a timer to measure the length of time the pump takes to comply with the commanded state. When starting the pump, the RTU expects a run report-back confirmation within five seconds. Since some pump applications have control valves, which are designed to slowly close, a second timer is used for measuring the time taken for a pump to stop once the stop signal is sent. This time is set at ten minutes. This time is set for a longer period to allow for the operator to occasionally test a pump without initiating a fail alarm. Anytime a pump fails to start, the fail to start alarm will be displayed locally under the Alarm Message Log. This alarm normally requires a "Reset" at the RTU or may be remotely reset at the MTU.

PART 4 -- STATION MONITORING AND VISUALIZATION

The station control is provided by the programmable logic controller (PLC) based remote telemetry unit (RTU) located inside the pumping station. This device exchanges data continuously with the Master Telemetry Unit (MTU) via a cellular connection. Data is visualized at the station through a color touch screen panel and at the STP via a comprehensive SCADA computer system that acquires data from the MTU.

4.01 RTU TOUCH PANEL

A 12” touch panel shall be supplied to display process screens, trends and control setups. Include the following list of screens developed for this project as a minimum: Screen Menu, Process Overview, System Diagnostics, Network View, Event Messaging (date/time stamped), Alarm Messaging (date/time stamped), Intrusion setup and status, security setup and status, analog setup, pump mode setup, VFD information and tuning, alternation setup, pump efficiency data, power meter data, generator status, and trending for level and flow. Trending shall be locally stored on a removal media card and configured for a minimum of two months data in a circular archive.

4.02 MASTER SCADA SYSTEM

The existing pump station screen data shall be updated to reflect new process features and equipment. Utilize pop-up screens accessible from the station screen to display pump configuration, mode selection, all setpoints, and trending. Add new analog variables, alarms and event conditions to SQL based Historian. Provide ability to disable alarms and disable off-duty callout on an alarm by alarm basis. Update the off-duty call out system to monitor all alarms from this station.

SECTION 409100
INSTRUMENTATION, CONTROL AND TELEMETRY SYSTEMS

PART 1 -- GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. International Society of Automation (ISA):

a. S5.1, Instrumentation Symbols and Identification.

b. S5.4, Standard Instrument Loop Diagrams.

c. S20, Specification Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves.

d. S50.1, Compatibility of Analog Signals for Electronic Industrial Process Instruments.

2. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).

b. ICS 1, General Standards for Industrial Control and Systems.

3. National Institute of Standards and Technology (NIST).

4. Underwriters Laboratory, Inc. (UL): 508A, Standard for Safety, Industrial Control Panels.

5. National Electrical Code: NFPA 70.

1.02 SUMMARY

A. Work Includes Engineering, furnishing, installing, calibrating, adjusting, testing, documenting, starting up, and Owner training for complete Instrumentation and Control (I&C) including the pump motor controllers. The system integrator shall have unit responsibility of the design and implementation of the control system including software and hardware in accordance with the design directives provided herein.

B. Major parts are:

1. Primary elements, transmitters, and control devices.

2. Programmable Logic Controller (PLC) based station control panel.

3. Application software development for PLC, HMI and SCADA systems.

4. Networked Integration with equipment procured and delivered outside this Section including the Motor Control Center MCC [per Section 16443].

C. The I&C system provided as part of this Contract is an addition and modification to the Owner's existing SCADA system, which was designed and furnished by S&B, Inc. For compatibility with their comprehensive system, I&C design and system integration will be provided by the Owner's I&C System Integrator, S&B, Inc.

D. Installation of equipment supplied in this section shall be performed by the electrical and mechanical contractors as assigned by the General Contractor.

1.03 DEFINITIONS

A. Abbreviations:

1. I&C: Instrumentation and Control System

2. LCP: Local Control Panel.

3. PLC: Programmable Logic Controller.

4. RTU: Remote Telemetry Unit

5. RIO: Remote Input/Output Unit

6. VFD: Variable Frequency Drive (Motor Controller).

B. Rising/Falling actions of discrete devices about their setpoints.

1. Rising contacts close when an increasing process variable rises through setpoint.

2. Falling contacts close when a decreasing process variable falls through setpoint.

C. Signal Types:

D. Analog Signals, Current Type:

1. 4 to 20 mA dc signals conforming to ISA S50.1.

2. Unless otherwise indicated for specific I&C Subsystem components, use the following ISA 50.1 options:

3. Transmitter Type: Number 2, two-wire.

4. Transmitter Load Resistance Capacity: Class L.

5. Fully isolated transmitters and receivers.

6. Analog Signals, Voltage Type: 1 to 5 volts dc within panels where a common high precision dropping resistor is used.

7. Discrete signals, two-state logic signals using dc or 120V ac sources as indicated.

8. Pulse Frequency Signals:

a. Direct current pulses whose repetition rate is linearly proportional to process variable.

b. Pulses generated by contact closures or solid state switches as indicated.

c. Power source less than 30V dc.

9. Network Communicated Signals: Process fieldbus data communicated over RS485 and Ethernet signal cables.

E. Instrument Tag Numbers:

1. A shorthand tag number notation is used in the Equipment Descriptions. For example: AI-2 [pH].

Notation	Explanation
PIT	ISA designator for Pressure Indicator Transmitter.
2	Loop number.
[A]	Same notation shown at 2 o'clock position on ISA circle symbol on P&ID. Refers to redundancy or detail in function.

1.04 SUBMITTALS

A. Action Submittals:

1. General:

a. Shop Drawings, full-scaled details, wiring diagrams.

b. Identify proposed items and options. Identify installed spares and other provisions for future work (for example, reserved panel space; unused components, wiring, and terminals).

c. Legends and Abbreviation Lists:

d. Complete definition of symbols and abbreviations used on this Project (for example, engineering units, flow streams, instruments, structures, and other process items used in nameplates, legends, and data sheets).

2. Bill of Materials: List of required equipment.

a. Group equipment items by enclosure and field, and within an enclosure, as follows:

b. I&C Components: By component identification code.

c. Other Equipment: By equipment type.

d. Data Included:

1) Equipment tag number.

2) Description.

3) Manufacturer, complete model number, and all options not defined by model number.

4) Quantity supplied.

5) Component identification code where applicable.

3. Field Instrument and Sensor Data: for

a. I&C components supplied for installation by the mechanical and electrical contractors:

b. Catalog information, identifying proposed items and options.

c. Descriptive literature.

d. External power and signal connections.

e. Scaled drawings showing exterior dimensions and locations of electrical and mechanical interfaces.

4. Panel Construction Drawings:

a. Scale Drawings:

b. Show dimensions and location of panel mounted devices, doors, louvers, and subpanels, internal and external.

c. Panel Legend:

d. List front of panel devices by tag numbers, nameplate inscriptions, service legends, and annunciator inscriptions.

e. Construction Details:

f. UL conformance, NEMA rating, materials, lifting lugs, mounting brackets, doorhinges and latches, and welding and other connection callouts and details.

g. Construction Notes:

h. Finishes, wire color schemes, wire ratings, wire and terminal block, numbering and labeling scheme.

5. Panel Control Diagrams: For discrete control and power circuits.

a. Diagram Type: Ladder diagrams in format same as shown on Drawings. Include devices, related to discrete functions, that are mounted in or on the panel and that require electrical connections.

b. Item Identification: Identify each item with attributes listed.

1) Wires: Wire number and color. Cable number if part of multiconductor cable.

2) Terminals: Location (enclosure number, terminal junction box number, or MCC number), terminal strip number, and terminal block number.

3) Discrete Components:

4) Tag number, terminal numbers, and location

5) Switching action (open or close on rising or falling process variable), setpoint value and units, and process variable description (for example, Sump Level High).

6) Relay Coils: Tag number and its function.

c. Ground wires, surge protectors, and connections.

d. Circuit Names: Show names corresponding to Circuit and Raceway Schedule for circuits entering and leaving a panel.

6. Panel Plumbing Diagrams:

7. For each panel containing piping and tubing. Show type and size for:

8. Pipes and Tubes: Thickness, pressure rating, and materials.

a. Components: Valves, regulators, and filters.

b. Connections to panel mounted devices.

c. Panel interface connections.

9. Interconnecting Wiring Diagrams:

a. Diagrams, device designations, and symbols in accordance with NEMA ICS 1.

b. Show:

1) Electrical connections between equipment, consoles, panels, terminal junction boxes, and field mounted components.

2) Component and panel terminal board identification numbers, and external wire and cable numbers.

3) Circuit names matching Circuit and Raceway Schedule.

10. Installation Details:

11. Include modifications or further details required to adequately define installation of I&C components.

B. Informational Submittals:

1. For I&C equipment, provide Manufacturer's Certificate of Proper Installation and readiness for operation.

2. Owner Training Plan.

3. Operation and Maintenance (O&M) Manual: Supply detailed O&M data on indexed and hyperlinked DVD to match City SCADA standard. Provide DVD and paper copies of drawings and operating narrative.in accordance with quantities identified in the project submittals section.

a. Content and Format:

1) DVD content hyperlinked from centralized index page.

2) Complete hardware information provided in pdf file format organized by manufacturer and item description.

3) Sufficient detail to allow operation, removal, installation, adjustment, calibration, maintenance and purchasing replacements for each I&C component.

4) Final versions of drawings reflecting installation As Built wiring.

5) Final version of operating narrative to include any additional requirements determined during performance acceptance testing.

b. Include hard copy and digital copy:

1) Shop Drawings per the following items:
Bill of Materials.
Field Instrument Data Sheets.
Panel Control Diagrams.
Panel Wiring Diagrams
Panel Plumbing Diagrams
Interconnecting Wiring Diagrams,
Application Software Operating Narrative

2) Device O&M manuals indexed on DVD for components, electrical devices, and mechanical devices include:
Operations procedures.
Installation requirements and procedures.
Maintenance requirements and procedures.
Troubleshooting procedures.
Calibration procedures.
Internal schematic and wiring diagrams.
Component Calibration Sheets from field quality control calibrations.

4. Acceptance Tests:

a. Test Procedure:

1) Calibration confirmation of field instrument signals per Field Instrument Data Sheet specification.

2) Paragraph by paragraph confirmation of project supplement attached control description.

3) Section paragraph confirmation of Operating Narrative.

b. Test Documentation: Copy of System Integrator signed off test procedures when tests are completed.

1.05 QUALITY ASSURANCE

A. Calibration Instruments: Each instrument used for calibrating I&C equipment shall bear the seal of a reputable laboratory certifying that instrument has been calibrated within the previous 12 months to a standard endorsed by the NIST.

B. Factory Calibration Records: Provide all factory instrument calibration record certifying instrument testing parameters. Instrument calibration from process measurement to local display and from local display to signal interface shall be demonstrated by either factory certified record or field testing and meet specified accuracy.

C. Coordination Meetings:

1. Location: City offices or jobsite by mutual agreement

2. Attended By: System Integrator, Electrical foreman, mechanical foreman, and General Contractor. Owner and/or Engineer may elect to attend meetings.

3. Notice: minimum five working day advance notice.

4. Meetings:

a. Pre-installation: within one week of delivery of equipment to jobsite to review installation requirements. Two to four hours are reserved for this purpose.

b. Pre-energization: System Integrator provides onsite review and approval of installed components and confirms wiring termination prior to energizing electrical circuits. Any devices not approved for energization are identified as exceptions to system integrator's installation certificate. Two to six hours are estimated for site review along with a one hour post review meeting.

c. Startup: System testing requirements are confirmed with General Contractor and electrical contractor. System Integrator will begin startup and acceptance testing following confirmation that all process equipment receive confirmation from the General Contractor that all process equipment is ready to begin

d. Minimum of one is required. Specific dates will be established in Progress Schedule.

1.06 DELIVERY, STORAGE, AND HANDLING

1. System Integrator will provide temperature controlled warehouse storage for I&C equipment at its facility until Contractor requested delivery date.

2. Prior to installation at project location, store items in dry indoor locations. Provide heating in storage areas for items subject to corrosion under damp conditions.

3. Schedule delivery of electrical control panels and adjustable frequency drive units after interior painting is complete. Cover panels and other elements that are exposed to dusty construction environments.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Standard Environmental Requirements: Unless otherwise noted, design equipment for continuous operation in these environments:

1. Freestanding Panel and Consoles:
    a. Inside, Air Conditioned: NEMA 1.
    b. Inside: NEMA 12.
2. Wall Mounted Panels and Assemblies
    a. Inside, Noncorrosive: NEMA 12.
    b. All Other Locations: NEMA 4X.
3. Field Elements:
    a. Inside, Nema 12
    b. Outside, Nema 4
    c. Corrosive, Nema 4X

B. Environmental Design Requirements: Following defines the types of environments referred to in the above.

1. Inside, Air Conditioned, Temperature:
    a. Normal: 60 to 80 degrees F.
    b. With Up to 4-Hour HVAC System Interruptions: 40 to 105 degrees F.
2. Relative Humidity:
    a. Normal: 10 percent (winter) to 70 percent (summer).
    b. Up to 4-Hour HVAC System Interruption: 10 to 95 percent non-condensing
3. Inside NEC Classification, nonhazardous.
    a. Temperature: 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent non-condensing.
    c. NEC Classification: Nonhazardous.
4. Inside, Corrosive:
    a. Temperature: Minus 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent non-condensing.
    c. Corrosive Environment per drawing indication.
    d. NEC Classification: Nonhazardous.
5. Outside:
    a. Temperature: Minus 20 to 104 degrees F.
    b. Relative Humidity: 10 to 95 percent noncondensing, rain, snow, freezing rain.

c. NEC Classification: Nonhazardous.

1.08 SEQUENCING AND SCHEDULING

1. Activity Completion: The following is a list of key activities and their completion criteria:

a. Action Submittals: Reviewed and accepted.

b. Factory Test Complete: Hardware and Software is factory tested, packaged, and ready for shipment.

c. Modifications to existing SCADA Master System Complete

d. Acceptance Test: Completed and required test documentation accepted.

2. I&C Substantial Completion: When Owner issues Certificate of Substantial Completion.

a. Prerequisites:

1) All I&C Submittals have been completed.

2) System Integrator has successfully completed acceptance testing.

3) Owner training plan is on schedule.

b. Finalization: When Engineer issues a written notice of Final Payment and Acceptance:

1) Certificate of Substantial Completion issued for I&C.

2) I&C Punch-list items completed.

3) Final revisions to O&M manuals accepted.

3. Prerequisite Activities and Lead Times: Do not start the following key Project activities until the prerequisite activities and lead times listed below have been completed and satisfied:

Activity	Prerequisites and Lead Times
Submittal reviews by Engineer	Engineer acceptance of Submittal breakdown and schedule.
Hardware purchasing, fabrication, and assembly	Associated Shop Drawing Submittals completed.
Shipment	Completion of I&C Shop Drawing Submittals and preliminary O&M manuals.
Owner Training	Owner training plan completed
Acceptance Testing	Startup, Owner training, and test procedures completed

1.09 GUARANTEE

A. The System Integrator shall repair or replace defective components, rectify malfunctions, correct faulty workmanship, all at no additional cost to the Owner during the warranty period.

B. To fulfill this obligation, the System Integrator shall utilize qualified technical service personnel. Services shall be performed within five calendar days after notification by the Owner's Representative.

1.10 MEASUREMENT AND PAYMENT

A. Payment for the work in this section shall be included as part of the lump-sum bid amount stated in the Proposal.

PART 2 -- MATERIALS

2.01 GENERAL

1. I&C functions as shown on Drawings and as required for each loop. Furnish equipment items as required and identified in this Section on the project drawings. Furnish all materials, equipment, and software, necessary to affect required system and loop performance.

2. Manufacturer: I&C design is based on Siemens equipment as preferred manufacturer for all automation and control equipment. Products have, therefore, been selected to be fully compatible and when possible, to match existing parts used throughout the Owner's control systems.

3. The instrumentation and control and telemetry system is designed to function as an integral part of the Owner's comprehensive water telemetry, control, and reporting system in place at other facilities. This system is designed to allow new facilities to be constructed or existing facilities to be modified and then to be fully integrated as part of this overall system. The master telemetry unit and graphical user interface shall be modified by the System Integrator to accommodate the new facilities specified and indicated on Drawings.

4. The System Integrator shall furnish MCC with VFDs, control panels, field instrumentation and sensors for installation by the Contractor.

   a. Motor Control Center provided under this Section. The System Integrator shall design, supply, startup and test the following:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
MCC-801	Motor Control Center 1	FreeStanding	1A	91x100x20	Electrical Room

Motor Control Center [MCC-1], 90"H x 100"W x 20"D, 600A MLO (Main Lug Only): Includes 1-400ATS, 1- 150HP VFDs {includes passive harmonic

filter, output reactor, Capacitor contactor, Profinet communication, pilot lights (Run and Fault), elapsed time (hour) meter, Intelligent operator Panel (IOP)}, power meter with Profinet communication, 200kaic SPD, 30kva transformer, 30ckt panelboard, 19-20Afeeder breaker, 4 – 20A/2 feeder breakers and 1 – 20A/3 feeder breaker and 50A breaker for 30kva xfrmr

b. Well 5 - Control Panel
The following I&C control panels are covered by this Section. The automation system shall consist of Siemens S7-1500 series / ET200SP platform PLC components and Unified Series touch panel as the HMI. The System Integrator shall design, supply, startup and test the following panels:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
RTU-801	Remote Telemetry Unit	Wall Mount	12	36x30x12	Electrical Room

c. Well 4 Reservoir – Remote I/O Panel
The following I&C control panels are covered by this Section. The automation system shall consist of Siemens S7-1500 series / ET200SP platform PLC remote I/O components. The System Integrator shall design, supply, startup and test the following panels:

Panel No.	Service	Mounting	NEMA	Dimensions H" x W" x D"	Location
RIO-702	Remote I/O Unit	Wall Mount	12	30x24x12?	Mounted on pad near PSI transmitter vault

d. Well 5 - Instruments and field sensors per list below

Details regarding each instrument are provided in the 409100-Supplement immediately following this section.

Tag	Description	Instrument Type
FE/FIT-811	Station Discharge Flow	12” Magnetic Flowmeter with integral mount transmitter, profinet communication module
USH-801	Electrical Room Air Quality	Air Quality / Smoke Sensor
USH-811	Pump Room Air Quality	Air Quality / Smoke Sensor
LIT-811	Level Sensor, Submersible	Level Measurement
LSH-811	Pump Room Flood	Flood Swtich Level Detection
ZS-811	Pump Room Man Door Ajar	Limit Switch (NEMA 4 type)
ZS-812	Pump Room Double Door Ajar	Limit Switch (NEMA 4 type)
PE/PIT-811	Discharge Pressure Transmitter	Pressure Measurement
TIT-811	Pump Room Temperature Transmitter	Air Temperature Measurement

e. Well 4 Reservoir2 - Instruments and field sensors per list below

Details regarding each instrument are provided in the 409100-Supplement immediately following this section.

Tag	Description	Instrument Type
PE/PIT-702	Reservoir Level	Pressure Measurement
LSH-702	Reservoir Overflow	Flood Switch Level Detection
LSH-703	Pressure Transmitter Vault Flood	Flood Switch Level Detection

5. Integrator shall furnish application software for logic and graphic display units for the following sub-systems.

   a. Programmable Logic Controller (PLC) - application software for logic processing of automatic operation. Deliverable product in Siemens TIA Portal. Software loaded and factory tested in Siemens S7 PLC.

   b. Human Machine Interface (HMI) – application software for graphic depiction of process signals and setpoint entries. Deliverable will include screen development for operation of pumps, and valve control systems. Deployment will load to Siemens Comfort Series color touch screens using TIA Portal software.

   c. Supervisory Control and Data Acquisition (SCADA), screen additions for Well 5 to existing WinCC and Historian applications at the City of Valdez Sewer Treatment Plant (STP).

6. The System Integrator shall provide onsite services with support from electrical sub-contractor.

   a. Pre-installation review with electrical and mechanical trade foreman. Provide four hours.

   b. Pre-energization inspection and certificate of proper installation of I&C components. Provide one day.

   c. Startup and Commissioning of supplied equipment. Provide one contiguous five day block of time to startup both Well 5 adsn Well 4 Reservoir 2 additions.

   d. Acceptance Test and owner training. Provide six hours. (included in five day startup time frame).

2.02 SYSTEM DESCRIPTION

A. General:

1. The instrumentation, control, and telemetry system is designed to provide overall control for Well 5 using locally sensed Level, Flow, status conditions and feedback from remote sensors. The instrumentation, control and telemetry system provides local control for the station based on commands and parameters provided by the MTU.

2. The block diagrams illustrate electrical interconnection requirements between the I&C system and field equipment and sensors. The loop descriptions briefly describe each of the instrument loops and the major instrument components involved. The System Integrator shall be responsible for the design of the system and developing all software for the PLCs and GUI systems.

3. Any equipment or devices shown on Drawings as future are shown for information purposes. No future hardware shall be included as part of this Contract.

4. The System Integrator shall develop application software for the PLC units in the RTU Panel, City Master SCADA Telemetry Unit (MTU). At the RTU Panel, the PLC shall be programmed to provide local automatic as well as supervisory control of the station provided by the MTU PLC via the communications system. All alarm and control functions are monitored locally on the OIM as well as transmitted to the MTU. Fail-safe features shall be included for all operations.

5. At the MTU locations for Well 5, the System Integrator shall provide application software for the Master PLC and the Graphic User Interface (GUI) computers. The Master PLC software shall provide the remote control and monitor as shown on the Project Drawings. The GUI computer system monitors the station and provides instructions for the Master PLC to control the system. Software for this system addition shall be consistent with the System Integrator's and the Owner's comprehensive telemetry system.

2.03 EQUIPMENT DESCRIPTIONS

A. Control Panel Summary.

B. Instrument Supply Summary: As listed previously in this Section. Instruments and field equipment supplied under this Section are identified on the drawings.

C. Functional Requirements for Control Loops: Narrative by function in Section 409010 Control Strategies Description.

D. Shown on Block Diagram Drawings, in Panel Control Diagrams..

2.04 NAMEPLATES AND TAGS

A. Panel Nameplates: Enclosure identification located on the enclosure face.

1. Location and Inscription: As shown.

2. Materials: Laminated plastic attached to panel.

3. Letters: 3/16-inch white on black background, unless otherwise noted.

B. Component Nameplates—Back of Panel: Component identification located on or near component inside of enclosure.

1. Inscription: Component tag number.

2. Materials: Adhesive backed, laminated plastic.

3. Letters: 3/16-inch white on black background, unless otherwise noted.

C. Nametags: Component identification for field devices.

1. Inscription: Component tag number.

2. Materials: 16-gauge, Type 304 stainless steel, or adhesive backed laminated plastic.

3. Letters: 3/16-inch.

4. Mounting: Affix 304ss tags to component with 16- or 18-gauge stainless steel wire.

2.05 ELECTRICAL REQUIREMENTS

A. In accordance with Division 16, Electrical.

B. I&C and Electrical Components, Terminals, Wires, and Enclosures: UL recognized or UL listed.

C. Wires within Enclosures:

1. AC Circuits:

a. Type: 300-volt, Type MTW stranded copper.

b. Size: For current to be carried, but not less than 18 AWG.

2. Analog Signal Circuits:

a. Type: 300-volt stranded copper, twisted shielded pairs.

b. Size: 20 AWG, minimum.

3. Other dc Circuits.

a. Type: 300-volt, Type MTW stranded copper.

b. Size: For current carried, but not less than 18 AWG.

4. Special Signal Circuits: Use manufacturer's standard cables.

5. Wire Identification: Numbered and tagged at each termination.

    a. Wire Tags: Machine printed, heat shrink.

    b. Manufacturers: Brady PermaSleeve or Tyco Electronics.

D. Wires entering or leaving enclosures, terminate and identify as follows:

1. Analog and discrete signal, terminate at numbered terminal blocks.

2. Special signals, terminated using manufacturer's standard connectors.

3. Identify wiring in accordance with Section 26 05 05, Conductors.

E. Terminal Blocks for Enclosures:

1. Quantity:

    a. Accommodate present and spare indicated needs.

    b. Wire spare PLC I/O points to terminal blocks.

    c. One wire per terminal for field wires entering enclosures.

    d. Maximum of two wires per terminal for 18-WG wire for internal enclosure wiring.

    e. Spare Terminals: 20 percent of all connected terminals, but not less than 5 per terminal block.

2. General:

    a. Connection Type: Screw compression clamp.

    b. Compression Clamp:

        1) Complies with DIN-VDE 0611.

        2) Hardened steel clamp with transversal groves that penetrate wire strands providing a vibration-proof connection.

        3) Guides strands of wire into terminal.

        4) Screws: Hardened steel, captive and self-locking.

        5) Current Bar: Copper or treated brass.

        6) Insulation:
        Thermoplastic rated for minus 55 to plus 110 degree C.
        Two funneled shaped inputs to facilitate wire entry.

        7) Mounting:
        Standard DIN rail.
        Terminal block can be extracted from an assembly without displacing adjacent blocks.
        End Stops: Minimum of one at each end of rail.

8) Wire preparation: Stripping only permitted.

9) Jumpers:
Allow jumper installation without loss of space on terminal or rail.

10) Marking System:
Terminal number shown on both sides of terminal block
Allow use of preprinted and field marked tags.
Terminal strip numbers shown on end stops.
Mark terminal block and terminal strip numbers as shown on Panel Control Diagrams and Loop Diagrams.
Fuse Marking for Fused Terminal Blocks: Fuse voltage and amperage rating shown on top of terminal block.

3. Terminal Block, General-Purpose:

a. Rated Voltage: 600V ac.

b. Rated Current: 30 amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Beige body.

f. Spacing: 0.25 inch, maximum.

g. Test Sockets: One screw test socket 2.3 mm diameter.

h. Manufacturer and Product: Siemens; 8WA1011.

4. Terminal Block, Ground:

a. Wire Size: 22 AWG to 12 AWG.

b. Rated Wire Size: 12 AWG.

c. Color: Green and yellow body.

d. Spacing: 0.25 inch, maximum.

e. Grounding: Ground terminal blocks electrically grounded to the mounting rail.

f. Manufacturer and Product: Siemens; 8WA1011-1PH00.

5. Terminal Block, Fused, 24V dc:

a. Rated Voltage: 600V dc.

b. Rated Current: 16-amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Grey body.

f. Fuse: 0.25 inch by 1.25 inches.

g. Indication: LED diode 24V dc.

h. Spacing: 0.512 inch, maximum.

i. Manufacturer and Product: Siemens; 8WA1011-1SF31.

6. Terminal Block, Fused, 120V ac:

a. Rated Voltage: 600V ac.

b. Rated Current: 16-amp.

c. Wire Size: 22 AWG to 10 AWG.

d. Rated Wire Size: 10 AWG.

e. Color: Grey body.

f. Fuse: 0.25 inch by 1.25 inches.

g. Indication: Neon Lamp 110V ac.

h. Leakage Current: 1.8 mA, maximum.

i. Spacing: 0.512 inch, maximum

j. Manufacturer and Product: Siemens; 8WA1011-1SF32.

F. Grounding of Enclosures:

1. Furnish isolated copper grounding bus for signal and shield ground connections.

2. Ground bus grounded at a common signal ground point in accordance with National Electrical Code requirements.

3. Single Point Ground for Each Analog Loop:

a. Locate at dc power supply for loop.

b. Use to ground wire shields for loop.

4. Ground terminal block rails to ground bus.

G. Power Distribution within Panels:

1. Feeder Circuits:

a. One or more 120V ac, 60-Hz feeder circuits as shown on Drawings.

b. Make provisions for feeder circuit conduit entry.

c. Furnish terminal board for termination of wires.

2. Power Panel: Furnish main circuit breaker and a circuit breaker on each individual branch circuit distributed from power panel.

a. Locate to provide clear view of and access to breakers when door is open.

b. Breaker sizes: Coordinate such that fault in branch circuit will blow only branch breaker but not trip the main breaker.

c. Branch Circuit Breaker: UL489 type breaker, 250V ac, DIN rail mounting.

d. Breaker Manufacturer and Product: Siemens; 5SJ4.

3. Circuit Wiring: P&IDs and Control Diagrams on Drawings show function only. Use following rules for actual circuit wiring:

a. Devices on Single Circuit: 20, maximum.

b. Multiple Units Performing Parallel Operations: To prevent failure of any single branch circuit from shutting down entire operation, do not group all units on same branch circuit.

c. Branch Circuit Loading: 12 amperes continuous, maximum.

d. Panel Lighting and Service Outlets: Put on separate 15-amp, 120V ac branch circuit.

e. Provide 120Vac plug mold for panel components with line cords.

H. Signal Distribution:

1. Within Panels: 4 to 20 mA dc signals may be distributed as 1 to 5V dc.

2. Outside Panels: Isolated 4 to 20 mA dc only.

3. All signal wiring twisted in shielded pairs.

I. Signal Switching:

1. Use dry circuit type relays or switches.

2. No interruption of 4 to 20 mA loops during switching.

3. Switching transients in associated signal circuit:

a. 4 to 20 mA dc Signals: 0.2 mA, maximum.

b. 1 to 5V dc Signals: 0.05V, maximum.

J. Relays:

1. General:

a. Relay Mounting: Plug-in type socket.

b. Relay Enclosure: Furnish dust cover.

c. Socket Type: Screw terminal interface with wiring.

d. Socket Mounting: Rail.

e. Provide holddown clips.

2. Signal Switching Relay:

a. Type: Dry circuit.
b. Contact Arrangement: 2 Form C contacts.
c. Contact Rating: 0 to 5 amps at 28V dc or 120V ac.
d. Contact Material: Gold or silver.
e. Coil Voltage: As noted or shown.
f. Coil Power: 0.9 watts (dc), 1.2VA (ac).
g. Expected Mechanical Life: 10,000,000 operations.
h. Expected Electrical Life at Rated Load: 100,000 operations.
i. Indication Type: Neon or LED indicator lamp.
j. Seal Type: Hermetically sealed case.
k. Manufacturer and Product: Siemens; 3TX7111.

3. Control Circuit Switching Relay, Nonlatching:
   a. Type: Compact general-purpose plug-in.
   b. Contact Arrangement: Form C contacts.
   c. Contact Rating: 10A at 28V dc or 240V ac.
   d. Contact Material: Silver cadmium oxide alloy.
   e. Coil Voltage: As noted or shown.
   f. Coil Power: 1.8 watts (dc), 2.7VA (ac).
   g. Expected Mechanical Life: 10,000,000 operations.
   h. Expected Electrical Life at Rated Load: 100,000 operations.
   i. Indication Type: Neon or LED indicator lamp.
   j. Push to test button.
   k. Manufacturer and Product: Siemens; 3TX7111.

K. Power Supplies:

1. Furnish to power instruments requiring external dc power, including two-wire transmitters and dc relays.

2. Convert 120V ac, 60-Hz power to dc power of appropriate voltage(s) with sufficient voltage regulation and ripple control to assure that instruments being supplied can operate within their required tolerances.

3. Provide output over voltage and over current protective devices to:

4. Protect instruments from damage due to power supply failure.

5. Protect power supply from damage due to external failure.

6. Enclosures: NEMA 1 in accordance with NEMA 250.

7. Mount such that dissipated heat does not adversely affect other components.

8. Fuses: For each dc supply line to each individual two-wire transmitter.

a. Type: Indicating.

b. Mount so fuses can be easily seen and replaced.

L. Service Outlets for Freestanding Panels:

1. Type: Three-wire, 120-volt, 15-ampere, GFCI duplex receptacles.

2. Quantity:

a. For panels 4 feet wide and smaller: One.

b. For panels wider than 4 feet: One for every 4 feet of panel width, two minimum per panel.

2.06 SPARE PARTS

None required

2.07 FABRICATION

1. General:

a. Panels with external dimensions and instruments arrangement as shown on Drawings.

b. Panel Construction and Interior Wiring: In accordance with the National Electrical Code, state and local codes, NEMA, ANSI, UL, and ICECA.

c. Fabricate panels, install instruments, wire, and plumb, at the I&C factory.

d. Electrical Work: In accordance with Division 16, Electrical.

e. Factory Assembly: Assemble panels at the manufacturer's factory. No fabrication other than correction of minor defects or minor transit damage shall be done on panels at jobsite.

f. UL Listing Mark for Enclosures: Mark stating "Listed Enclosed Industrial Control Panel" per UL 508A.

2. Wiring Within I&C Panels:

a. Restrain by plastic ties or ducts or metal raceways.

b. Hinge Wiring: Secure at each end so that bending or twisting will be around longitudinal axis of wire. Protect bend area with sleeve.

c. Arrange wiring neatly, cut to proper length, and remove surplus wire.

d. Abrasion protection for wire bundles which pass through holes or across edges of sheet metal.

e. Connections to Screw Type Terminals:

1) Locking-fork-tongue or ring-tongue lugs.

2) Use manufacturer's recommended tool with required sized anvil to make crimp lug terminations.

3) Wires terminated in a crimp lug, maximum of one.

4) Lugs installed on a screw terminal, maximum of two.

f. Connections to Compression Clamp Type Terminals:

1) Strip, prepare, and install wires in accordance with terminal manufacturer's recommendations.

2) Wires installed in a compression screw and clamp, maximum of one for field wires entering enclosure, otherwise maximum of two.

g. Splicing and tapping of wires, allowed only at device terminals or terminal blocks.

h. Terminate 24V dc and analog signal circuits on separate terminal block from ac circuit terminal blocks.

i. Separate analog and dc circuits by at least 6 inches from ac power and control wiring, except at unavoidable crossover points and at device terminations.

j. Arrange wiring to allow access for testing, removal, and maintenance of circuits and components.

k. Plastic Wire Ducts Fill: Do not exceed manufacturer's recommendation.

3. Temperature Control:

a. Freestanding Panels:

1) Nonventilated Panels: Size to adequately dissipate heat from equipment mounted inside panel or on panel.

2) Ventilated Panels:

3) Furnish with louvers and forced ventilation as required to prevent temperature buildup from equipment mounted inside panel or on panel.

4) For panels with backs against wall, furnish louvers on top and bottom of panel sides.

5) For panels without backs against wall, furnish louvers on top and bottom of panel back.

6) Louver Construction: Stamped sheet metal.

7) Ventilation Fans:

8) Furnish where required to provide adequate cooling.

9) Create positive internal pressure within panel.

10) Fan Motor Power: 120V ac, 60-Hz, thermostatically controlled.

11) Air Filters: Washable aluminum, Hoffman Series A-FLT.

12) Refrigerated System: Furnish where heat dissipation cannot be adequately accomplished with natural convection or forced ventilation. Smaller Panels (that are not freestanding): Size to adequately dissipate heat from equipment mounted inside panel or in panel face.

4. Freestanding Panel Construction:

a. Materials: Sheet steel, unless otherwise shown on Drawings with minimum thickness of 10-gauge, unless otherwise noted.

b. Panel Fronts:

1) Fabricated from a single piece of sheet steel, unless otherwise shown on Drawings.

2) No seams or bolt heads visible when viewed from front.

3) Panel Cutouts: Smoothly finished with rounded edges.

4) Stiffeners: Steel angle or plate stiffeners or both on back of panel face to prevent panel deflection under instrument loading or operation.

c. Internal Framework:

1) Structural steel for instrument support and panel bracing.

2) Permit panel lifting without racking or distortion.

d. Lifting rings to allow simple, safe rigging and lifting of panel during installation.

e. Adjacent Panels: Securely bolted together so front faces are parallel.

f. Doors: Full height, fully gasketed access doors where shown on Drawings.

1) Latches: Three-point, Southco Type 44.

2) Handles: “D” ring, foldable type.

3) Hinges: Steel hinges with stainless steel pins.

4) Rear Access Doors: Extend no further than 24 inches beyond panel when opened to 90-degree position.

5) Front and Side Access Doors: As shown on Drawings.

5. Nonfreestanding Panel Construction:

a. Based on environmental design requirements required and referenced in Article Environmental Requirements, provide the following:

b. For panels listed as inside, air conditioned:

1) Enclosure Type: NEMA 12 in accordance with NEMA 250.

2) Materials: Steel.

c. For All Other Panels:

1) Enclosure Type: NEMA 4X in accordance with NEMA 250.

2) Materials: Plastic.

d. Metal Thickness: 14-gauge, minimum.

e. Doors:

1) Rubber-gasketed with continuous hinge.

2) Stainless steel lockable quick-release clamps.

6. Factory Finishing:

a. Enclosures:

1) Stainless Steel and Aluminum: Not painted.

2) Nonmetallic Panels: Not painted.

3) Steel Panels:
Sand panel and remove mill scale, rust, grease, and oil.
Fill imperfections and sand smooth.
Paint panel interior and exterior with one coat of epoxy coating metal primer, two finish coats of two-component type epoxy enamel.
Sand surfaces lightly between coats.
Dry Film Thickness: 3 mils, minimum.
Manufacturer's standard finish color, except where specific color is indicated. If manufacturer has no standard color, finish equipment with light gray color.

2.08 QUALITY CONTROL

A. Scope: Inspect and test entire I&C to ensure it is ready for shipment, installation, and operation.

B. Location: Manufacturer's factory or Owner approved staging Site.

C. Test: Exercise and test all functions.

PART 3 -- INSTRUMENTS AND FIELD SENSORS

3.01 INDUSTRIAL LIMIT SWITCHES

A. Provide a Form C contact position switch for industrial application use.

B. Switches shall be rated for use in temperatures ranging from 0^{O}F to 104^{O}F.

C. Switches located inside the reservoir shall be rated NEMA type 6P, switches located in vaults shall be rated NEMA type 6P, limit switches located in pump stations shall be rated NEMA type 4.

D. Limit switch shall have roller lever with snap action return. Actuation lever length shall be as required to accommodate installation but shall be no less than 3-inches.

E. Instruments Related to This Section:
   1. ZS-811 (NEMA 4 type)
   2. ZS-812 (NEMA 4 type)

3.02 FLOW ELEMENT AND TRANSMITTER, ELECTROMAGNETIC

A. General: Function: Measure, indicate, and transmit the flow of a conductive process liquid in a full pipe

B. Type: Electromagnetic flowmeter, with operation based on Faraday's Law, utilizing the pulsed dc type coil excitation principle with high impedance electrodes. Full bore meter with magnetic field traversing entire flow-tube cross section.

C. Components: Flow element, transmitter, mounting hardware.

D. Application: potable water flow, suitable for liquids with a minimum conductivity of 5 microS/cm

E. Area Classification: Class I Division I

F. Operating Process Flow Temperature: 32 to 100 degrees F, typical

G. Transmitter Operating Temperature: -13 to 140 degrees F

H. Accuracy: Plus or minus 0.5 percent of rate for pipe velocities of 1 to 30 feet per second.

I. Other features:
   1. No obstructions to flow.
   2. Very low pressure loss.
   3. Measures bi-directional flow.

B. Process Connection:
   1. Meter Size (diameter inches): As noted.
   2. Connection Type: 150-pound ANSI raised-face flanges;
   3. ANSI B16.5
   4. Flange Material: Carbon steel ASTM A 105 Corrosion-resistant coating of category C4

C. Power (Transmitter): 24Vdc, unless otherwise noted.

D. Element:
   1. Meter Tube Material: Type AISI 316Ti stainless steel, unless otherwise noted.
   2. Liner Material: Ebonite, potable water service NSF approval.
   3. Electrode Material: Type 316 stainless steel

4. Grounding: internal electrode

E. Transmitter:
   1. Mounting: integral to meter
   2. Material: Alu, Ex die cast aluminium enclosure, painted
   3. Digital LCD display, indicating flow rate and total.
   4. Bi-directional Flow Display: Required, unless otherwise noted.
      a. Forward and reverse flow rate.
      b. Forward, reverse and net totalization.
      c. Parameter Adjustments: By keypad or non-intrusive means.
      d. Enclosure: NEMA 4X, minimum, unless otherwise noted.
   5. Empty Pipe Detection: display and outputs to zero when empty pipe detected.
   6. Signal Interface: 4-20mA, totalizer pulse, fault contact closure.
   7. Built-in Diagnostic System:
      a. Field programmable electronics.
      b. Self-diagnostics with troubleshooting codes.
      c. Ability to program electronics with full scale flow, engineering units, meter size, zero flow cutoff, desired signal damping, totalizer unit digit value, etc.
   8. Initial flow tube calibration and subsequent calibration checks.
      a. Factory Calibration:
      b. Calibrated in an ISO 9001 and NIST certified factory.
      c. Factory flow calibration system must be certified by volume

F. Grounding Ring:
   1. Material: ANSI 316

G. Manufacturer Data:
   1. Siemens Industry, Process Division
      a. Sensor: FMS-500 7ME6530-5BJ02-1AA0 -Z +A05 +E81
      b. Transmitter: FMT-020 7ME6942-0AA00-0AA2-Z +E06 +F07
      c. Grounding Rings: NR
      d. Communication Module: Profinet (included in transmitter part number)

H. Instruments Related to This Section:
   1. FE/FIT-811

3.03 TEMPERATURE TRANSMITTERS

A. An RTD sensor shall measure outside temperature and transmit a 4-20mA DC output linearly proportional to a temperature span produced by the RTD. At minimum, the RTD temperature span shall measure -40°F to 140°F.

B. A ProSense model XTP25N-050-N40140F transducer and a ProSense M12 quick connect cable, model CD12L-0B-020-A0 shall be used for each device.

C. Instruments Related to This Section:

1. TIT-811

3.04 SUBMERSIBLE LEVEL TRANSDUCERS

A. The submersible level transducer shall be a two-wire type device and shall operate from a supply voltage of 9 to 30 VDC and produce a 4-20 mA signal in direct proportion to the measured level excursion over a pre-calibrated range. The sensor technology shall be based on the use of a highly reliable and stable piezo-resistive pressure element with a 0.25 percent full scale accuracy with compensation for nonlinearity, hysteresis and repeatability. The transducer element shall incorporate high over-pressure protection and be designed to withstand intermittent overpressures two times the full-scale range being sensed. The internal pressure of the lower transducer assembly shall be relieved to atmospheric pressure through a heavy-duty urethane jacketed hose/cable assembly and a slack PVC bellows mounted in a weatherproof, fiberglass upper assembly. The sealed breather system shall compensate for variations in barometric pressure and expansion and contraction of air due to temperature changes and altitude as well as prevent fouling from moisture and other corrosive elements. The transducer shall be suitable for continuous submergence and operation

B. Manufacturer shall be Keller Micro Level. Aneroid bellows and vent filter shall be supplied for installation in local junction box where the transducer cable is terminated.

C. Instruments Related to This Section:

1. LIT-811

3.05 VERTICAL STEM MOUNT FLOAT LEVEL SWITCHES

A. Float level switches shall consist of a snap action switch with a moving Buna-N float on a brass stem and 24” connecting cable. Action shall be magnetic field, rising sensor that can be inverted for reverse logic. As the level rises and falls the float lifts or falls causing switching actions with a minimum 0.25” deadband. The hermetically sealed Mercury free switches shall be SPST with a minimum rating of 20 VA. Mount to conduit end with a 1/4” NPT male thread fitting and set actuation limit by use of a conduit clamp. Unit shall be placed to actuate 6” above the floor for station flood.

B. Manufacturer shall be ProSense FLS-VL-300 (Buna-N), ProSense FLS-VL-400 (316SS) or equal

C. Instruments Related to This Section:

1. LSH-811
2. LSH-702
3. LSH-703

3.06 AIR QUALITY / SMOKE DETECTOR

A. The sensor is sensitive to both smoke and temperature. It shall be a 4-wire device. A red LED should flash four to six times per minute during normal operation. If the unit senses an alarm condition, the LED will illuminate and remain in the alarm state until reset by removing power. Any alarm condition sensed by this unit requires a reset action from the reset switch on the RTU which performs this action. Per the control system listing requirements of UL508, the control system is not listed as a life safety device, and is not connected to emergency dispatch personnel. Air quality problems detected are used to initiate mitigating control system responses only, such as disabling HVAC systems or alternating to a new pumping unit and notifying the master SCADA system of this condition.

B. Contacts:
   1. Form C
   2. Minim Rating: 0.5A @ 30VDC

C. Manufacturer shall be System Sensor 4WT-B, or approved equal

D. Instruments Related to This Section:
   1. USH-801
   2. USH-811

3.07 GAGE PRESSURE TRANSMITTER

A. General:

   1. Function: Indicate the rise or fall of a liquid in a reservoir, tank, or pipeline pressure

B. Type:

   1. Body: Die Cast Aluminum

   2. Diaphragm Fill Material: Silicone

   3. Process Connection: ½”

   4. Power: 24VDC 2-wire transmitter

   5. Display: Integral type, digital reading

   6. Manufacturers and Products:

      a. Siemens 7MF0300 series transmitters

C. Measuring:

   1. Accuracy: 0.06% minimum

2. Range: Field Programmable
3. Units: Field Programmable
4. Span: provide model with largest percentage of available span
5. Output: 4-20mA + HART

D. Protection:

1. Lighting Protection: Provide surge suppressor for lighting protection

E. Installation

1. See Installation Details on Drawings

2. Use ½" Process Connections unless otherwise noted

3. Provide with steel wall mounting bracket

4. Supply with 3' M12 quick connect connectors

F. Manufacturer Data

1. Siemens Industry, Process Division

a. Transmitter: 7MF0300-1QE01-5AM2-Z E01+E84
b. Remote Mounting kit: …Z + H01 (for all remote mount applications)
c. Block and Bleed Valves: 7MF90114FA

G. Instruments Related to This Section:
1. LIT-702
2. PIT-811

PART 4 -- EXECUTION

4.01 EXAMINATION

A. For equipment not provided by I&C, but that directly interfaces with the I&C, verify the following conditions. If any devices fail to meet interface requirements, provide written notification to Contractor.

1. Proper installation.

2. Calibration and adjustment of positioners and transducers.

3. Correct control action.

4. Switch settings and dead bands.

5. Opening and closing speeds and travel stops.

6. Input and output signals.

4.02 INSTALLATION

A. Material and Equipment Installation: Retain a copy of manufacturers' instructions at jobsite, available for review at all times.

B. Electrical Wiring: As specified in Division 16, Electrical.

C. Mechanical Systems:

1. Drawings for I&C Mechanical Systems are diagrammatic and not intended to specifically define element locations or piping and tubing run lengths. Base materials and installations on field measurements.

2. Plastic Tubing Supports: Except as shown on Drawings, provide continuous support in conduits or by aluminum tubing raceway system.

3. Install tubing conduit for plastic tubing and tubing raceways parallel with, or at right angles to, structural members of buildings. Make vertical runs straight and plumb.

4. Install conduits to I&C enclosures within areas permitted by manufacturer drawings. Top entry of conduits shall be avoided and if required, shall not be located in drip line of panel mounted equipment.

5. Enclosure Lifting Rings: Remove rings following installation and plug holes.

4.03 PROTECTION

A. Protect enclosures and other equipment containing electrical, instrumentation and control devices, including spare parts, from corrosion and moisture.

B. During jobsite construction, protect I&C enclosures from exterior damage using cardboard, foam and similar temporary construction materials. Protect internal components from exposure to metal shavings and other construction debris by use of plastic wrap and tape.

4.04 CLEANING/ADJUSTING

A. Repair affected surfaces to conform to type, quality, and finish of surrounding surface.

B. Cleaning:

1. Prior to startup of system using tubing, clear tubing of interior moisture and debris.

2. Upon completion of Work, remove materials, scraps, and debris from interior and exterior of equipment.

4.05 FIELD QUALITY CONTROL

A. Startup and Testing Team:

1. Thoroughly inspect installation, termination, and adjustment for components and systems.

2. Complete onsite tests.

3. Complete onsite training.

4. Provide startup assistance.

B. Operational Readiness Inspections and Calibrations: Prior to startup, inspect and test to ensure that entire I&C is ready for operation.

1. Loop/Component Inspections and Calibrations:

a. Check I&C for proper installation, calibration, and adjustment on a loop-by-loop and component-by-component basis.

b. Prepare component calibration sheet for each instrument.

1) Project name.

2) Loop number.

3) Component tag number.

4) Manufacturer for elements.

5) Model number/serial number.

6) Summary of functional requirements, for example:

7) Transmitters/converters, input and output ranges.

8) Calibrations, for example:
Analog Devices: Actual inputs and outputs at 0, 10, 50, and 100 percent of span, rising and falling.
Discrete Devices: Actual trip points and reset points.
Controllers: Mode settings (PID).

9) Space for comments.

C. Acceptance Tests: These are the activities performed by the Contractor and assisted by the System Integrator with respect to automatic control verification.

1. General:

a. Test all I&C elements to demonstrate that I&C satisfies all requirements.

b. Procedures, Forms, and Checklists:

1) Conduct tests in accordance with, and documented on, Engineer accepted procedures, forms, and checklists.

2) Sign-off after each test item after satisfactory completion.

c. Conducting Tests:

1) Provide special testing materials, equipment, and software.

2) Wherever possible, perform tests using actual process variables, equipment, and data.

3) If it is not practical to test with real process variables, equipment, and data, provide suitable means of simulation.

4) Define simulation techniques in test procedures.

d. Coordinate I&C testing with Owner and affected Subcontractors.

1) Excessive Test Witnessing: Refer to Supplementary Conditions.

2. Test Requirements:

a. Once facility has been started up and is operating, perform a witnessed Acceptance Test on complete I&C to demonstrate that it is operating as required. Demonstrate each required function on a paragraph-by-paragraph and loop-by-loop basis.

b. Perform local and manual tests for each loop before proceeding to remote and automatic modes. Where possible, verify test results using visual confirmation of process equipment and actual process variable. Unless otherwise directed, exercise and observe devices supplied by others, as needed to verify correct signals to and from such devices and to confirm overall system functionality.

c. Update operating narrative documentation as required to align with settings and conditions observed during Acceptance Testing.

d. Provide digital copy of startup/ acceptance testing manual and provide to Owner following each jobsite test period.

4.06 MANUFACTURER'S SERVICES

A. Specialty Equipment: Provide the services of a qualified manufacturer's representative during installation, startup, and demonstration testing and Owner training.

4.07 TRAINING

A. General:

1. Provide an integrated training program to meet specific needs of Owner's personnel.

2. Include training sessions, for operators and maintenance personnel.

3. Provide instruction on one working shift as needed to accommodate the Owner's personnel schedule.

4. Owner reserves the right to make and reuse video tapes of training sessions.

B. Operations and Maintenance Training:

1. Include a review of O&M manuals and survey of spares, expendables, and test equipment.

2. Use equipment similar to that provided or currently owned by Owner.

3. Provide training suitable for instrument technicians with at least a 2-year associate engineering or technical degree, or equivalent education and experience in electronics or instrumentation.

C. Operations Training:

1. Training Session Duration: 4-hour instructor day.

2. Number of Training Sessions: One.

3. Location: Jobsite.

4. Content: Conduct training on loop-by-loop basis.

a. Loop Functions: Understanding of loop functions, including interlocks for each loop.

b. Loop Operation: For example, adjusting process variable setpoints, AUTO/MANUAL control transfer, AUTO and MANUAL control, annunciator acknowledgement and resetting.

c. Interfaces with other control systems.

END OF SECTION

CITY OF VALDEZ
Project Title: New Well 5 Pumping Station
Project No.: 21-310-2538
Contract No.: 2406

TO: All Recipients **Date: February 10, 2026**

SUBJECT: Addendum No.1

This three (3) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

1. Contractors have the option to call into the pre-bid. The number is 1-720-843-2217 access code 151164#.

2. Contractors will be given the opportunity to visit the work site after the pre-bid if they choose. The area is currently being used as a snow lot so there is not much to see.

3. Aerial photos of the work site included on following two pages.

Aerial view of the snow lot and new well house #5 location taken on February 23, 2024. The well house site is in the middle left of the photo. This photo was taken during a heavy snow year. The site does not currently contain as much snow.

Another view of the worksite looking west. The new well house #5 work site is located in the upper middle area of the photo. Photo taken February 23, 2024.

End of Addendum

CITY OF VALDEZ
Project Title: New Well 5 Pumping Station
Project No.: 21-310-2538
Contract No.: 2406

TO: All Recipients **Date: February 23, 2026**

SUBJECT: Addendum No.2

This three (3) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

1. Question: Can we get a better detail for the DI Manhole, or can we substitute it with a concrete catch basin?

   Response: A catch basin may be used instead of a drop inlet at Station 0+54. The existing drop inlet at Station 1+75 will remain as is and the new 12-inch building drain will tie into the existing DI.

2. Question: I need additional information to provide to suppliers to get a quote. Air Valves - There is no info about capacity or comparable valves. We can't get a quote based on the given info because there is no confirmation on the inlet connection. The drawing seems to show flanged. Please provide information. Check & Booster Pump Control Valve - There is no spec for this valve, the supplier needs solenoid voltage and de-energized position. Will a spec be made available in an addendum? Mag Mater - Please confirm the requirement for a Class 1 Div I explosion proof rating is required for this meter as shown in spec section 409100 3.01E. Relief Valves - Given that the description calls for the inclusion of ball valves, this should be a 730 instead of a 73Q. The spec says the valves should have flanges, but the plan sheets appear to show threaded valves. Please verify

   Response:

   Air Valves – valves shown on the plans are 2-inch valves with threaded ends installed into 2-inch service saddles (not flanges). Specification 33500, 2.02 provides three comparable air valve manufacturers.

   Check/Booster Pump Control Valve – Please replace Section 2.02 of Technical Specification 33600 with the attached: (see attached specification modification on page 3 of this addendum).

Mag Meter – flowmeter is not required to be explosion-proof (Class 1 Div 1) as described in Spec Section 409100 3.02E.
Pressure Relief Valves – Specification 33600 references a Bermad 730 Quick Release valve. Cannot find your reference to 73Q. The valve ends will be threaded as shown on the Plans, not flanged as described in the Specification.

3. Question: Can this project bid date be extended one week?

   Response: No. This project has already been delayed. The bid opening date will remain unchanged.

4. Question: Can as-builts of well 4 be provided?

   Response: What specific information are you looking for?

5. Question: Does the city or the contractor pay for any electrical utility installation charges? The specs aren't clear and on other projects the city has paid.

   Response: Yes, the city will cover the electrical utility charges.

6. The period for submitting questions ended at 10:30am Monday February 23, 2026. No additional questions will be accepted.

End of Addendum

2.02 PUMP CONTROL VALVES WITH CHECK FEATURE

A. Pump control valve with check valve feature shall be flanged, double chambered, hydraulically operated, active check pump control valve that opens fully or shuts in response to electric control signals. The valve isolates the pump from the system during pump startup, and shutdown, reducing pipeline surges. Hydraulic globe valve with a raised seat and double chamber actuator. Unobstructed flow, high pressure modulation, minimal cavitation, complying with AWWA standards.

B. Valve controls pump stat-up and shut down. Valve shall be 12" "EN" series Bermad 740 or equal. Valve shall be Y (globe) pattern, rated at 200 psi or more, with flanged end connections, flat disc, v-port, cavitation cage, max. temperature of 200 degrees F.

C. Check valves shall be constructed of the following materials:

ITEM	MATERIAL
Body	Ductile Iron
Bolts, Nuts, and Studs	Stainless Steel
Internals	Stainless Steel, Tin Bronze, Coated Steel & PDM
Diaphragm	Fabric-reinforced synthetic rubber
Seals	Synthetic rubber
Control Accessories	Stainless steel
Control Tubing	Stainless steel
Control Fittings	Stainless steel
Solenoid Body	Stainless steel
Solenoid Elastomers	NBR or FPM
Solenoid Enclosure	Molded epoxy

D. Protective Coatings

1. Valves shall be provided with a shop-applied fusion bonded epoxy coating on interior and exterior surfaces in a minimum thickness of 10 mils conforming to AWWA C550.

E. Pressure Testing

1. Valves shall be hydrostatically tested at 1.5 times their rated working pressure.

F. Solenoid Electrical

1. Match electrical and control design

G. Limit Switch

1. SPDT switch type, 10 amp type gl or gc, up to 185 degrees F, IPBB enclosure rating

Summary of Bids Received

Project: New Well 5 Pumping Station

Contract No.: 2406

Bid Opening - February 26, 2026 at 2:00PM

Project No.: 21-310-2538

			Wolverine Summit JV		Orion Construction Inc		SD Construction LLC	
Item #	Item	Quantity	Price	Extension	Price	Extension	Price	Extension
	Bid Schedule Page 1 of 2							
1	Mobilization and Demobilization to and from the project site - LS	1.0000	$150,000.00	$150,000.00	$25,000.00	$25,000.00	$614,970.00	$614,970.00
2	Perform Field Surveying/ Construction Staking of the entire project including all work per approved Plans and Specifications - LS	1.0000	$25,000.00	$25,000.00	$45,000.00	$45,000.00	$22,502.00	$22,502.00
3	Develop SWPPP, Permit, and Implement over the entire project including all work per approved Plans and Specifications - LS	1.0000	$20,000.00	$20,000.00	$24,000.00	$24,000.00	$2,479.00	$2,479.00
4	Provide an approved Traffic Control Plan, Com Dev Driveway Permit, all Traffic Control, Maintenance, and work required per Com Dev Permit and City of Valdez Requirements - LS	1.0000	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$3,575.00	$3,575.00
5	Perform Dewatering including all work per approved Plans and Specifications - LS	1.0000	$10,000.00	$10,000.00	$40,000.00	$40,000.00	$35,441.00	$35,441.00
6	Clean and Test Pump existing production well and monitor well per approved Plans and Specifications - LS	1.0000	$25,000.00	$25,000.00	$31,800.00	$31,800.00	$12,288.00	$12,288.00
7	Submersible well pump and motor including pitless unit, drop pipe and check valve and all appurtenances per approved Plans and Specifications - LS	1.0000	$180,000.00	$180,000.00	$143,750.00	$143,750.00	$128,803.00	$128,803.00
8	Twelve (12") and 8" DIP site piping including all tie-ins and appurtenances per approved Plans and Specifications - LS	1.0000	$175,000.00	$175,000.00	$220,000.00	$220,000.00	$361,782.00	$361,782.00
9	Eight (8") DIP and Twelve (12") DIP building drain piping to new DI including connection to existing DI and all appurtenances per approved Plans and Specifications - LS	1.0000	$50,000.00	$50,000.00	$45,000.00	$45,000.00	$41,518.00	$41,518.00
10	Off-Site 12" DIP piping connection between Well 4 and Well 5 including tie-ins and all appurtenances per approved Plans and Specifications - LS	1.0000	$113,000.00	$113,000.00	$261,000.00	$261,000.00	$122,907.00	$122,907.00
11	Twelve (12") DIP building interior piping, valves, meter, fittings and appurtenances per approved Plans and Specifications - LS	1.0000	$180,000.00	$180,000.00	$184,000.00	$184,000.00	$286,956.00	$286,956.00
12	Grading, paving sawcut and new pavement, curb and gutter and sidewalk removal and replacement per approved Plans and Specifications - LS	1.0000	$48,000.00	$48,000.00	$46,500.00	$46,500.00	$144,998.00	$144,998.00
13	Reinforced concrete building foundation, building slab floor and other reinforced slabs on grade including all appurtenances per approved Plans and Specifications - LS	1.0000	$170,000.00	$170,000.00	$120,000.00	$120,000.00	$235,000.00	$235,000.00

14	Wood frame building with metal roofing, siding, insulation, doors, windows and including all appurtenances per approved Plans and Specifications - LS	1.0000	$370,000.00	$370,000.00	$359,050.00	$359,050.00	$341,283.00	$341,283.00
15	Building HVAC equipment including fuel tank and all appurtenances per Approved Plans and Specifications - LS	1.0000	$140,000.00	$140,000.00	$159,000.00	$159,000.00	$92,856.00	$92,856.00
16	Building small diameter piping including building floor drain, piping, valves, fittings, backflow preventors and all appurtenances per Approved Plans and Specifications - LS	1.0000	$95,000.00	$95,000.00	$28,500.00	$28,500.00	$86,718.00	$86,718.00
17	Wellhouse 5 electrical power service from CVEA including all appurtenances per approved Plans and Specifications - LS	1.0000	$60,000.00	$60,000.00	$0.00	$0.00	$52,212.00	$52,212.00
18	Wellhouse 5 electrical power and lighting including stand-by power generator, ATS and all appurtenances per approved Plans and Specifications - LS	1.0000	$350,000.00	$350,000.00	$643,800.00	$643,800.00	$250,513.00	$250,513.00
19	Facility equipment fully integrated MCC, RTU, controls instrumentation and integration at new Well 5 including all appurtenances per approved Plans and Specifications - LS	1.0000	$600,000.00	$600,000.00	$514,100.00	$514,100.00	$521,536.00	$521,536.00
20	Off-Site facility equipment RIO panel, controls, instrumentation and integration additions at existing Well 4 including all appurtenances per approved Plans and Specifications - LS	1.0000	$120,000.00	$120,000.00	$289,000.00	$289,000.00	$106,651.00	$106,651.00
21	Off-Site dual 2" PVC conduits conductors, comm lines and pull boxes from Well 4 to Water Tank including all appurtenances per approved Plans and Specifications - LS	1.0000	$240,000.00	$240,000.00	$129,000.00	$129,000.00	$209,254.00	$209,254.00
22	Additional Potholing for unmarked and/or incorrectly marked buried utilities for crew hours as required per approved Plans and Specifications - HRS	16.0000	$375.00	$6,000.00	$50.00	$800.00	$732.50	$11,720.00
23	Field engineering, submittals, shop & record drawings, operating instructions, O&M manuals, and close-out punch list - LS	1.0000	$60,000.00	$60,000.00	$25,000.00	$25,000.00	$17,580.00	$17,580.00
24	Force Account, a fixed cost item to be included in bid total for unforeseen construction issues. - LS	1.0000	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$250,000.00
	24 Items	**Totals**		$3,447,000.00		$3,594,300.00		$3,953,542.00

The bid totals are subject to correction after the bids have been completely reviewed.

Totals have been reviewed	✓
Totals have been corrected	N/A

I hereby certify that the above is a true and correct summary of proposals received.

Scott Bonar Project Manager

File #: 26-0105, **Version:** 1

ITEM TITLE:
Approval of Contract with Wolverine Supply, Inc. for Pavement Management Phase IV Meals Avenue in the Amount of $6,330,803.
SUBMITTED BY: Brad Sontag, Capital Facilities Project Manager

FISCAL NOTES:

Expenditure Required: $6,330,803.00
Unencumbered Balance: $7,055,229.83
Funding Source: 310-1118-58000

RECOMMENDATION:

Approve the contract with Wolverine Supply, Inc. for Pavement Management Phase IV Meals Avenue in the amount of $6,330,803.

SUMMARY STATEMENT:

Project Description: Reconstruction of Meals Avenue from the Pioneer Drive intersection to Robe River Drive (Base Bid), East Chena Street (Additive Alternate #1), East Bremer Street (Additive Alternate #2), and Robe River Drive from Meals to Valdez High School student parking lot (Additive Alternate #4).

The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks, and bike path. Replacement of existing storm drain catch basins. CCTV sewer and storm drainpipes inspections. Replacement of five fire hydrants. Demolition and Installation of new streetlights. Installation of all signs and traffic markings.

The scope of work is more specifically described in the attached drawings titled “Valdez Pavement Rehabilitation Phase IV Meals Avenue” and the attached drawings titled “Valdez Pavement Rehabilitation Phase IV Robe River Drive - Alternate 4

All Additive Alternate bids are to be included and awarded in this contract.

Construction Schedule: All work must be substantially completed by October 31, 2026. All roadways and/or sidewalk asphalt paving must be completed before September 15, 2026.

Bidding: This project was out to bid for a total of five weeks. Three bids were received for this project from Wolverine Supply, Inc.; Knik Construction Co., Inc.; and Granite Construction Company.

Wolverine Supply, Inc. was the apparent low bidder.

Engineers Estimate: Under $8,000,000

Design Review and Stakeholders: Brad Sontag, COV; Nicholas Conway, DOWL, LLC.

CONTRACT DOCUMENTS

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118
Contract Number: 2450
Cost Code: 310-1118-58000
Issued for Construction
Date:

City of Valdez
Capital Facilities and Engineering
300 Airport Road, Suite 201
P.O. Box 307
Valdez, Alaska 99686

Project Manager:
Brad Sontag

Construction Plan Set Completed By:
DOWL, LLC
4041 B St.
Anchorage, AK 99503

City of Valdez
Contract Documents

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Table of Contents

City of Valdez
Invitation to Bid

Date: January 20, 2026

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

This project includes, but is not necessarily limited to:

Base Bid – Providing all labor, equipment, and materials necessary for the reconstruction of Meals Avenue from the Pioneer Drive intersection to Robe River Drive. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks and bike path. Replacement of existing storm drain catch basins with new. CCTV sewer and storm drainpipes inspections. Replacement of five fire hydrants. Demolition and Installation of new streetlights. Installation of all signs and traffic markings.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Additive Alternate #1 – Providing all labor, equipment, and materials necessary for the reconstruction of East Chena Street. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Additive Alternate #2 - Providing all labor, equipment, and materials necessary for the reconstruction of East Bremner Street. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks. Replacement of existing storm drain catch basins and pipe with new.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Alternate #3 - HDPE conduit replaces ridged conduit. (Presumed deductive alternate)

Additive Alternate #4 - Providing all labor, equipment, and materials necessary for the reconstruction of Robe River Drive from Meals Avenue to the main entrance of the Valdez High School parking lot. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks and bike path. Replacement of existing storm drain catch basins with new. CCTV sewer and storm drainpipes inspections. Replacement of four fire hydrants. Demolition and Installation of new streetlights. Installation of all signs and traffic markings.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Robe River Drive – Alternate 4

Additive Alternate #5 – Providing all labor, equipment, and materials necessary to install fiber optic infrastructure on Meals Avenue. This includes fiber optic conduits, fiber handholes, and fiber vaults. The fiber conduit will be installed in the same trench as the street lighting conduit.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Additive Alternate #6 – Providing all labor, equipment, and materials necessary to install fiber optic infrastructure on Robe River Drive. This includes fiber optic conduits, fiber handholes, and fiber vaults. The fiber conduit will be installed in the same trench as the street lighting conduit.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Robe River Drive – Alternate 4".

Alternate bids will be awarded in order most advantageous to the City of Valdez.

Estimate for construction under $8,000,000

Sealed bids will be accepted electronically until 2:00pm local time on February 19, 2026, at www.bidexpress.com. The bids will be publicly opened at that time.

A non-mandatory pre-bid conference will be held at the office of the Capital Facilities Director, 300 Airport Road, Suite 201, Valdez, Alaska on January 29, 2026, at 2:00pm. Please contact the City's project manager, Brad Sontag (bsontag@valdezak.gov) if you would like to join this meeting remotely via Microsoft Teams.

Complete sets of the bid documents may be purchased from Digital Blueprint, 903 West Northern Lights Blvd., Anchorage, AK 99503, (907) 274-4060. Bid documents may also be downloaded from the City of Valdez solicitation page at www.bidexpress.com Bidders are encouraged to register as a plan holder at the link listed within the bid posting to ensure receipt of any addendum issued for this project.

Deadline for questions is 4:30pm local time on February 16, 2026

Bid security in the amount of 5% of the total bid is required.

The City reserves the right to waive any irregularities or informalities in a bid and to reject any and all bids without cause.

Current minimum prevailing wage rates as published by the Alaska Department of Labor must be paid if required by law.

Requirements of the Alaska Employment Preference (AS 36.10) must be met.

The City of Valdez encourages disadvantaged, minority and women-owned firms to respond and is available to assist said firms in learning how to do business with the City.

The City of Valdez "Standard Specifications and Standard Details" shall be used. An electronic copy is available from the City of Valdez website at http://www.valdezak.gov under "standards

and specifications" located on the "quick links" portion of the Capital Facilities Department page.

City of Valdez
Instructions to Bidders

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

CAUTION:
Your bid may be rejected if it is not properly executed. Check that the following items have been accomplished to help assure a responsive bid. Please read Sections 6 and 7 carefully.

1. Bid Form
   A. The Bid Form has been executed and signed.
   B. Addendum Acknowledgement Form has been executed and signed.
2. Bid Security or Bid Bond
   A. An executed Bid Security (Bid Bond) in the amount indicated on the Invitation to Bid.
   B. Verify that the Certificate showing the Corporate Principal on the form is executed if applicable.
3. Alaska Business License, a copy of your current license must be included.
4. Alaska Contactor Certificate of Registration
   A. A copy of your current Alaska Contractor License of Registration in the bidder's name must be included with the bid.
   B. The Contractor is required to verify that the appropriate license(s) is in place prior to submitting their bid for the project's scope of work.
5. A bid may be rejected if it contains any alterations or erasures that are not initialed by the signer of the bid.

Note: Any certified checks may be held uncollected at the risk of bidders submitting them.

1. General

Bidders are requested to study and follow these instructions about the method and form for submitting bids to avoid having their bid rejected.

Bidders will find all required forms and documents contained within this assembly. Please notice under Section 7, Required Documents for Bid, as to which forms and documents are required for your bid to be considered.

2. Explanation to Bidders

Requests from bidders concerning interpretations or clarifications of the bid documents shall be made in writing to the project manager or project engineer through Bid Express at **www.bidexpress.com**. Such requests shall arrive at least three working days prior to the date for opening bids. There needs to be sufficient time allowed for a reply to reach all bidders before the submission of the bids. Explanations made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and receipt of the addendum must be acknowledged on the Addendum Form.

3. Site Conditions

Bidders are encouraged to visit the site to ascertain pertinent local conditions, location, accessibility, terrain, labor conditions, conditions of surrounding areas, and any other aspect that may impact the project.

4. Addenda Requirements

All bids must include the Addendum Acknowledgement Form. If addendums have been issued the bidder must state on the form all the addendums have been acknowledged. If no addendums were issued then the bidder is to write "NONE" on the form. The Addendum Acknowledgement Form shall be reviewed prior to acceptance of the bid.

5. Submissions of Bids

All bids must be submitted electronically through Bid Express at www.bidexpress.com. Hard copy or paper submissions will not be accepted.

All electronic bidders must first register on bidexpress.com. it is free to create an account and view project information. To submit a bid electronically, there are two options for Bid Express; paper bid submissions will not be accepted. You can either pay the per solicitation fee or alternatively, you can subscribe for a monthly fee for unlimited electronic bid submission for all agencies posting solicitations on the bidexpress.com website, plus get email notifications by agency/work type/commodity code.

For bidders who are bidding online and wish to utilize the electronic bid bond option, please see the FAQs page regarding electronic bid bonds (bottom of the page in the link).

For additional guidance, please contact the Bid Express team at toll free (888) 352-2439 (select option 1) or at support@bidexpress.com

6. Preparation of Bids

Bids shall be submitted on the forms furnished on Bid Express.

The Bid Form will provide for quotation or price for all items. Bidders must quote on all items. Failure to do so may result in disqualification. Alternative bids will not be acceptable unless requested.

Bids can be modified until the bid deadline on Bid Express. Modification by facsimile or email will NOT be allowed for bids.

7. Required Documents for Bid

The following listed documents are to be completed and submitted at the time of bidding. Deviation from these requirements will be grounds for rejection of the bid.

A. Addendum Acknowledgement Form, fully completed original (see Item 6 above also)
B. Bid Schedule, fully completed original (see Item 6 above also)
C. Bid Bond, original
D. Copy of current and appropriate Alaska Contractor License for this Scope of Work.
E. Copy of current Alaska Business License

8. Required Documents for Award of the Contract

The following documents must be executed prior to award of the contract and the initiation of work. Contractors are urged to expedite the completion of these documents. This will allow the contract award and notice to proceed to be issued expeditiously. These documents must be submitted within ten (10) working days after the date of notice of award.

A. Agreement Pages (2 signed copies)
B. Entity Acknowledgement (Corporate, LLC, Limited Partnership, Individual)
C. Non-collusion Affidavit
D. Contract Bond (Payment Bond: See Bonding Requirements below)
E. Contract Bond (Performance Bond: See Bonding Requirements below)
F. Certificate of Insurance naming City of Valdez as an "Additional Insured"
G. Original signature pages (last page of bid schedule and bid bond)
H. Certificate of good standing for a Corporation or LLC
I. City of Valdez Business Registration
J. Executed W-9 Form
K. Proof of application for City of Valdez building permit submitted to the Planning Department.

9. Bonding Requirements

A. Bid Security (Bid Bond or Certified Check)

Bid Security is required and shall be in the form of a Certified Check for each bid or a Bid Bond prepared on the attached Bid Bond Form.

The Bid Bond must be executed by the bidder as principal and be executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

The Bid Security shall be issued for five percent (5%) of the bid amount.

Bid Securities will be returned to all except the three lowest bidders. The remaining certified checks or bid bonds will be returned, after the Owner and the accepted bidder have executed the Contract. Failure of the Owner to return the certified checks or bid bonds in a timely manner will create no liability on the part of the Owner. If no award has been made within sixty (60) days after the bid opening, all bidders except the one who has received the notice of intent to award may request the return of their cash, check or bid bonds.

B. Contract Payment Bond

A Contract Payment Bond is not required if the total dollar amount of the contract is less than One Hundred Thousand Dollars ($100,000).

A Contract Payment Bond is required if the total dollar amount of the contract is equal to or greater than One Hundred Thousand Dollars ($100,000). Contract Payment Bond will be in the amount of One Hundred Percent (100%) of the Bid amount.

Contract Payment Bond shall be prepared on the Payment Bond Form that is attached. The Bond must be executed by the Contractor as principal and executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

C. Contract Performance Bond

A Contract Performance Bond is not required if the total dollar amount of the contract is less than One Hundred Thousand Dollars ($100,000).

A Contract Performance Bond is required if the total dollar amount of the contract is equal to or greater than One Hundred Thousand Dollars ($100,000). Contract Performance Bond) will be in the amount of One Hundred Percent (100%) of the Bid amount.

Contract Performance Bond shall be prepared on the Performance Bond Form that is attached. The Bond must execute by the Contractor as principal and executed by a surety company authorized to transact business in the State of Alaska. The Owner must approve the surety company.

Section 2.80.080 of Valdez City Code provides for a modified contractor bond. Bidders shall familiarize themselves with exemptions allowed and the requirements for exemptions.

10. Bidder Qualifications

Before a bid is considered for award, the apparent low bidder may be requested to submit a statement of facts or proof in detail as to his previous experience in performing similar or comparable work, technical abilities, equipment, size, manpower and financial resources to complete and perform the work as outlined in the contract documents, plans and specifications.

11. Withdrawal of Bids

Bids may be withdrawn by written request received from the bidder prior to the bid opening time. Errors on the part of the bidder in preparing the bid, confers no right for the withdrawal of the bid after the bid has been opened.

12. Bidders Interested in More than One Bid

If any one party, by or in name of his or their agent, partner or other person, offers more than one bid, all such bids will be rejected. A party who quoted prices to a bidder is not disqualified from quoting prices to other bidders or from a bid directly for the work.

13. Rejection of Bids

The Owner reserves the right to reject any and all bids, when such rejection is in the interest of the Owner; to reject the bid of a bidder who previously failed to perform properly or to complete on time; and to reject the bid of a bidder who is not, in the opinion of the Owner in, in a position to perform the contract; or to waive any irregularities or informalities in a bid.

14. Hiring of Local Labor

The Owner encourages every Contractor and Subcontractor to employ, to the maximum extent practical and allowed by law, qualified people who regularly reside in the project area.

15. Local Bidder Preference

The Valdez City Code provides for a local bidder preference as follows:

> Section 2.80.020 Definitions
>
> "Local bidder" means a bidder that is not delinquent in the payment of any taxes, fees, assessments, or other charges owing the city and satisfies one of the requirements set forth in subsections (1) through (3) of this definition for a period of eighteen consecutive months immediately prior to the opening of a competitive city bid for which the bidder wishes to utilize the local bidder preference:
> 1. If the bidder is a corporation or limited liability company, the bidder's primary business address has a city of Valdez postal zip code, as reflected on the bidder's state of Alaska business license or the records of the State of Alaska Department of Commerce, Community and Economic Development, Division of Corporations;
> 2. If the bidder is an individual, the bidder's primary business or residential address has a city of Valdez postal zip code, as reflected on the bidder's state of Alaska business license;
> 3. If the bidder is a general partnership, a limited partnership, or a joint venture, at least one of the general partners has a postal zip code compliant with subsection (1) or (2) of this definition.
>
> Section 2.80.065H Competitive Bidding
>
> Except where prohibited by state or federal grant requirements, a local bidder, as defined in Section 2.80.020, may be given consideration as low bidder where the offer is the lesser of ten percent or fifty thousand dollars in excess of the lowest offer received from a bidder not qualified as a local bidder. The city may split the award between two or more suppliers in any manner the city deems to be in its best interest.

16. Award of Bid

The bid, if awarded, will be awarded to the lowest responsive responsible bidder as determined by the terms of the City Code and this document.

17. Pre-Bid Conference

A non-mandatory Pre-Bid Conference will be held January 29, 2026, at 2:00pm at the office of the Capital Facilities Director, Suite 201 300 Airport Road, Valdez, Alaska. Please contact the City's project manager, Brad Sontag (bsontag@valdezak.gov) if you would like to join this meeting remotely via Microsoft Teams.

18. Pre-Award Conference

Before the award of the contract a Pre-Award Conference may be held between the Engineer or Project Manager and the apparent low bidder.

City of Valdez
Addendum Acknowledgement

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

The bidder acknowledges receipt of the following addenda and certifies that their contents have been considered in the preparation of this Bid. If there are no addendums please state NONE above your name.

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

Addendum Number _____ Dated _____ Initials _____

_____ _____
Company Name Authorizing Name

_____ _____
Date Title

_____
Signature

Addendum Acknowledgment

The bidder acknowledges receipt of the following addenda and certifies that their contents have been considered in the preparation of this Bid. If an addendum is issued after you have submitted your bid, you will need to come back to this form and update your Addendum Acknowledgment to reflect the new addendum.

Addendum Acknowledgment

Addendum 1 issued 2/6/26

Addendum 2 issued 2/17/26

Initials *

ASS

Addendum 3 issued 2/19/26

Addendum 4 issued 2/25/26

Company Name *

Wolverine Supply, Inc.

Authorizing Name *

Ashlee Stetson

Date *

February 27, 2026

Title *

Vice President

.

Signature *

Ashlee Stetson

City of Valdez
Non-Collusion Affidavit

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

(to be executed prior to award)

UNITED STATES OF AMERICA)
)SS.
STATE OF ALASKA)

I, Ashlee Stetson, Vice President, of Wolverine Supply, Inc., being duly sworn, do depose and state:

I, or the firm, association, or corporation of which I am a member, a bidder on the Contract to be awarded, by the City of Valdez, Alaska, for the construction of that certain construction project designated as:

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Located at Valdez, in the State of Alaska, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such Contract.

Signature

Subscribed and sworn to this 27 day of February, 2026.

Notary Public

NOTARY PUBLIC
MARISA LOTT
STATE OF ALASKA
MY COMMISSION EXPIRES APR. 14, 2027

My Commission Expires: 4/14/2027

City of Valdez
Bid Schedule
Page 1 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Base Bid – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
1	-	MOBILIZATION AND DEMOBILIZATION	per	LS	1	N/A	
2	20.04	USABLE EXCAVATION	per	CY	6		
3	20.04	UNUSABLE EXCAVATION	per	CY	5650		
4	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	CY	6950		
5	20.06	LEVELING COURSE	per	CY	1850		
6	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	870		
7	20.11	BEDDING MATERIAL (CLASS C)	per	CY	270		
8	20.17	REMOVE EXISTING SIDEWALK	per	SY	1500		
9	20.18	REMOVE EXISTING CURB AND GUTTER	per	LF	5000		
10	20.19	REMOVE EXISTING PAVEMENT	per	SY	15550		
11	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	15100		
12	20.22	GEOTEXTILE, SEPARATION (TYPE A)	per	SY	4050		
13	30.01	PCC CURB AND GUTTER	per	LF	5150		
14	30.03	PCC SIDEWALK 4" THICK	per	SY	1450		
15	40.02	HMA, TYP II; CLASS A	per	TON	2850		
16	50.19 SP	SEWER CLOSED CIRCUIT TV INSPECTION	per	LF	280		
17	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	550		
18	55.02	FURNISH AND INSTALL PIPE (18")	per	LF	320		
19	55.03	CONSTRUCT MANHOLE	per	EA	36		
20	55.16 SP	STORM DRAIN CLOSED CIRCUIT TV INSPECTION	per	LF	560		
21	60.02	INSTALL WATER SERVICE (2" COPPER)	per	LF	0		
22	60.09	REPLACE VALVE BOX	per	EA	2		
23	60.09	INSTALL NEW HYDRANT	per	EA	5		
24	60.11	REPLACE TOP SECTION OF VALVE BOX	per	EA	1		

25	60.19 SP	EXISTING STRUCTURE CLEANING & INSPECTION	per	EA	1		
26	70.03	ADJUST MANHOLE RING TO FINISH GRADE	per	EA	21		
27	70.05	RELOCATE CATCH BASIN OR CBMH	per	EA	1		
28	70.06	REMOVE EXISTING MANHOLE	per	EA	33		
29	70.13	PAINTED TRAFFIC MARKINGS	per	LS	1		
30	70.14	STANDARD SIGN POST	per	EA	25		
31	70.14	STANDARD SIGNS	per	SF	204		
32	70.16	REMOVE PIPE	per	LF	690		
33	75.04	TOP SOIL AT 4" DEPTH	per	MSF	87.0		
34	75.05	SEEDING (SCHEDULE A)	per	MSF	87.0		
35	-	RETAINING WALL REMOVAL	per	LF	135		
36	-	RETAINING WALL INSTALL	per	LF	130		
37	26 05 05	DEMOLITION	per	LS	1	N/A	
38	26 24 16	100A LIGHTING LOADCENTER	per	EA	N/A	N/A	N/A
39	26 05 26	SERVICE FEEDER	per	LF	N/A	N/A	N/A
40	26 50 00	LIGHT FIXTURES	per	EA	13		
41	26 50 00	10' MAST ARM	per	EA	13		
42	26 50 00	POLES	per	EA	11		
43	26 50 00	POLE BASES	per	EA	11		
44	26 05 33	2" RIGID CONDUIT	per	LF	3480		
45	26 05 19	BRANCH CIRCUIT WIRING	per	LF	10450		
46	26 05 33	IN-GRADE JBS	per	EA	20		
47	-	SWPPP	per	LS	1	N/A	
48	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
49	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
50	-	TRAFFIC CONTROL	per	LS	1	N/A	
51	-	OWNER'S FLAGGING CONTINGENCY	per	CS	1	$20,000	$20,000
52	-	OWNER'S CONTINGENCY	per	CS	1	$400,000	$400.000
53	-	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS, AND CLOSE-OUT PUNCH LIST	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #1 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA1-1	20.04	USABLE EXCAVATION	per	CY	35		
AA1-2	20.04	UNUSABLE EXCAVATION	per	CY	154		
AA1-3	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	CY	115		
AA1-4	20.06	LEVELING COURSE	per	CY	39		
AA1-5	20.19	REMOVE EXISTING PAVEMENT	per	SY	452		
AA1-6	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	750		
AA1-7	30.01	PCC CURB AND GUTTER	per	LF	380		
AA1-8	40.02	HMA, TYP II; CLASS A	per	TON	118		
AA1-9	75.04	TOP SOIL AT 4" DEPTH	per	MSF	1.0		
AA1-10	75.05	SEEDING (SCHEDULE A)	per	MSF	1.0		
AA1-11	-	SWPPP	per	LS	1	N/A	
AA1-12	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA1-13	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA1-14	-	TRAFFIC CONTROL	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #2 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA2-1	20.04	UNUSABLE EXCAVATION	per	CY	263		
AA2-2	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	CY	201		
AA2-3	20.06	LEVELING COURSE	per	CY	62		
AA2-4	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	243		
AA2-5	20.11	BEDDING MATERIAL (CLASS C)	per	CY	87		
AA2-6	20.19	REMOVE EXISTING PAVEMENT	per	SY	900		
AA2-7	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	1150		
AA2-8	30.01	PCC CURB AND GUTTER	per	LF	386		
AA2-9	40.02	HMA, TYP II; CLASS A	per	TON	190		
AA2-10	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	40		
AA2-11	55.02	FURNISH AND INSTALL PIPE (18")	per	LF	203		
AA2-12	55.03	CONSTRUCT MANHOLE	per	EA	2		
AA2-13	70.06	REMOVE EXISTING MANHOLE	per	EA	2		
AA2-14	70.16	REMOVE PIPE	per	LF	243		
AA2-15	-	SWPPP	per	LS	1	N/A	
AA2-16	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA2-17	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA2-18	-	TRAFFIC CONTROL	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #3 – Phase IV Meals Avenue HDPE Conduit

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Meals							
A3-1	26 05 33	2" HDPE CONDUIT	per	LF	3480		
Robe River							
A3-2	26 05 33	2" HDPE CONDUIT	per	LF	1230		

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #4 Robe River Drive

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA4-1	20.04	USABLE EXCAVATION	per	CY	15		
AA4-2	20.04	UNUSABLE EXCAVATION	per	CY	1850		
AA4-3	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	CY	1550		
AA4-4	20.06	LEVELING COURSE	per	CY	330		
AA4-5	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	120		
AA4-6	20.11	BEDDING MATERIAL (CLASS C)	per	CY	32		
AA4-7	20.17	REMOVE EXISTING SIDEWALK	per	SY	630		
AA4-8	20.18	REMOVE EXISTING CURB AND GUTTER	per	LF	2150		
AA4-9	20.19	REMOVE EXISTING PAVEMENT	per	SY	5200		
AA4-10	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	6200		
AA4-11	20.22	GEOTEXTILE, SEPARATION (TYPE A)	per	SY	800		
AA4-12	30.01	PCC CURB AND GUTTER	per	LF	2150		
AA4-13	30.03	PCC SIDEWALK 4" THICK	per	SY	600		
AA4-14	40.02	HMA, TYP II; CLASS A	per	TON	1010		
AA4-15	50.19 SP	SEWER CLOSED CIRCUIT TV INSPECTION	per	LF	680		
AA4-16	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	120		
AA4-17	55.02	FURNISH AND INSTALL PIPE (18")	per	LF			N/A
AA4-18	55.03	CONSTRUCT MANHOLE	per	EA	5		
AA4-19	55.16 SP	STORM DRAIN CLOSED CIRCUIT TV INSPECTION	per	LF			N/A
AA4-20	60.02	INSTALL WATER SERVICE (2" COPPER)	per	LF			N/A
AA4-21	60.09	REPLACE VALVE BOX	per	EA			N/A
AA4-22	60.09	INSTALL NEW HYDRANT	per	EA	4		

AA4-23	60.11	REPLACE TOP SECTION OF VALVE BOX	per	EA			N/A
AA4-24	60.19 SP	EXISTING STRUCTURE CLEANING & INSPECTION	per	EA	2		
AA4-25	70.03	ADJUST MANHOLE RING TO FINISH GRADE	per	EA	5		
AA4-26	70.05	RELOCATE CATCH BASIN OR CBMH	per	EA			N/A
AA4-27	70.06	REMOVE EXISTING MANHOLE	per	EA	5		
AA4-28	70.13	PAINTED TRAFFIC MARKINGS	per	LS	1	N/A	
AA4-29	70.14	STANDARD SIGN POST	per	EA	10		
AA4-30	70.14	STANDARD SIGNS	per	SF	80		
AA4-31	70.16	REMOVE PIPE	per	LF	120		
AA4-32	75.04	TOP SOIL AT 4" DEPTH	per	MSF	8.0		
AA4-33	75.05	SEEDING (SCHEDULE A)	per	MSF	8.0		
AA4-34	-	RETAINING WALL REMOVAL	per	LF	45		
AA4-35	-	RETAINING WALL INSTALL	per	LF	45		
AA4-36	26 05 05	DEMOLITION	per	LS	1		
AA4-37	26 24 16	100A LIGHTING LOADCENTER	per	EA			N/A
AA4-38	26 05 26	SERVICE FEEDER	per	LF			N/A
AA4-39	26 50 00	LIGHT FIXTURES	per	EA	6		
AA4-40	26 50 00	10' MAST ARM	per	EA	6		
AA4-41	26 50 00	POLES	per	EA	5		
AA4-42	26 50 00	POLE BASES	per	EA	5		
AA4-43	26 05 33	2" RIGID CONDUIT	per	LF	1230		
AA4-44	26 05 19	BRANCH CIRCUIT WIRING	per	LF	3670		
AA4-45	26 05 33	IN-GRADE JBS	per	EA	8		
AA4-46	-	SWPPP	per	LS	1	N/A	
AA4-47	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA4-48	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA4-49	-	TRAFFIC CONTROL	per	LS	1	N/A	
AA4-50	-	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS, AND CLOSE-OUT PUNCH LIST	per	LS	1	N/A	

Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #5 and #6 Fiber Optic

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Alternate # 5 Meals							
AA5-1	26 05 33	2" HDPE FIBER CONDUIT	per	LF	5190		
AA5-2	26 05 33	FIBER HANDHOLES	per	EA	3		
AA5-3	26 05 33	FIBER VAULTS	per	EA	2		
Alternate #6 Robe River Drive							
AA6-1	26 05 33	2" HDPE FIBER CONDUIT	per	LF	2060		
AA6-2	26 05 33	FIBER VAULTS	per	EA	1		

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
1	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST	1.0000	LS		$50,000.00	$50,000.00
2	USABLE EXCAVATION	6.0000	CY		$50.00	$300.00
3	UNUSABLE EXCAVATION	5,650.0000	CY		$25.00	$141,250.00
4	TYPE II-A CLASSIFIED FILL AND BACKFILL	9,340.0000	TON		$32.00	$298,880.00
5	LEVELING COURSE	1,875.0000	TON		$75.00	$140,625.00
6	TRENCH EXCAVATION AND BACKFILL	870.0000	LF		$30.00	$26,100.00
7	BEDDING MATERIAL (CLASS C)	529.0000	TON		$25.00	$13,225.00
8	REMOVE EXISTING SIDEWALK	1,500.0000	SY		$50.00	$75,000.00
9	REMOVE EXISTING CURB AND GUTTER	5,000.0000	LF		$3.00	$15,000.00
10	REMOVE EXISTING BACKING CURB	135.0000	LF		$40.00	$5,400.00
11	REMOVE EXISTING PAVEMENT	15,550.0000	SY		$2.50	$38,875.00
12	GEOTEXTILE (SEPARATION & STABILIZE)	15,100.0000	SY		$3.50	$52,850.00
13	GEOTEXTILE, SEPARATION (TYPE A)	4,050.0000	SY		$4.00	$16,200.00
14	STORM WATER POLLUTION PREVENTION PLAN	1.0000	LS		$20,000.00	$20,000.00

Total: $6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
15	MOBILIZATION AND DEMOBILIZATION	1.0000	LS		$400,000.00	$400,000.00
16	PCC CURB AND GUTTER	5,150.0000	LF		$65.00	$334,750.00
17	PCC SIDEWALK 4" THICK	1,200.0000	SY		$135.00	$162,000.00
18	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	18.0000	EA		$4,600.00	$82,800.00
19	BACKING CURB	130.0000	LF		$50.00	$6,500.00
20	HMA, TYP II; CLASS A	2,850.0000	TON		$220.00	$627,000.00
21	SEWER LINE CLEANING	0.0000	LF		$13.00	$0.00
22	SEWER LINE CCTV INSPECTION	280.0000	LF		$13.00	$3,640.00
23	FURNISH AND INSTALL PIPE (12")	550.0000	LF		$40.00	$22,000.00
24	FURNISH AND INSTALL PIPE (18")	320.0000	LF		$70.00	$22,400.00
25	CONSTRUCT MANHOLE	36.0000	EA		$10,000.00	$360,000.00
26	STORM DRAIN LINE CLEANING	560.0000	LF		$20.00	$11,200.00
27	STORM DRAIN LINE CCTV INSPECTION	0.0000	LF		$15.00	$0.00
28	INSTALL WATER SERVICE (2" COPPER)	0.0000	LF		$450.00	$0.00
29	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	2.0000	EA		$9,000.00	$18,000.00
30	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE	3.0000	EA		$6,000.00	$18,000.00

Total: $6,505,803.00

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
31	REMOVE AND REPLACE VALVE BOX TOP SECTION	1.0000	EA		$1,000.00	$1,000.00
32	CLEAN AND CLEAR VALVE	1.0000	EA		$500.00	$500.00
33	CONSTRUCTION SURVEYING	1.0000	LS		$169,000.00	$169,000.00
34	ADJUST MANHOLE RING TO FINISH GRADE	21.0000	EA		$2,000.00	$42,000.00
35	RELOCATE CATCH BASIN OR CBMH	1.0000	EA		$3,000.00	$3,000.00
36	REMOVE EXISTING MANHOLE	33.0000	EA		$1,500.00	$49,500.00
37	PAINTED TRAFFIC MARKINGS	1.0000	LS		$19,000.00	$19,000.00
38	STANDARD SIGN POST	25.0000	EA		$300.00	$7,500.00
39	STANDARD SIGNS	204.0000	SF		$250.00	$51,000.00
40	TRAFFIC MAINTENANCE	1.0000	LS		$40,000.00	$40,000.00
41	TRAFFIC CONTROL	1.0000	LS		$15,000.00	$15,000.00
42	FLAGGING	1.0000	CS		$20,000.00	$20,000.00
43	TEMPORARY ACCESS ROAD	1.0000	LS		$190,000.00	$190,000.00
44	REMOVE PIPE	690.0000	LF		$18.00	$12,420.00
45	TOP SOIL AT 2" DEPTH	87.0000	MSF		$1,500.00	$130,500.00

Total: $6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
46	SEEDING (SCHEDULE A)	87.0000	MSF		$250.00	$21,750.00
47	DEMOLITION	1.0000	LS		$50,000.00	$50,000.00
48	100A LIGHTING LOADCENTER	0.0000	EA		$10,000.00	$0.00
49	SERVICE FEEDER	0.0000	LF		$12.00	$0.00
50	LIGHT FIXTURES	13.0000	EA		$1,100.00	$14,300.00
51	10' MAST ARM	13.0000	EA		$700.00	$9,100.00
52	POLES	11.0000	EA		$7,000.00	$77,000.00
53	POLE BASES	11.0000	EA		$5,000.00	$55,000.00
54	2" RIGID CONDUIT	3,480.0000	LF		$37.00	$128,760.00
55	BRANCH CIRCUIT WIRING	10,450.0000	LF		$3.00	$31,350.00
56	IN-GRADE JBS	20.0000	EA		$1,300.00	$26,000.00
57	OWNER'S CONTINGENCY	1.0000	CS		$400,000.00	$400,000.00
AA1-1	USABLE EXCAVATION	35.0000	CY		$50.00	$1,750.00
AA1-2	UNUSABLE EXCAVATION	154.0000	CY		$50.00	$7,700.00
AA1-3	TYPE II-A CLASSIFIED FILL AND BACKFILL	225.0000	TON		$35.00	$7,875.00

Total: $6,505,803.00

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA1-4	LEVELING COURSE	76.0000	TON		$75.00	$5,700.00
AA1-5	REMOVE EXISTING PAVEMENT	452.0000	SY		$4.00	$1,808.00
AA1-6	GEOTEXTILE (SEPARATION & STABILIZE)	750.0000	SY		$5.00	$3,750.00
AA1-7	STORM WATER POLLUTION PREVENTION PLAN	1.0000	LS		$4,000.00	$4,000.00
AA1-8	PCC CURB AND GUTTER	380.0000	LF		$70.00	$26,600.00
AA1-9	HMA, TYP II; CLASS A	118.0000	TON		$220.00	$25,960.00
AA1-10	CONSTRUCTION SURVEY	1.0000	LS		$27,000.00	$27,000.00
AA1-11	TRAFFIC MAINTENANCE	1.0000	LS		$4,000.00	$4,000.00
AA1-12	TRAFFIC CONTROL	1.0000	LS		$6,000.00	$6,000.00
AA1-13	TOP SOIL AT 2" DEPTH	1.0000	MSF		$2,000.00	$2,000.00
AA1-14	SEEDING (SCHEDULE A)	1.0000	MSF		$350.00	$350.00
AA2-1	UNUSABLE EXCAVATION	263.0000	CY		$50.00	$13,150.00
AA2-2	TYPE II-A CLASSIFIED FILL AND BACKFILL	393.0000	TON		$35.00	$13,755.00
AA2-3	LEVELING COURSE	121.0000	TON		$75.00	$9,075.00

Total: $6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA2-4	TRENCH EXCAVATION AND BACKFILL	243.0000	LF		$26.00	$6,318.00
AA2-5	BEDDING MATERIAL (CLASS C)	170.0000	TON		$22.00	$3,740.00
AA2-6	REMOVE EXISTING PAVEMENT	900.0000	SY		$3.00	$2,700.00
AA2-7	GEOTEXTILE (SEPARATION & STABILIZE)	1,150.0000	SY		$5.00	$5,750.00
AA2-8	STORM WATER POLLUTION PREVENTION PLAN	1.0000	LS		$4,000.00	$4,000.00
AA2-9	PCC CURB AND GUTTER	386.0000	LF		$65.00	$25,090.00
AA2-10	HMA, TYP II; CLASS A	190.0000	TON		$220.00	$41,800.00
AA2-11	FURNISH AND INSTALL PIPE (12")	40.0000	LF		$60.00	$2,400.00
AA2-12	FURNISH AND INSTALL PIPE (18")	203.0000	LF		$70.00	$14,210.00
AA2-13	CONSTRUCT MANHOLE	2.0000	EA		$15,000.00	$30,000.00
AA2-14	CONSTRUCTION SURVEY	1.0000	LS		$27,000.00	$27,000.00
AA2-15	REMOVE EXISTING MANHOLE	2.0000	EA		$1,500.00	$3,000.00
AA2-16	TRAFFIC MAINTENANCE	1.0000	LS		$3,000.00	$3,000.00
AA2-17	TRAFFIC CONTROL	1.0000	LS		$2,000.00	$2,000.00
AA2-18	REMOVE PIPE	243.0000	LF		$15.00	$3,645.00
A3-1	2" HDPE CONDUIT	3,480.0000	LF		$20.00	$69,600.00

Total: $6,505,803.00

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
A3-2	2" HDPE CONDUIT	1,230.0000	LF		$22.00	$27,060.00
AA4-1	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST	1.0000	LS		$25,000.00	$25,000.00
AA4-2	USABLE EXCAVATION	15.0000	CY		$50.00	$750.00
AA4-3	UNUSABLE EXCAVATION	1,850.0000	CY		$25.00	$46,250.00
AA4-4	TYPE II-A CLASSIFIED FILL AND BACKFILL	3,050.0000	TON		$32.00	$97,600.00
AA4-5	LEVELING COURSE	646.0000	TON		$76.00	$49,096.00
AA4-6	TRENCH EXCAVATION AND BACKFILL	120.0000	LF		$32.00	$3,840.00
AA4-7	BEDDING MATERIAL (CLASS C)	63.0000	TON		$50.00	$3,150.00
AA4-8	REMOVE EXISTING SIDEWALK	630.0000	SY		$50.00	$31,500.00
AA4-9	REMOVE EXISTING CURB AND GUTTER	2,150.0000	LF		$4.00	$8,600.00
AA4-10	REMOVE EXISTING BACKING CURB	45.0000	LF		$14.00	$630.00
AA4-11	REMOVE EXISTING PAVEMENT	5,200.0000	SY		$3.00	$15,600.00
AA4-12	GEOTEXTILE (SEPARATION & STABILIZE)	6,200.0000	SY		$3.50	$21,700.00
AA4-13	GEOTEXTILE, SEPARATION (TYPE A)	800.0000	SY		$4.00	$3,200.00

Total: $6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA4-14	STORM WATER POLLUTION PREVENTION PLAN	1.0000	LS		$3,000.00	$3,000.00
AA4-15	MOBILIZATION AND DEMOBILIZATION	1.0000	LS		$50,000.00	$50,000.00
AA4-16	PCC CURB AND GUTTER	2,150.0000	LF		$65.00	$139,750.00
AA4-17	PCC SIDEWALK 4" THICK	560.0000	SY		$140.00	$78,400.00
AA4-18	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	4.0000	EA		$4,500.00	$18,000.00
AA4-19	BACKING CURB	45.0000	LF		$60.00	$2,700.00
AA4-20	HMA, TYP II; CLASS A	1,010.0000	TON		$220.00	$222,200.00
AA4-21	SEWER LINE CLEANING	332.0000	LF		$13.00	$4,316.00
AA4-22	SEWER LINE CCTV INSPECTION	346.0000	LF		$13.00	$4,498.00
AA4-23	FURNISH AND INSTALL PIPE (12")	120.0000	LF		$40.00	$4,800.00
AA4-24	FURNISH AND INSTALL PIPE (18")	0.0000	LF		$70.00	$0.00
AA4-25	CONSTRUCT MANHOLE	5.0000	EA		$10,000.00	$50,000.00
AA4-26	STORM DRAIN LINE CLEANING	0.0000	LF		$13.00	$0.00
AA4-27	STORM DRAIN LINE CCTV INSPECTION	0.0000	LF		$15.00	$0.00
AA4-28	INSTALL WATER SERVICE (2" COPPER)	0.0000	LF		$450.00	$0.00
AA4-29	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	0.0000	EA		$9,000.00	$0.00

Total: $6,505,803.00

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA4-30	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE	4.0000	EA		$6,000.00	$24,000.00
AA4-31	REMOVE AND REPLACE VALVE BOX TOP SECTION	0.0000	EA		$1,000.00	$0.00
AA4-32	CLEAN AND CLEAR VALVE	2.0000	EA		$500.00	$1,000.00
AA4-33	CONSTRUCTION SURVEYING	1.0000	LS		$75,000.00	$75,000.00
AA4-34	ADJUST MANHOLE RING TO FINISH GRADE	5.0000	EA		$2,000.00	$10,000.00
AA4-35	RELOCATE CATCH BASIN OR CBMH	0.0000	EA		$3,000.00	$0.00
AA4-36	REMOVE EXISTING MANHOLE	5.0000	EA		$1,500.00	$7,500.00
AA4-37	PAINTED TRAFFIC MARKINGS	1.0000	LS		$3,000.00	$3,000.00
AA4-38	STANDARD SIGN POST	10.0000	EA		$300.00	$3,000.00
AA4-39	STANDARD SIGNS	80.0000	SF		$250.00	$20,000.00
AA4-40	TRAFFIC MAINTENANCE	1.0000	LS		$45,000.00	$45,000.00
AA4-41	TRAFFIC CONTROL	1.0000	LS		$13,000.00	$13,000.00
AA4-42	FLAGGING	1.0000	CS		$10,000.00	$10,000.00
AA4-43	TEMPORARY ACCESS ROAD	1.0000	LS		$175,000.00	$175,000.00

Total: $6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA4-44	REMOVE PIPE	120.0000	LF		$20.00	$2,400.00
AA4-45	TOP SOIL AT 2" DEPTH	8.0000	MSF		$2,000.00	$16,000.00
AA4-46	SEEDING (SCHEDULE A)	8.0000	MSF		$250.00	$2,000.00
AA4-47	DEMOLITION	1.0000	LS		$10,500.00	$10,500.00
AA4-48	100A LIGHTING LOADCENTER	0.0000	EA		$0.00	$0.00
AA4-49	SERVICE FEEDER	1.0000	LF		$12.00	$12.00
AA4-50	LIGHT FIXTURES	6.0000	EA		$825.00	$4,950.00
AA4-51	10' MAST ARM	6.0000	EA		$700.00	$4,200.00
AA4-52	POLES	5.0000	EA		$7,120.00	$35,600.00
AA4-53	POLE BASES	5.0000	EA		$5,200.00	$26,000.00
AA4-54	2" RIGID CONDUIT	1,230.0000	LF		$35.00	$43,050.00
AA4-55	BRANCH CIRCUIT WIRING	3,670.0000	LF		$4.00	$14,680.00
AA4-56	IN-GRADE JBS	8.0000	EA		$1,300.00	$10,400.00
AA5-1	2" HDPE FIBER CONDUIT	5,190.0000	LF		$4.00	$20,760.00
AA5-2	FIBER HANDHOLES	3.0000	EA		$10,000.00	$30,000.00
AA5-3	FIBER VAULTS	2.0000	EA		$17,500.00	$35,000.00

Total: $6,505,803.00

$6,505,803.00

Item No.	Item Description	Quantity	Unit	Optional	Unit Price	Extension
AA6-1	2" HDPE FIBER CONDUIT	2,060.0000	LF		$3.50	$7,210.00
AA6-2	FIBER VAULTS	1.0000	EA		$14,500.00	$14,500.00

Total: $6,505,803.00

Summary of Bids Received

Bid Opening - February 27, 2026 at 2:00PM

Project: Pavement Management Phase IV Meals Avenue
Contract No.: 2450
Project No.: 25-310-1118

			Wolverine Supply, Inc.		Knik Construction Co., Inc.		Granite Construction Company	
Item #	Item	Quantity	Price	Extension	Price	Extension	Price	Extension
	Bid Schedule Page 1 of 2							
1	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST - LS	1.0000	$50,000.00	$50,000.00	$100,000.00	$100,000.00	$1,000.00	$1,000.00
2	USABLE EXCAVATION - CY	6.0000	$50.00	$300.00	$48.00	$288.00	$30.00	$180.00
3	UNUSABLE EXCAVATION - CY	5,650.0000	$25.00	$141,250.00	$21.00	$118,650.00	$30.00	$169,500.00
4	TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	9,340.0000	$32.00	$298,880.00	$23.00	$214,820.00	$30.00	$280,200.00
5	LEVELING COURSE - TON	1,875.0000	$75.00	$140,625.00	$38.00	$71,250.00	$75.00	$140,625.00
6	TRENCH EXCAVATION AND BACKFILL - LF	870.0000	$30.00	$26,100.00	$108.00	$93,960.00	$1.00	$870.00
7	7 - BEDDING MATERIAL (CLASS C) - TON	529.0000	$25.00	$13,225.00	$52.00	$27,508.00	$30.00	$15,870.00
8	REMOVE EXISTING SIDEWALK - SY	1,500.0000	$50.00	$75,000.00	$16.00	$24,000.00	$20.00	$30,000.00
9	REMOVE EXISTING CURB AND GUTTER - LF	5,000.0000	$3.00	$15,000.00	$6.00	$30,000.00	$10.00	$50,000.00
10	REMOVE EXISTING BACKING CURB - LF	135.0000	$40.00	$5,400.00	$8.00	$1,080.00	$10.00	$1,350.00
11	REMOVE EXISTING PAVEMENT - SY	15,550.0000	$2.50	$38,875.00	$4.25	$66,087.50	$10.00	$155,500.00
12	GEOTEXTILE (SEPARATION & STABILIZE) - SY	15,100.0000	$3.50	$52,850.00	$4.00	$60,400.00	$2.00	$30,200.00
13	GEOTEXTILE, SEPARATION (TYPE A) - SY	4,050.0000	$4.00	$16,200.00	$4.00	$16,200.00	$2.00	$8,100.00
14	STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$20,000.00	$20,000.00	$110,000.00	$110,000.00	$200,000.00	$200,000.00
15	MOBILIZATION AND DEMOBILIZATION - LS	1.0000	$400,000.00	$400,000.00	$650,000.00	$650,000.00	$950,000.00	$950,000.00
16	PCC CURB AND GUTTER - LF	5,150.0000	$65.00	$334,750.00	$57.25	$294,837.50	$65.00	$334,750.00
17	PCC SIDEWALK 4" THICK - SY	1,200.0000	$135.00	$162,000.00	$139.50	$167,400.00	$150.00	$180,000.00
18	ADA CURB RAMPS (ALL LABOR AND MATERIALS) - EA	18.0000	$4,600.00	$82,800.00	$9,200.00	$165,600.00	$8,500.00	$153,000.00
19	BACKING CURB - LF	130.0000	$50.00	$6,500.00	$108.00	$14,040.00	$100.00	$13,000.00
20	HMA, TYP II; CLASS A - TON	2,850.0000	$220.00	$627,000.00	$145.00	$413,250.00	$215.00	$612,750.00
21	SEWER LINE CLEANING - LF	0.0000	$13.00	$0.00	$0.00	$0.00	$0.00	$0.00

22	SEWER LINE CCTV INSPECTION - LF	280.0000	$13.00	$3,640.00	$11.50	$3,220.00	$15.00	$4,200.00
23	FURNISH AND INSTALL PIPE (12") - LF	550.0000	$40.00	$22,000.00	$94.00	$51,700.00	$175.00	$96,250.00
24	FURNISH AND INSTALL PIPE (18") - LF	320.0000	$70.00	$22,400.00	$114.00	$36,480.00	$175.00	$56,000.00
25	CONSTRUCT MANHOLE - EA	36.0000	$10,000.00	$360,000.00	$15,000.00	$540,000.00	$17,500.00	$630,000.00
26	STORM DRAIN LINE CLEANING - LF	560.0000	$20.00	$11,200.00	$17.00	$9,520.00	$15.00	$8,400.00
27	STORM DRAIN LINE CCTV INSPECTION - LF	0.0000	$15.00	$0.00	$0.00	$0.00	$0.00	$0.00
28	INSTALL WATER SERVICE (2" COPPER) - LF	0.0000	$450.00	$0.00	$0.00	$0.00	$0.00	$0.00
29	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) - EA	2.0000	$9,000.00	$18,000.00	$30,500.00	$61,000.00	$30,000.00	$60,000.00
30	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE - EA	3.0000	$6,000.00	$18,000.00	$26,000.00	$78,000.00	$30,000.00	$90,000.00
31	REMOVE AND REPLACE VALVE BOX TOP SECTION - EA	1.0000	$1,000.00	$1,000.00	$1,500.00	$1,500.00	$3,000.00	$3,000.00
32	CLEAN AND CLEAR VALVE - EA	1.0000	$500.00	$500.00	$1,500.00	$1,500.00	$2,000.00	$2,000.00
33	CONSTRUCTION SURVEYING - LS	1.0000	$169,000.00	$169,000.00	$175,000.00	$175,000.00	$150,000.00	$150,000.00
34	ADJUST MANHOLE RING TO FINISH GRADE - EA	21.0000	$2,000.00	$42,000.00	$2,200.00	$46,200.00	$2,000.00	$42,000.00
35	RELOCATE CATCH BASIN OR CBMH - EA	1.0000	$3,000.00	$3,000.00	$7,100.00	$7,100.00	$7,500.00	$7,500.00
36	REMOVE EXISTING MANHOLE - EA	33.0000	$1,500.00	$49,500.00	$3,000.00	$99,000.00	$1,000.00	$33,000.00
37	PAINTED TRAFFIC MARKINGS - LS	1.0000	$19,000.00	$19,000.00	$7,600.00	$7,600.00	$10,000.00	$10,000.00
38	STANDARD SIGN POST - EA	25.0000	$300.00	$7,500.00	$340.00	$8,500.00	$300.00	$7,500.00
39	STANDARD SIGNS - SF	204.0000	$250.00	$51,000.00	$115.00	$23,460.00	$100.00	$20,400.00
40	TRAFFIC MAINTENANCE - LS	1.0000	$40,000.00	$40,000.00	$180,000.00	$180,000.00	$200,000.00	$200,000.00
41	TRAFFIC CONTROL - LS	1.0000	$15,000.00	$15,000.00	$80,000.00	$80,000.00	$200,000.00	$200,000.00
42	FLAGGING - CS	1.0000	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00
43	TEMPORARY ACCESS ROAD - LS	1.0000	$190,000.00	$190,000.00	$300,000.00	$300,000.00	$200,000.00	$200,000.00
44	REMOVE PIPE - LF	690.0000	$18.00	$12,420.00	$33.00	$22,770.00	$10.00	$6,900.00
45	TOP SOIL AT 2" DEPTH - MSF	87.0000	$1,500.00	$130,500.00	$680.00	$59,160.00	$1,000.00	$87,000.00
46	SEEDING (SCHEDULE A) - MSF	87.0000	$250.00	$21,750.00	$525.00	$45,675.00	$200.00	$17,400.00
47	DEMOLITION - LS	1.0000	$50,000.00	$50,000.00	$10,000.00	$10,000.00	$20,000.00	$20,000.00

48	48 - 100A LIGHTING LOADCENTER - EA	0.0000	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
49	SERVICE FEEDER - LF	0.0000	$12.00	$0.00	$0.00	$0.00	$0.00	$0.00
50	LIGHT FIXTURES - EA	13.0000	$1,100.00	$14,300.00	$1,350.00	$17,550.00	$900.00	$11,700.00
51	10' MAST ARM - EA	13.0000	$700.00	$9,100.00	$1,250.00	$16,250.00	$600.00	$7,800.00
52	POLES - EA	11.0000	$7,000.00	$77,000.00	$10,100.00	$111,100.00	$5,500.00	$60,500.00
53	POLE BASES - EA	11.0000	$5,000.00	$55,000.00	$2,900.00	$31,900.00	$4,000.00	$44,000.00
54	2" RIGID CONDUIT - LF	3,480.0000	$37.00	$128,760.00	$41.00	$142,680.00	$30.00	$104,400.00
55	BRANCH CIRCUIT WIRING - LF	10,450.0000	$3.00	$31,350.00	$7.30	$76,285.00	$3.00	$31,350.00
56	IN-GRADE JBS - EA	20.0000	$1,300.00	$26,000.00	$1,700.00	$34,000.00	$1,250.00	$25,000.00
57	OWNER'S CONTINGENCY - CS	1.0000	$400,000.00	$400,000.00	$400,000.00	$400,000.00	$400,000.00	$400,000.00
AA1-1	AA1-1 - USABLE EXCAVATION - CY	35.0000	$50.00	$1,750.00	$48.00	$1,680.00	$30.00	$1,050.00
AA1-2	AA1-2 - UNUSABLE EXCAVATION - CY	154.0000	$50.00	$7,700.00	$25.00	$3,850.00	$30.00	$4,620.00
AA1-3	AA1-3 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	225.0000	$35.00	$7,875.00	$26.00	$5,850.00	$30.00	$6,750.00
AA1-4	AA1-4 - LEVELING COURSE - TON	76.0000	$75.00	$5,700.00	$38.00	$2,888.00	$75.00	$5,700.00
AA1-5	AA1-5 - REMOVE EXISTING PAVEMENT - SY	452.0000	$4.00	$1,808.00	$6.00	$2,712.00	$10.00	$4,520.00
AA1-6	AA1-6 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	750.0000	$5.00	$3,750.00	$4.00	$3,000.00	$2.00	$1,500.00
AA1-7	AA1-7 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$4,000.00	$4,000.00	$2,500.00	$2,500.00	$1,000.00	$1,000.00
AA1-8	AA1-8 - PCC CURB AND GUTTER - LF	380.0000	$70.00	$26,600.00	$57.25	$21,755.00	$65.00	$24,700.00
AA1-9	AA1-9 - HMA, TYP II; CLASS A - TON	118.0000	$220.00	$25,960.00	$142.00	$16,756.00	$215.00	$25,370.00
AA1-10	AA1-10 - CONSTRUCTION SURVEY - LS	1.0000	$27,000.00	$27,000.00	$23,600.00	$23,600.00	$9,000.00	$9,000.00
AA1-11	AA1-11 - TRAFFIC MAINTENANCE - LS	1.0000	$4,000.00	$4,000.00	$2,600.00	$2,600.00	$1,000.00	$1,000.00
AA1-12	AA1-12 - TRAFFIC CONTROL - LS	1.0000	$6,000.00	$6,000.00	$600.00	$600.00	$1,000.00	$1,000.00
AA1-13	AA1-13 - TOP SOIL AT 2" DEPTH - MSF	1.0000	$2,000.00	$2,000.00	$706.00	$706.00	$1,000.00	$1,000.00
AA1-14	AA1-14 - SEEDING (SCHEDULE A) - MSF	1.0000	$350.00	$350.00	$544.00	$544.00	$200.00	$200.00
AA2-1	AA2-1 - UNUSABLE EXCAVATION - CY	263.0000	$50.00	$13,150.00	$23.00	$6,049.00	$30.00	$7,890.00
AA2-2	AA2-2 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	393.0000	$35.00	$13,755.00	$28.00	$11,004.00	$30.00	$11,790.00
AA2-3	AA2-3 - LEVELING COURSE - TON	121.0000	$75.00	$9,075.00	$38.00	$4,598.00	$75.00	$9,075.00

AA2-4	AA2-4 - TRENCH EXCAVATION AND BACKFILL - LF	243.0000	$26.00	$6,318.00	$107.00	$26,001.00	$1.00	$243.00
AA2-5	AA2-5 - BEDDING MATERIAL (CLASS C) - TON	170.0000	$22.00	$3,740.00	$54.00	$9,180.00	$30.00	$5,100.00
AA2-6	AA2-6 - REMOVE EXISTING PAVEMENT - SY	900.0000	$3.00	$2,700.00	$6.00	$5,400.00	$10.00	$9,000.00
AA2-7	AA2-7 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	1,150.0000	$5.00	$5,750.00	$4.00	$4,600.00	$2.00	$2,300.00
AA2-8	AA2-8 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$4,000.00	$4,000.00	$5,000.00	$5,000.00	$500.00	$500.00
AA2-9	AA2-9 - PCC CURB AND GUTTER - LF	386.0000	$65.00	$25,090.00	$60.00	$23,160.00	$65.00	$25,090.00
AA2-10	AA2-10 - HMA, TYP II; CLASS A - TON	190.0000	$220.00	$41,800.00	$146.00	$27,740.00	$215.00	$40,850.00
AA2-11	AA2-11 - FURNISH AND INSTALL PIPE (12") - LF	40.0000	$60.00	$2,400.00	$92.00	$3,680.00	$175.00	$7,000.00
AA2-12	AA2-12 - FURNISH AND INSTALL PIPE (18") - LF	203.0000	$70.00	$14,210.00	$105.00	$21,315.00	$175.00	$35,525.00
AA2-13	AA2-13 - CONSTRUCT MANHOLE - EA	2.0000	$15,000.00	$30,000.00	$14,500.00	$29,000.00	$17,500.00	$35,000.00
AA2-14	AA2-14 - CONSTRUCTION SURVEY - LS	1.0000	$27,000.00	$27,000.00	$23,600.00	$23,600.00	$5,000.00	$5,000.00
AA2-15	AA2-15 - REMOVE EXISTING MANHOLE - EA	2.0000	$1,500.00	$3,000.00	$3,875.00	$7,750.00	$1,000.00	$2,000.00
AA2-16	AA2-16 - TRAFFIC MAINTENANCE - LS	1.0000	$3,000.00	$3,000.00	$10,000.00	$10,000.00	$1,000.00	$1,000.00
AA2-17	AA2-17 - TRAFFIC CONTROL - LS	1.0000	$2,000.00	$2,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00
AA2-18	AA2-18 - REMOVE PIPE - LF	243.0000	$15.00	$3,645.00	$33.00	$8,019.00	$10.00	$2,430.00
AA3-1	A3-1 - 2" HDPE CONDUIT - LF	3,480.0000	$20.00	$69,600.00	$29.20	$101,616.00	$20.00	$69,600.00
AA3-2	A3-2 - 2" HDPE CONDUIT - LF	1,230.0000	$22.00	$27,060.00	$30.25	$37,207.50	$20.00	$24,600.00
AA4-1	AA4-1 - FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST - LS	1.0000	$25,000.00	$25,000.00	$25,000.00	$25,000.00	$1,000.00	$1,000.00
AA4-2	AA4-2 - USABLE EXCAVATION - CY	15.0000	$50.00	$750.00	$45.00	$675.00	$30.00	$450.00
AA4-3	AA4-3 - UNUSABLE EXCAVATION - CY	1,850.0000	$25.00	$46,250.00	$23.00	$42,550.00	$30.00	$55,500.00
AA4-4	AA4-4 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	3,050.0000	$32.00	$97,600.00	$24.50	$74,725.00	$30.00	$91,500.00
AA4-5	AA4-5 - LEVELING COURSE - TON	646.0000	$76.00	$49,096.00	$38.00	$24,548.00	$75.00	$48,450.00

AA4-6	AA4-6 - TRENCH EXCAVATION AND BACKFILL - LF	120.0000	$32.00	$3,840.00	$107.00	$12,840.00	$1.00	$120.00
AA4-7	AA4-7 - BEDDING MATERIAL (CLASS C) - TON	63.0000	$50.00	$3,150.00	$51.00	$3,213.00	$30.00	$1,890.00
AA4-8	AA4-8 - REMOVE EXISTING SIDEWALK - SY	630.0000	$50.00	$31,500.00	$16.00	$10,080.00	$20.00	$12,600.00
AA49-	AA4-9 - REMOVE EXISTING CURB AND GUTTER - LF	2,150.0000	$4.00	$8,600.00	$6.00	$12,900.00	$10.00	$21,500.00
AA4-10	AA4-10 - REMOVE EXISTING BACKING CURB - LF	45.0000	$14.00	$630.00	$9.00	$405.00	$10.00	$450.00
AA4-11	AA4-11 - REMOVE EXISTING PAVEMENT - SY	5,200.0000	$3.00	$15,600.00	$4.00	$20,800.00	$10.00	$52,000.00
AA4-12	AA4-12 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	6,200.0000	$3.50	$21,700.00	$4.00	$24,800.00	$2.00	$12,400.00
AA4-13	AA4-13 - GEOTEXTILE, SEPARATION (TYPE A) - SY	800.0000	$4.00	$3,200.00	$4.00	$3,200.00	$2.00	$1,600.00
AA4-14	AA4-14 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$3,000.00	$3,000.00	$20,000.00	$20,000.00	$5,000.00	$5,000.00
AA4-15	AA4-15 - MOBILIZATION AND DEMOBILIZATION - LS	1.0000	$50,000.00	$50,000.00	$70,000.00	$70,000.00	$5,000.00	$5,000.00
AA4-16	AA4-16 - PCC CURB AND GUTTER - LF	2,150.0000	$65.00	$139,750.00	$69.00	$148,350.00	$65.00	$139,750.00
AA4-17	AA4-17 - PCC SIDEWALK 4" THICK - SY	560.0000	$140.00	$78,400.00	$160.00	$89,600.00	$150.00	$84,000.00
AA4-18	AA4-18 - ADA CURB RAMPS (ALL LABOR AND MATERIALS) - EA	4.0000	$4,500.00	$18,000.00	$7,800.00	$31,200.00	$8,500.00	$34,000.00
AA4-19	AA4-19 - BACKING CURB - LF	45.0000	$60.00	$2,700.00	$127.00	$5,715.00	$100.00	$4,500.00
AA4-20	AA4-20 - HMA, TYP II; CLASS A - TON	1,010.0000	$220.00	$222,200.00	$122.00	$123,220.00	$215.00	$217,150.00
AA4-21	AA4-21 - SEWER LINE CLEANING - LF	332.0000	$13.00	$4,316.00	$11.50	$3,818.00	$35.00	$11,620.00
AA4-22	AA4-22 - SEWER LINE CCTV INSPECTION - LF	346.0000	$13.00	$4,498.00	$11.50	$3,979.00	$15.00	$5,190.00
AA4-23	AA4-23 - FURNISH AND INSTALL PIPE (12") - LF	120.0000	$40.00	$4,800.00	$87.00	$10,440.00	$175.00	$21,000.00
AA4-24	AA4-24 - FURNISH AND INSTALL PIPE (18") - LF	0.0000	$70.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-25	AA4-25 - CONSTRUCT MANHOLE - EA	5.0000	$10,000.00	$50,000.00	$15,200.00	$76,000.00	$17,500.00	$87,500.00
AA4-26	AA4-26 - STORM DRAIN LINE CLEANING - LF	0.0000	$13.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-27	AA4-27 - STORM DRAIN LINE CCTV INSPECTION - LF	0.0000	$15.00	$0.00	$0.00	$0.00	$0.00	$0.00

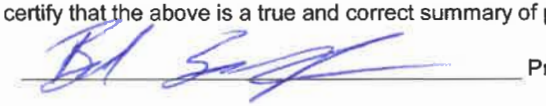
AA4-28	AA4-28 - INSTALL WATER SERVICE (2" COPPER) - LF	0.0000	$450.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-29	AA4-29 - FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) - EA	0.0000	$9,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-30	AA4-30 - FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE - EA	4.0000	$6,000.00	$24,000.00	$25,000.00	$100,000.00	$30,000.00	$120,000.00
AA4-31	AA4-31 - REMOVE AND REPLACE VALVE BOX TOP SECTION - EA	0.0000	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-32	AA4-32 - CLEAN AND CLEAR VALVE - EA	2.0000	$500.00	$1,000.00	$1,400.00	$2,800.00	$2,000.00	$4,000.00
AA4-33	AA4-33 - CONSTRUCTION SURVEYING - LS	1.0000	$75,000.00	$75,000.00	$70,000.00	$70,000.00	$20,000.00	$20,000.00
AA4-34	AA4-34 - ADJUST MANHOLE RING TO FINISH GRADE - EA	5.0000	$2,000.00	$10,000.00	$2,400.00	$12,000.00	$2,000.00	$10,000.00
AA4-35	AA4-35 - RELOCATE CATCH BASIN OR CBMH - EA	0.0000	$3,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-36	AA4-36 - REMOVE EXISTING MANHOLE - EA	5.0000	$1,500.00	$7,500.00	$4,000.00	$20,000.00	$1,000.00	$5,000.00
AA4-37	AA4-37 - PAINTED TRAFFIC MARKINGS - LS	1.0000	$3,000.00	$3,000.00	$4,800.00	$4,800.00	$5,000.00	$5,000.00
AA4-38	AA4-38 - STANDARD SIGN POST - EA	10.0000	$300.00	$3,000.00	$337.00	$3,370.00	$300.00	$3,000.00
AA4-39	AA4-39 - STANDARD SIGNS - SF	80.0000	$250.00	$20,000.00	$112.00	$8,960.00	$100.00	$8,000.00
AA4-40	AA4-40 - TRAFFIC MAINTENANCE - LS	1.0000	$45,000.00	$45,000.00	$36,300.00	$36,300.00	$5,000.00	$5,000.00
AA4-41	AA4-41 - TRAFFIC CONTROL - LS	1.0000	$13,000.00	$13,000.00	$2,000.00	$2,000.00	$5,000.00	$5,000.00
AA4-42	AA4-42 - FLAGGING - CS	1.0000	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00
AA4-43	AA4-43 - TEMPORARY ACCESS ROAD - LS	1.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-44	AA4-44 - REMOVE PIPE - LF	120.0000	$20.00	$2,400.00	$33.00	$3,960.00	$10.00	$1,200.00
AA4-45	AA4-45 - TOP SOIL AT 2" DEPTH - MSF	8.0000	$2,000.00	$16,000.00	$707.00	$5,656.00	$1,000.00	$8,000.00
AA4-46	AA4-46 - SEEDING (SCHEDULE A) - MSF	8.0000	$250.00	$2,000.00	$550.00	$4,400.00	$200.00	$1,600.00
AA4-47	AA4-47 - DEMOLITION - LS	1.0000	$10,500.00	$10,500.00	$5,000.00	$5,000.00	$10,000.00	$10,000.00
AA4-48	AA4-48 - 100A LIGHTING LOADCENTER - EA	0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-49	AA4-49 - SERVICE FEEDER - LF	1.0000	$12.00	$12.00	$0.00	$0.00	$0.00	$0.00
AA4-50	AA4-50 - LIGHT FIXTURES - EA	6.0000	$825.00	$4,950.00	$1,345.00	$8,070.00	$900.00	$5,400.00
AA4-51	AA4-51 - 10' MAST ARM - EA	6.0000	$700.00	$4,200.00	$1,235.00	$7,410.00	$600.00	$3,600.00
AA4-52	AA4-52 - POLES - EA	5.0000	$7,120.00	$35,600.00	$10,100.00	$50,500.00	$5,500.00	$27,500.00

AA4-53	AA4-53 - POLE BASES - EA	5.0000	$5,200.00	$26,000.00	$3,000.00	$15,000.00	$4,000.00	$20,000.00
AA4-54	AA4-54 - 2" RIGID CONDUIT - LF	1,230.0000	$35.00	$43,050.00	$42.00	$51,660.00	$30.00	$36,900.00
AA4-55	AA4-55 - BRANCH CIRCUIT WIRING - LF	3,670.0000	$4.00	$14,680.00	$8.00	$29,360.00	$3.00	$11,010.00
AA4-56	AA4-56 - IN-GRADE JBS - EA	8.0000	$1,300.00	$10,400.00	$1,700.00	$13,600.00	$1,250.00	$10,000.00
AA5-1	AA5-1 - 2" HDPE FIBER CONDUIT - LF	5,190.0000	$4.00	$20,760.00	$11.25	$58,387.50	$3.50	$18,165.00
AA5-2	AA5-2 - FIBER HANDHOLES - EA	3.0000	$10,000.00	$30,000.00	$5,100.00	$15,300.00	$10,000.00	$30,000.00
AA5-3	AA5-3 - FIBER VAULTS - EA	2.0000	$17,500.00	$35,000.00	$18,500.00	$37,000.00	$15,000.00	$30,000.00
AA6-1	AA6-1 - 2" HDPE FIBER CONDUIT - LF	2,060.0000	$3.50	$7,210.00	$13.50	$27,810.00	$3.50	$7,210.00
AA6-2	AA6-2 - FIBER VAULTS - EA	1.0000	$14,500.00	$14,500.00	$18,500.00	$18,500.00	$15,000.00	$15,000.00
	152 Items	**Totals**		$6,330,803.00		$7,251,383.00		$7,710,353.00

The bid totals are subject to correction after the bids have been completely reviewed.

Totals have been reviewed	X
Totals have been corrected	X

I hereby certify that the above is a true and correct summary of proposals received.



Project Manager

Bid Schedule Page 2 of 2 - ORIGINAL WILL NEED TO BE SUBMITTED BY SUCCESSFUL BIDDER

I *(authorized name below)*, herinafter called Bidder, an individual doing business as *(company name below)*, (strike out inapplicable words in original document:) a partnership, a corporation incorporated in the State of Alaska, a joint venture, hereby submits this bid and agrees: to hold this bid open for forty five (45) days, to accept the provisions of the Instruction to Bidders, to accomplish the work in accordance with the contract documents, plans, specifications for the lump sum and unit price amounts as set forth in this bid schedule.

Company Name *

Wolverine Supply, Inc.

Authorizing Name *

Ashlee Stetson

Address *

5099 E. Blue Lupine Drive

Date *

February 27, 2026

City, State, Zip Code *

Wasilla, Alaska 99654

Title *

Vice President

Telephone Number *

(907) 373-6572

Signature (typed) *

Ashlee Stetson

Federal I.D. or S.S.N. *

92-0043461

City of Valdez
Bid Bond

KNOW ALL MEN BY THERE PRESENTS, that we Wolverine Supply, Inc.

5099 E. Blue Lupine Drive, Wasilla, AK 99654-8419 (Insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and The Ohio Casualty Insurance Company

175 Berkeley Street, Boston, MA 02116 (Insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of Alaska as surety, hereinafter called the Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, Alaska 99686

as Obligee, hereinafter called the Obligee, in the sum of

Five percent (5%) of the total bid amount------- Dollars ($ 5%--),

For the payment of which sum well and truly to be made, the said Principal and the Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal has submitted a bid for

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with Obligee in accordance with terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 30th **day or** January, 2026

(Witness)

Wolverine Supply, Inc.
(Principal) (Seal)

(Title) Ashlee Stetson, Vice President

(Witness) Kristine Santamaria

The Ohio Casualty Insurance Company
(Surety) (Seal)

(Title) Roxana Palacios, Attorney-in-Fact

POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8214091-969071**

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Allison McClintock; Amber Engel; Brock Dinneen; Debbie Lindstrom; Gary Swearingen; Heather Cimuchowski; Holly E. Ulfers; Jamie Armfield; Jeff Hansen; Kathleen M. Mitchell; Kathy Nye; Kristine Santamaria; Laura Kovarik; Lisa Simpson; Marina Matyunin; Roxana Palacios; Scott Alderman; Tara Koloski; Tatiana Gefter

all of the city of Seattle state of WA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 23rd day of May, 2025.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 23rd day of May, 2025 before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 30th day of January, 2026.

By: _____
Renee C. Llewellyn, Assistant Secretary

License #: CONG340
Effective: 11/19/2024
Expires: 09/30/2026

State of Alaska

Department of Commerce, Community, and Economic Development
Division of Corporations, Business, and Professional Licensing

Regulation of Construction Contractors and Home Inspectors

Licensee: **Wolverine Supply, Inc.**

License Type: **General Contractor With Residential Contractor Endorsement**

Status: **Active**

Doing Business As: **Wolverine Supply, Inc.**

Commissioner: Julie Sande

Relationships

Relation Type	License #	License Type	Owners/Entities	Name/DBA
Electrical Administrator Assignee	EADE1478	Electrical Administrator	Dagwood Shoemaker	
Residential Endorsement Assignee	RESR1175	Residential Contractor Endorsement	Bill Van Buskirk	
Residential Endorsement Assignee	RESR2515	Residential Contractor Endorsement	Bruce Van Buskirk	

Designations

No designations found.

Wallet Card

State of Alaska
Department of Commerce, Community, and Economic Development
Division of Corporations, Business, and Professional Licensing
Regulation of Construction Contractors and Home Inspectors

Wolverine Supply, Inc.
DBA: Wolverine Supply, Inc.
As
General Contractor With Residential Contractor Endorsement

License	Effective	Expires
CONG340	11/19/2024	09/30/2026

Wolverine Supply, Inc.
5099 E BLUE LUPINE DR
WASILLA, AK 99654-8419

Alaska Business License # 21686

Alaska Department of Commerce, Community, and Economic Development

Division of Corporations, Business, and Professional Licensing
PO Box 110806, Juneau, AK 99811-0806

This is to certify that

WOLVERINE SUPPLY, INC.

5099 E BLUE LUPINE DRIVE SUITE 201, WASILLA, AK 99654

owned by

WOLVERINE SUPPLY, INC.

is licensed by the department to conduct business for the period

November 20, 2024 to December 31, 2026
for the following line(s) of business:

23 - Construction

This license shall not be taken as permission to do business in the state without having complied with the other requirements of the laws of the State or of the United States.

This license must be posted in a conspicuous place at the business location.
It is not transferable or assignable.

Julie Sande
Commissioner

City of Valdez
Agreement Page 1 of 2

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

This agreement is made on the _____ day of _____, 202__, by and between the City of Valdez, Alaska, hereinafter called the Owner, acting through its Mayor, and **(Contractor)** doing business as an individual, partnership, a corporation, limited liability company (strike out inapplicable words) located in (City), (State), hereinafter called the Contractor.

The Contractor agrees to this Contract known as:

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Furthermore the Contractor agrees to accept as full and complete payment for all work to be done in this Contract for the lump sum and per unit prices as set forth in the Bid Form and Addendums in the Contract Documents for this project. The total amount of this Contract shall be: Six Million - Three hundred -Thirty Thousand Eight Hundred - Three **dollars and** Zero **cents ($6,330,803).**

The Contractor hereby agrees to commence work on this project within ten (10) working days after the date of the written Notice to Proceed and to complete all work in accordance with the contract documents and addendums by October 31, 2026. Said contract documents are listed in the Table of Contents herein. All documents listed therein are by this reference made a part hereof.

The Contractor further agrees to pay, as liquidated damages, the sum of

($500) for each calendar day in excess of the completion date specified in the written Notice to Proceed in which this project remains incomplete.

The Owner agrees to pay the Contractor for the performance of the Contract, subject to additions and deductions, as provided in the City of Valdez Standard Specifications Section 10 Standard General Provisions of this Contract, and to make payments on account thereof as provided in the City of Valdez Standard Specifications Section 10 Standard General Provisions and City of Valdez City Code.

City of Valdez
Agreement Page 2 of 2

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

IN WITNESS WHEREOF, the parties to this presence have executed this Contract in two (2) counterparts, each of which shall be deemed as original, in the year and day first mentioned above.

COMPANY NAME

_____
Signature

_____
Name

_____
Title

_____
Date

_____
Mailing Address

_____
City, State, Zip Code

_____
Federal I.D. or S.S.N.

Corporate Secretary

Attest: _____
Corporate Secretary

City of Valdez, Alaska, Authorized

_____
Dennis Fleming, Mayor

_____
Date

Attested:

_____
Sheri L. Pierce, MMC, City Clerk

_____
Date

Recommended:

_____
Nathan Duval, City Manager

_____
Date

_____
Kasey Walker, Capital Facilities Director

_____
Date

Approved as to Form:
Brena, Bell & Walker, P.C.

_____
Jon S. Wakeland

_____
Date

City of Valdez
Corporate Acknowledgement

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

(To be filled in when Contract is executed in behalf of Corporation)

UNITED STATES OF AMERICA)
)SS.
STATE OF ALASKA)

The foregoing instrument was acknowledged before me this ___ day of _____, 20_____.

_____ _____
(Name of Officer) (Title of Officer)

_____
(Name of Corporation)

_____ Corporation, on behalf of said Corporation.
(State of Incorporation)

_____
Notary Public

My Commission Expires: _____

City of Valdez
Labor and Material Payment Bond

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Know all men by these presents that:

(Insert full name and address or legal title of Contractor)

as Principal, hereinafter called Principal, and,

(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, Alaska 99686

as Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the amount of

Dollars ($_____),
(Here insert a sum equal to the contract amount)

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____, 20_____, entered into a contract with Owner for

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

in accordance with Drawings and Specifications prepared by

DOWL, LLC
4041 B St.
Anchorage, AK 99503

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

City of Valdez
Labor and Material Payment Bond

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expirations of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials are furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business. Or served in any manner in which legal process may be served in the state in which aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county of other political subdivision of the state in which the Project, or any part thereof is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety or mechanic's liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against the bond

Signed and Sealed this _____, day of _____, 202___

_____ _____

(Witness) (Principal) (Seal)

_____

(Title)

_____ _____

(Witness) (Surety) (Seal)

_____

(Title)

City of Valdez

Performance Bond

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

KNOW ALL MEN BY THESE PRESENTS: that

(Here insert full name and address or legal title of contractor)

as Principal, hereinafter called Contractor, and ,

(Here insert full name and address or legal title Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

City of Valdez
P.O. Box 307
Valdez, AK 99686

as Obligee, hereinafter called Owner, in the amount of

Dollars ($)

for the payment whereof Contractor and Surety bind themselves, their heirs, executor, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____, 20_____, entered into a contract with Owner for

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

in accordance with Drawings and Specifications prepared by

DOWL, LLC
4041 B St.
Anchorage, AK 99503

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

City of Valdez
Performance Bond

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Now, therefore the condition of this obligation is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly comply with one of the following:

1. Complete the Contract in accordance with its terms and conditions, or

2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the bidder, arrange for contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and Sealed this _____ day of _____, 20_____

_____ _____
(Witness) (Principal) (Seal)

_____
(Title)

_____ _____
(Witness) (Surety) (Seal)

_____
(Title)

City of Valdez
Contractor Certificate of Substantial Completion

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

CONTRACTOR: _____

This is to certify that I, _____, am a duly authorized official of the said CONTRACTOR working in the capacity of_____, and in my official capacity representing said CONTRACTOR do hereby certify as follows:

1. The work of the subject Contract above has been performed, and materials used and installed in accordance with and in conformity to, the Contract Drawings, Contract Specifications, City of Valdez Standard Specifications and Details.

2. The Contract work is now substantially complete in all parts and requirements.

3. I understand that neither the determination by the Engineer--Architect that the work is substantially complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

4. The work to which this Certificate applies has been properly inspected and that work is hereby declared to be substantially complete in accordance with the Contract Documents.

5. The date of Substantial Completion is the date upon which all guarantees and warranties begin.

6. The Owner accepts the Project or specified area as described under "REMARKS," of the Project as substantially complete and will assume full possession of the Project or specified area of the Project at _____(time) on _____day,_____, 202__.

CONTRACTOR	CITY OF VALDEZ, OWNER
_____	_____
(Signature)	Capital Facilities Director
_____	_____
(Title)	Date
_____	
Date	

REMARKS:_____
_____

City of Valdez
Contract Release Page 1 of 2

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

The undersigned, _____
for itself, its successors in interest, assigns trustees, administrators, subcontractors, suppliers, and laborers do hereby release and forever discharge the CITY OF VALDEZ, ALASKA a municipal corporation, from all actions, causes of actions, suits, controversies, claims, damages and demands of every kind and nature, mature or to mature in the future, for and by reason of any matter, thing or claim arising out of the following Contract:

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

The undersigned also intends hereby to discharge the City of Valdez from all liability for any and all damages or injuries presently undiscovered or unanticipated. The undersigned's intention hereby is to waive any right it may subsequently have to set aside this release under the doctrine of Witt v. Watkins, 579 P.2d 1065 (Alaska 1978).

The undersigned further agrees to defend, indemnify and hold harmless the City of Valdez against any claims, liens, or causes of action arising under or by virtue of this Contract, including, but not limited to, any claim that the undersigned, any successor in interest, assignee, trustee, administrator, subcontractor, supplier or laborer of the undersigned or any other person might make or claim that he could possibly make against the City of Valdez.

The undersigned certifies that he has not assigned any amounts payable under this Contract to anyone.

The undersigned hereby acknowledges receipt of the amount of $_____
as full and final payment in consideration for all services, materials and labors rendered in connection with this Contract.

The undersigned hereby declares that the terms of this RELEASE have been completely read and are fully understood, and said terms are voluntarily accepted for the purpose of making a full and final release of any and all claims, disputed or otherwise, arising under or by virtue of this Contract.

City of Valdez
Contract Release Page 2 of 2

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

IN WITNESS WHEREOF, I have hereunto set my hand and seal this _____day of _____, 20_____.

_____
COMPANY

_____
SIGNATURE

_____
TITLE

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this _____ day of _____, 20_____, before me, Notary Public in and for the State of Alaska, personally appeared _____of _____, known to me to be its _____and acknowledged to me that he has read this foregoing RELEASE and knew contents thereof to be true and correct to the best of his knowledge and belief, and that he signed the same freely and voluntarily for the uses and purposes therein mentioned, and that he was duly authorized to execute the foregoing document according to the Bylaws or by Resolutions of said corporation.

WITNESS my hand and notarial seal this _____ day of _____, 20_____.

_____
Notary Public in and for Alaska
My Commission expires: _____

City of Valdez
Special Provisions

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Table of Contents

City of Valdez
Special Provisions

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

SP 01 General Statement

The Special Provisions set forth conditions and requirements unique to this Project and are supplemental to, and supersede, the City of Valdez "Standard Specifications and Standard Details."

SP 02 Scope of Work

Base Bid

The Scope of Work of the Base Bid of this Contract shall include providing all labor, materials, tools, equipment, transportation, supervision and facilities necessary to:

Providing all labor, equipment, and materials necessary for the reconstruction of Meals Avenue from the Pioneer Drive intersection to Robe River Drive. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks and bike path. Replacement of existing storm drain catch basins with new. CCTV sewer and storm drainpipes inspections. Replacement of five fire hydrants. Demolition and Installation of new streetlights. Installation of all signs and traffic markings.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Alternate Bid(s)

The Scope of Work of the following Additive Alternate and Alternate Bids of this Contract shall include providing all labor, materials, tools, equipment, transportation, supervision and facilities necessary to:

Additive Alternate #1 – Providing all labor, equipment, and materials necessary for the reconstruction of East Chena Street. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Additive Alternate #2 - Providing all labor, equipment, and materials necessary for the reconstruction of East Bremner Street. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks. Replacement of existing storm drain catch basins and pipe with new.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Alternate #3 - HDPE conduit replaces ridged conduit. (Presumed deductive alternate)

Additive Alternate #4 - Providing all labor, equipment, and materials necessary for the reconstruction of Robe River Drive from Meals Avenue to the main entrance of the Valdez High School parking lot. The scope of work includes demolition, excavation, paving, and new concrete to reconstruct the asphalt roadway, curb/gutter, sidewalks and bike path. Replacement of existing storm drain catch basins with new. CCTV sewer and storm drainpipes inspections. Replacement of four fire hydrants. Demolition and Installation of new streetlights. Installation of all signs and traffic markings.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Robe River Drive – Alternate 4".

Additive Alternate #5 – Providing all labor, equipment, and materials necessary to install fiber optic infrastructure on Meals Avenue. This includes fiber optic conduits, fiber handholes, and fiber vaults. The fiber conduit will be installed in the same trench as the street lighting conduit.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue".

Additive Alternate #6 – Providing all labor, equipment, and materials necessary to install fiber optic infrastructure on Robe River Drive. This includes fiber optic conduits, fiber handholes, and fiber vaults. The fiber conduit will be installed in the same trench as the street lighting conduit.

The scope of work is more specifically described in the attached drawings titled "Valdez Pavement Rehabilitation Phase IV Robe River Drive – Alternate 4".

Alternate bids will be awarded in order most advantageous to the City of Valdez.

SP 03 Time of Completion

All work shall be completed in accordance with the Contract Documents by October 31, 2026, from the date of the written Notice to Proceed. All roadway and/or sidewalk asphalt paving must be completed before September 15, 2026.

Liquidated damages will be assessed in the sum of Five Hundred dollars ($500) for each calendar day after the completion date during which the Project remains incomplete.

Substantial Completion: Substantial Completion shall be defined as the stage in the progress of the work when the work is sufficiently complete in accordance with the Contract Documents so the Owner (City) can occupy or use the structure or that which is the subject of the contract, for its intended use.

SP 04 Special Site Conditions

The Contractor will be responsible for the disposal of all refuse and debris generated by the project. The City has, on a limited 'first come first served' basis, dumpsters for use free of charge on City projects if available.

Dump fees will be waived. The Contractor will be responsible for hauling demolished materials and construction waste out to the City Baler facility on South Sawmill Drive. The Baler is located approximately 5 miles out of town. Please contact the Baler ahead of time to make arrangements for the disposal of such materials. The Baler's number is 907-835-2356. The project name or contract number will be required on all Baler disposal forms and when calling to reserve or empty dumpsters.

Local building permit fees are waived. The Contractor will be responsible for obtaining any required local building permits before the NTP is issued. The Contractor will need to call the City Planning Department at 907-834-3401.

Staging area will be the city owned snow lot at the corner of Meals Avenue and Robe River Drive behind the new senior housing building. Additional staging areas will be determined at the pre-construction meeting.

The Contractor will be responsible for moving furniture and other items necessary to complete the work.

The Contractor is responsible for setting up detours or barricades if their work is in a public area and will interfere with normal traffic flow.

Dust control measures will be a high priority for this project. The Contractor must have a plan in place to keep dust to a minimum, 7 days a week, including all holidays. This should be included in the contractors' SWPPP plan.

The contractors' traffic control plan must be approved by the Engineer. This project will require 24-hour access to all businesses and residents in the project area effected by the construction work. The plan includes a minimum of one access point available to each business and residents at all times. The TCP should also include a plan for emergency vehicles/personnel access and a plan for ADA individuals who need access to the area. Any additional detours and optional entrances should be included in the plan. Please note, this project will have a major effect to the emergency and non-emergency access of the Providence Valdez Medical Center.

The number of signs indicated on the TCP is a minimum. If unsafe conditions occur, The Engineer may require additional signs/devices at no cost to the City. See the City of Valdez Standard Specifications & Standard Details, Section 70.15 Traffic Maintenance, Article 15.2 Traffic Control Plan.

SP 05 Hazardous Waste Generation

Every effort to minimize or eliminate the generations of hazardous waste shall be used by the Contractor in the performance of the work of this Contract. Unless there is no substitute, no hazardous material shall be used in the performance of the work of this Contract.

SP 06 Coordination and Schedule

The Contractor shall, within ten (10) working days of the date of the Notice to Proceed, submit to the Engineer a schedule as required in Section 10.5, Control of Work, Article 5.3. The schedule shall be updated every week. An updated schedule shall be submitted with each of the Contractor's Periodic Payment Requests. Failure to provide an updated schedule will be cause to withhold partial payment.

SP 07 Site Preservation, Restoration, Cleanup and Environmental Reporting

The Contractor shall be solely responsible for damage to public or private property caused by construction operations. The Contractor shall take all precautions necessary to control dust. The Contractor shall notify the City of any claims of damage, and shall clean and restore any property so damaged at the sole expense of the Contractor. All spills or releases of any hazardous substance shall be reported to the appropriate governmental agency as well as notice to the City. Contractor shall be responsible for all associated cleanup costs and fines.

At all times during the work, keep the premises clean and orderly. Upon completion of the work, repair all damage caused by equipment and leave the Project free of rubbish and excess materials of any kind.

SP 08 Permits

The Contractor shall obtain all licenses and permits that are required to do the work. A Building Permit will be required but there will be no charge.

SP 09 Order of Award of Alternative Bids

Additive Alternate and/or Deductive Alternative Bids will be awarded, if any are awarded, in any order determined to be the most advantageous combination by the owner.

SP 10 Payment

Payments shall be in accordance with Section 10.07, Measurement and Payment of the CVSS. All invoices for payment must be submitted on a City of Valdez *Periodic Payment Request Form.* An electronic copy of this form (Excel Spreadsheet) will be made available for the Contractor's use.

Disbursement of money to a person, firm or corporation will be made only after all the various receivable accounts of the general government and any municipal utility or enterprise have been reviewed for outstanding balances owed, and the disbursement will be reduced by setting off the amount of any delinquent indebtedness due the city from such person, firm or corporation.

All contracts to which the city is a party which will or may involve the disbursement of city funds shall contain the following clause, or its substantial equivalent: "Disbursement of money by the City of Valdez hereunder shall subject to set-off pursuant to the provisions of the Valdez City Code." Such contracts include, but are not limited to, oral contracts, employment contracts, construction contracts, purchasing contracts and contracts of any municipal utility or enterprise, including customer's deposits.

SP 11 References to City of Valdez Standard Specifications (CVSS)

The City of Valdez Standard Specifications & Standard Details, Streets-Drainage-Utilities-Parks, dated April 2003, hereafter referred to as CVSS, are incorporated in and become a part of the Contract Documents for the work, The Standard Specifications are available for purchase from the Engineer's Office of the City of Valdez, P.O. Box 307, Valdez, Alaska 99686 or can be downloaded from the City's website at https://www.valdezak.gov/228/Capital-Projects-Engineering. All work under this Contract shall comply with the latest edition and addenda to all applicable codes, ordinances, and standards.

It shall be the responsibility of the Bidder to prepare his bid so all materials and/or different arrangements of connections or fittings shall harmoniously conform with the intent of the Contract Drawings, CVSS, and the Special Provisions.

SP 12 Construction Specifications

The Specifications for construction of the work of this Project are incorporated into the following pages and on the attached drawing titled "Valdez Pavement Rehabilitation Phase IV Meals Avenue" and "Valdez Pavement Rehabilitation Phase IV Robe River Drive – Alternate 4". These drawings are by reference included herein.

City of Valdez
Modifications and Additions to the Standard Specifications

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

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City of Valdez
Modifications and Additions to the Standard Specifications

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Division 10 Standard General Provisions

Article 7.5 Progress Payments

Add the following:

Any request for payments for work accomplished within the calendar fiscal year (January 1st to December 31st) must be received by the city no later than January 31st of the following year. Failure to provide a request for payment by Jan. 31st for work accomplished the previous year will delay payment. Failure to provide a request for payment by January 31st for work accomplished the previous year will be subject to a penalty. Penalty may be assessed at a minimum of $1000 and up to 5% of the invoice not to exceed $10,000.

Article 7.7 Final Payments

Add the following:

Any request for final payment for work accomplished within the calendar fiscal year (January 1st to December 31st) must be received by the city no later than January 31st of the following year. Failure to provide a request for final payment by January 31st for work accomplished the previous year will delay payment. Failure to provide a request for payment by January 31st for work accomplished the previous year will be subject to a penalty. Penalty may be assessed at a minimum of $1000 and up to 5% of the invoice not to exceed $10,000.

City of Valdez
Minimum Prevailing Wage Rates

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Minimum Prevailing Wage Rates and Title 36 Public Contracts Follows
See attached Links:

http://labor.state.ak.us/lss/pamp600.htm
http://labor.alaska.gov/lss/forms/Pam400.pdf

In accordance with the requirements of AS 36.05.070 and AS 36.05.080, the following provisions are included where applicable:

(1) The Contractor or subcontractors of the Contractor shall pay all employees unconditionally and not less than once a week;

(2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the Contractor or subcontractors and laborers, mechanics, or field surveyors;

(3) the scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of the work;

(4) Owner shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the Contractor or subcontractors the difference between

(A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and

(B) the rates of wages in fact received by laborers, mechanics, or field surveyors.

(5) If it is found that a laborer, mechanic, or field surveyor employed by the Contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the Owner may, by written notice to the Contractor, terminate the Contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the Contractor and the Contractor's sureties are liable to Owner for excess costs for completing the work.

CITY OF VALDEZ
Project Title: Pavement Management Phase IV Meals Avenue
Project No.: 25-310-1118
Contract No.: 2450

TO: All Recipients **Date: February 6, 2026**

SUBJECT: Addendum No.1

This two (2) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

Response to Questions:

1. In the contract, pg. 40 lists Divisions 20-90 that do not appear to be included. Can you confirm if these were intentionally left out?

   Response – Yes, these are intentionally left out of the contract but can be found in the City's "Standard Specification and Details" on the City's website for reference.

2. There are numerous ADA ramps throughout the project, but no line item for them or any mention of them being incidental to another item. How are the ramps going to be paid for?

   Response – We have deducted the square yardage from the P.C.C Sidewalk line item and added a line item for ADA curb ramps per each. Meals Avenue and Robe River Drive curb ramps will be bid with separate line items in the bis schedule.

   Please see attached updated Bid Schedule that includes these changes for bidding purposes.

3. Line Items for earth materials such as type IIA, leveling course and bedding materials are shown being measured in cubic yards, can this unit of measurement be changed to tonnage to make bidding and invoicing more manageable.

   Response – Yes, we will change any of the earth material line items that are in cubic yards to be measured in tonnage.

   Please see attached updated Bid Schedule that includes these changes for bidding purposes.

Attachments and Clarifications:

- Attached is an updated bid schedule with changes mentioned in the above responses to questions. All changes or additions to the bid schedule are highlighted in red. Contractors must use this updated bid schedule from this addendum when bidding for this project.

- Attached are the specifications and details for the project's traffic control plan. See attached C-03.30 sheets 1-4 of the State of Alaska DOT & PP Alaska Standard Plan and attached Special Provision, Modifications to the City of Valdez Standard Specifications, Section 70.15 Traffic Maintenance. These will be included in the complete plan set. Please use this specification and detail to assist with your bid under the traffic control line items.

- Attached is the fire hydrant detail that was left out of the plan set. See attached sheets C-406 and C-407. Please use this detail for bidding the fire hydrant line items in the base bid Meals Avenue and Robe Rive Drive Alternate 4.

- All fire hydrants for this project will be contractor furnished and should be bid accordingly. In the drawings for Phase IV Meals Avenue please disregard the portion of key note No. 8 referencing City of Valdez furnished Hydrants on sheets C-201 through C-206.. In the drawings for Phase IV Robe River Drive Alternate 4 please disregard the same portion of key note No. 8 on sheets C-201 through C-203.

End of Addendum

City of Valdez
Bid Schedule
Page 1 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Base Bid – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
1	-	MOBILIZATION AND DEMOBILIZATION	per	LS	1	N/A	
2	20.04	USABLE EXCAVATION	per	CY	6		
3	20.04	UNUSABLE EXCAVATION	per	CY	5650		
4	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	TON	13605		
5	20.06	LEVELING COURSE	per	TON	3621		
6	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	870		
7	20.11	BEDDING MATERIAL (CLASS C)	per	TON	529		
8	20.17	REMOVE EXISTING SIDEWALK	per	SY	1500		
9	20.18	REMOVE EXISTING CURB AND GUTTER	per	LF	5000		
10	20.19	REMOVE EXISTING PAVEMENT	per	SY	15550		
11	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	15100		
12	20.22	GEOTEXTILE, SEPARATION (TYPE A)	per	SY	4050		
13	30.01	PCC CURB AND GUTTER	per	LF	5150		
14	30.03	PCC SIDEWALK 4" THICK	per	SY	1200		
15	-	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	per	EA	18		
16	40.02	HMA, TYP II; CLASS A	per	TON	2850		
17	50.19 SP	SEWER CLOSED CIRCUIT TV INSPECTION	per	LF	280		
18	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	550		
19	55.02	FURNISH AND INSTALL PIPE (18")	per	LF	320		
20	55.03	CONSTRUCT MANHOLE	per	EA	36		
21	55.16 SP	STORM DRAIN CLOSED CIRCUIT TV INSPECTION	per	LF	560		
22	60.02	INSTALL WATER SERVICE (2" COPPER)	per	LF	0		
23	60.09	REPLACE VALVE BOX	per	EA	2		
24	60.09	INSTALL NEW HYDRANT	per	EA	5		

25	60.11	REPLACE TOP SECTION OF VALVE BOX	per	EA	1		
26	60.19 SP	EXISTING STRUCTURE CLEANING & INSPECTION	per	EA	1		
27	70.03	ADJUST MANHOLE RING TO FINISH GRADE	per	EA	21		
28	70.05	RELOCATE CATCH BASIN OR CBMH	per	EA	1		
29	70.06	REMOVE EXISTING MANHOLE	per	EA	33		
30	70.13	PAINTED TRAFFIC MARKINGS	per	LS	1		
31	70.14	STANDARD SIGN POST	per	EA	25		
32	70.14	STANDARD SIGNS	per	SF	204		
33	70.16	REMOVE PIPE	per	LF	690		
34	75.04	TOP SOIL AT 4" DEPTH	per	MSF	87.0		
35	75.05	SEEDING (SCHEDULE A)	per	MSF	87.0		
36	-	RETAINING WALL REMOVAL	per	LF	135		
37	-	RETAINING WALL INSTALL	per	LF	130		
38	26 05 05	DEMOLITION	per	LS	1	N/A	
39	26 24 16	100A LIGHTING LOADCENTER	per	EA	N/A	N/A	N/A
40	26 05 26	SERVICE FEEDER	per	LF	N/A	N/A	N/A
41	26 50 00	LIGHT FIXTURES	per	EA	13		
42	26 50 00	10' MAST ARM	per	EA	13		
43	26 50 00	POLES	per	EA	11		
44	26 50 00	POLE BASES	per	EA	11		
45	26 05 33	2" RIGID CONDUIT	per	LF	3480		
46	26 05 19	BRANCH CIRCUIT WIRING	per	LF	10450		
47	26 05 33	IN-GRADE JBS	per	EA	20		
48	-	SWPPP	per	LS	1	N/A	
49	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
50	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
51	-	TRAFFIC CONTROL	per	LS	1	N/A	
52	-	OWNER'S FLAGGING CONTINGENCY	per	CS	1	$20,000	$20,000
53	-	OWNER'S CONTINGENCY	per	CS	1	$400,000	$400.000
54	-	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS, AND CLOSE-OUT PUNCH LIST	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #1 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA1-1	20.04	USABLE EXCAVATION	per	CY	35		
AA1-2	20.04	UNUSABLE EXCAVATION	per	CY	154		
AA1-3	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	TON	225		
AA1-4	20.06	LEVELING COURSE	per	TON	76		
AA1-5	20.19	REMOVE EXISTING PAVEMENT	per	SY	452		
AA1-6	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	750		
AA1-7	30.01	PCC CURB AND GUTTER	per	LF	380		
AA1-8	40.02	HMA, TYP II; CLASS A	per	TON	118		
AA1-9	75.04	TOP SOIL AT 4" DEPTH	per	MSF	1.0		
AA1-10	75.05	SEEDING (SCHEDULE A)	per	MSF	1.0		
AA1-11	-	SWPPP	per	LS	1	N/A	
AA1-12	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA1-13	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA1-14	-	TRAFFIC CONTROL	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #2 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA2-1	20.04	UNUSABLE EXCAVATION	per	CY	263		
AA2-2	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	TON	393		
AA2-3	20.06	LEVELING COURSE	per	TON	121		
AA2-4	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	243		
AA2-5	20.11	BEDDING MATERIAL (CLASS C)	per	TON	170		
AA2-6	20.19	REMOVE EXISTING PAVEMENT	per	SY	900		
AA2-7	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	1150		
AA2-8	30.01	PCC CURB AND GUTTER	per	LF	386		
AA2-9	40.02	HMA, TYP II; CLASS A	per	TON	190		
AA2-10	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	40		
AA2-11	55.02	FURNISH AND INSTALL PIPE (18")	per	LF	203		
AA2-12	55.03	CONSTRUCT MANHOLE	per	EA	2		
AA2-13	70.06	REMOVE EXISTING MANHOLE	per	EA	2		
AA2-14	70.16	REMOVE PIPE	per	LF	243		
AA2-15	-	SWPPP	per	LS	1	N/A	
AA2-16	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA2-17	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA2-18	-	TRAFFIC CONTROL	per	LS	1	N/A	

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #3 – Phase IV Meals Avenue HDPE Conduit

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Meals							
A3-1	26 05 33	2" HDPE CONDUIT	per	LF	3480		
Robe River							
A3-2	26 05 33	2" HDPE CONDUIT	per	LF	1230		

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #4 Robe River Drive

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA4-1	20.04	USABLE EXCAVATION	per	CY	15		
AA4-2	20.04	UNUSABLE EXCAVATION	per	CY	1850		
AA4-3	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	per	TON	3034		
AA4-4	20.06	LEVELING COURSE	per	TON	646		
AA4-5	20.07	TRENCH EXCAVATION AND BACKFILL	per	LF	120		
AA4-6	20.11	BEDDING MATERIAL (CLASS C)	per	TON	63		
AA4-7	20.17	REMOVE EXISTING SIDEWALK	per	SY	630		
AA4-8	20.18	REMOVE EXISTING CURB AND GUTTER	per	LF	2150		
AA4-9	20.19	REMOVE EXISTING PAVEMENT	per	SY	5200		
AA4-10	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	per	SY	6200		
AA4-11	20.22	GEOTEXTILE, SEPARATION (TYPE A)	per	SY	800		
AA4-12	30.01	PCC CURB AND GUTTER	per	LF	2150		
AA4-13	30.03	PCC SIDEWALK 4" THICK	per	SY	580		
AA4-14	-	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	per	EA	3		
AA4-15	40.02	HMA, TYP II; CLASS A	per	TON	1010		
AA4-16	50.19 SP	SEWER CLOSED CIRCUIT TV INSPECTION	per	LF	680		
AA4-17	55.02	FURNISH AND INSTALL PIPE (12")	per	LF	120		
AA4-18	55.02	FURNISH AND INSTALL PIPE (18")	per	LF			N/A
AA4-19	55.03	CONSTRUCT MANHOLE	per	EA	5		
AA4-20	55.16 SP	STORM DRAIN CLOSED CIRCUIT TV INSPECTION	per	LF			N/A
AA4-21	60.02	INSTALL WATER SERVICE (2" COPPER)	per	LF			N/A
AA4-22	60.09	REPLACE VALVE BOX	per	EA			N/A

AA4-23	60.09	INSTALL NEW HYDRANT	per	EA	4		
AA4-24	60.11	REPLACE TOP SECTION OF VALVE BOX	per	EA			N/A
AA4-25	60.19 SP	EXISTING STRUCTURE CLEANING & INSPECTION	per	EA	2		
AA4-26	70.03	ADJUST MANHOLE RING TO FINISH GRADE	per	EA	5		
AA4-27	70.05	RELOCATE CATCH BASIN OR CBMH	per	EA			N/A
AA4-28	70.06	REMOVE EXISTING MANHOLE	per	EA	5		
AA4-29	70.13	PAINTED TRAFFIC MARKINGS	per	LS	1	N/A	
AA4-30	70.14	STANDARD SIGN POST	per	EA	10		
AA4-31	70.14	STANDARD SIGNS	per	SF	80		
AA4-32	70.16	REMOVE PIPE	per	LF	120		
AA4-33	75.04	TOP SOIL AT 4" DEPTH	per	MSF	8.0		
AA4-34	75.05	SEEDING (SCHEDULE A)	per	MSF	8.0		
AA4-35	-	RETAINING WALL REMOVAL	per	LF	45		
AA4-36	-	RETAINING WALL INSTALL	per	LF	45		
AA4-37	26 05 05	DEMOLITION	per	LS	1		
AA4-38	26 24 16	100A LIGHTING LOADCENTER	per	EA			N/A
AA4-39	26 05 26	SERVICE FEEDER	per	LF			N/A
AA4-40	26 50 00	LIGHT FIXTURES	per	EA	6		
AA4-41	26 50 00	10' MAST ARM	per	EA	6		
AA4-42	26 50 00	POLES	per	EA	5		
AA4-43	26 50 00	POLE BASES	per	EA	5		
AA4-44	26 05 33	2" RIGID CONDUIT	per	LF	1230		
AA4-45	26 05 19	BRANCH CIRCUIT WIRING	per	LF	3670		
AA4-46	26 05 33	IN-GRADE JBS	per	EA	8		
AA4-47	-	SWPPP	per	LS	1	N/A	
AA4-48	-	CONSTRUCTION SURVEY	per	LS	1	N/A	
AA4-49	-	TRAFFIC MAINTENANCE	per	LS	1	N/A	
AA4-50	-	TRAFFIC CONTROL	per	LS	1	N/A	
AA4-51	-	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS, AND CLOSE-OUT PUNCH LIST	per	LS	1	N/A	

Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #5 and #6 Fiber Optic

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION			QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Alternate # 5 Meals							
AA5-1	26 05 33	2" HDPE FIBER CONDUIT	per	LF	5190		
AA5-2	26 05 33	FIBER HANDHOLES	per	EA	3		
AA5-3	26 05 33	FIBER VAULTS	per	EA	2		
Alternate #6 Robe River Drive							
AA6-1	26 05 33	2" HDPE FIBER CONDUIT	per	LF	2060		
AA6-2	26 05 33	FIBER VAULTS	per	EA	1		

City of Valdez
Bid Schedule
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Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Total Base Bid Amount:

_____ Dollars _____ Cents

($ _____)

I, _____, hereinafter called Bidder, an individual doing business as _____, (strike out inapplicable words:) a partnership, a corporation incorporated in the State of Alaska, a joint venture, hereby submits this bid and agrees: to hold this bid open for forty five (45) days, to accept the provisions of the Instruction to Bidders, to accomplish the work in accordance with the contract documents, plans, specifications, for the lump sum and unit price amounts as set forth in this bid schedule.

Respectfully submitted this _____ day of _____, 202___

BIDDER:

_____
Company Name

_____
Address

_____
City, State, Zip Code

_____
Telephone Number

_____
Federal I.D. or S.S.N.

_____
Authorizing Name

_____
Title

_____
Signature

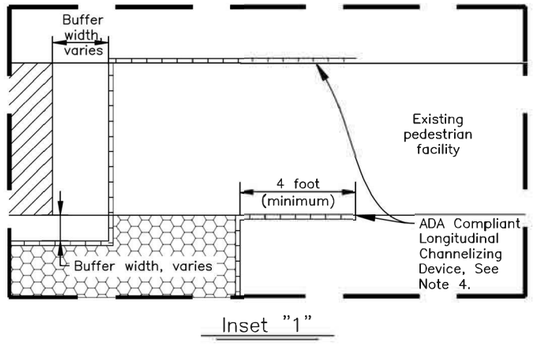
_____
Email Address

CORPORATE SEAL

ATTEST:

_____
Signature of Corporate Sec.

_____
Print Name



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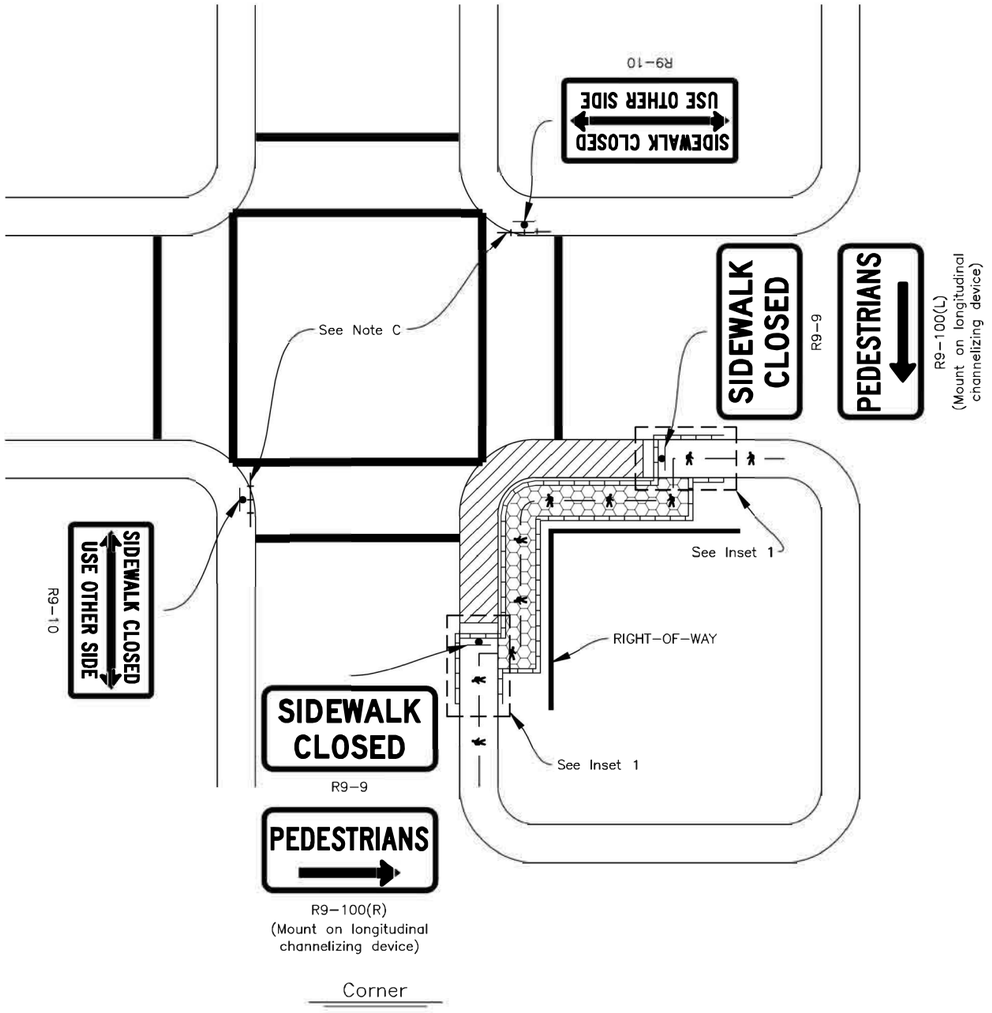
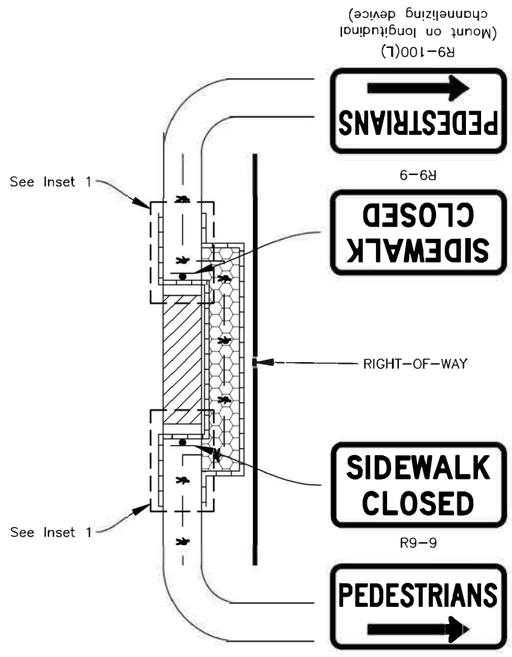


Corner



Mid-Block

SIDEWALK, PATHWAY, OR SHOULDER CLOSURE: DIVERSION AWAY FROM ROADWAY TYPICAL APPLICATION DETAILS

(If RIGHT-OF-WAY space available)

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DIVERSION AWAY FROM ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. Throughout the entire length of the TPAR diversion, maintain a minimum usable width of:
   i) 48 inches when the existing pedestrian facility width is 48 inches or more.
   ii) 36 inches when the existing pedestrian facility width is less than 48 inches.

   If the TPAR diversion width is less than 60 inches, provide a 60 x 60-inch passing space at least every 200 feet to allow individuals in wheelchairs to pass. When it is not possible to maintain a minimum passing space, use an alternate route.

   If the TPAR diversion grade exceeds 5%, construct a ramp as needed meeting the requirements of Section 405 of the 2006 ADA Standards for Transportation Facilities. The TPAR diversion when contained within the roadway right-of-way may have a grade exceeding 5% but must be less than or equal to the adjacent roadway grade.

B. When a crosswalk is closed at signalized intersections, cover corresponding pedestrian traffic signal display(s).

C. Where noted, install pedestrian signs on Type III barricades or longitudinal channelizing devices.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Type III Barricade

State of Alaska DOT&PF
ALASKA STANDARD PLAN

TEMPORARY PEDESTRIAN ACCESSIBLE ROUTES

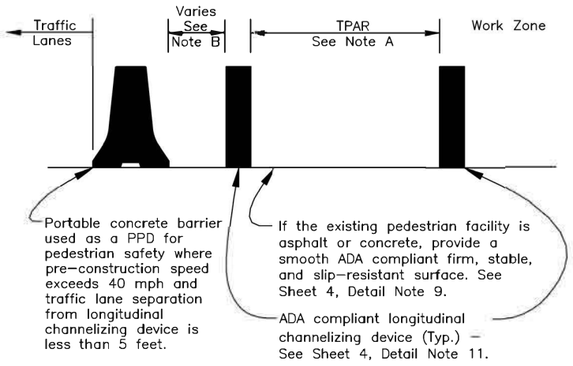
Adopted as an Alaska Standard Plan by:

Lauren Little, P.E.
Interim Chief Engineer

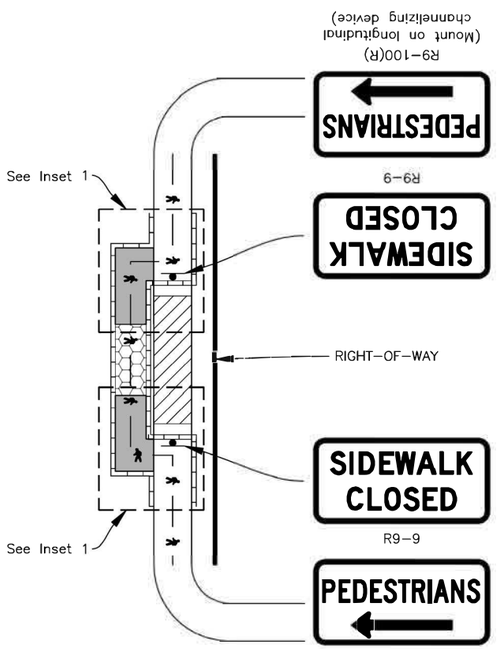
Adoption Date: 01/29/2024

Last Code and Stds. Review
By: ZSH Date: 12/18/2023

Next Code and Standards Review Date: 12/18/20



PEDESTRIAN DIVERSION TYPICAL SECTION



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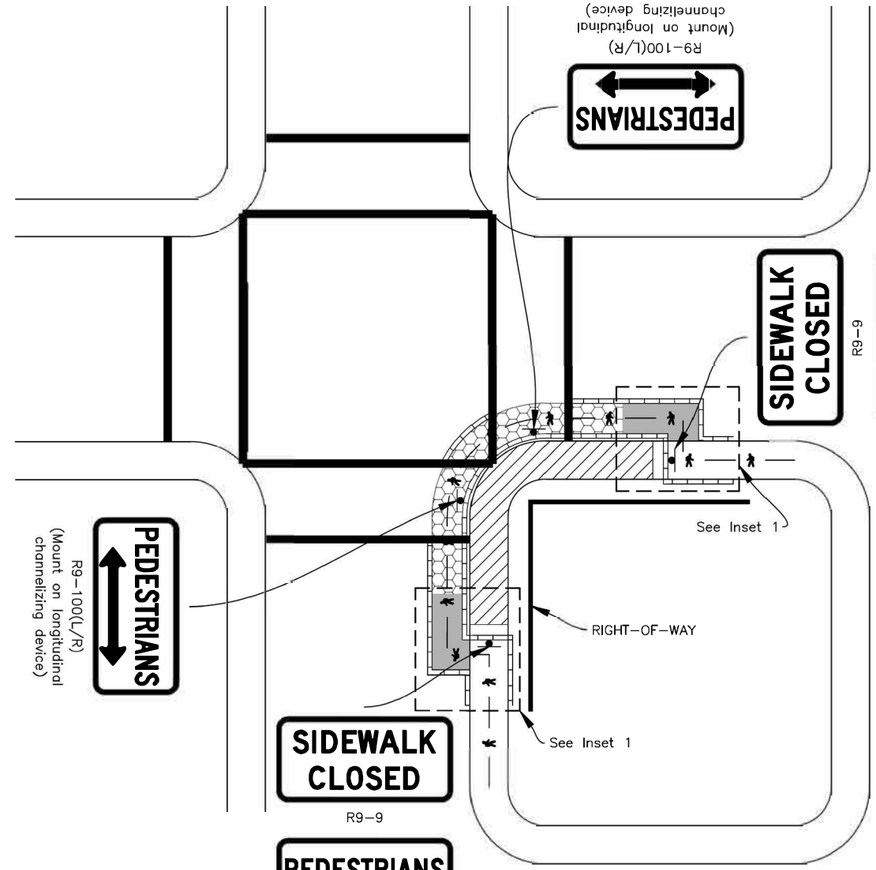
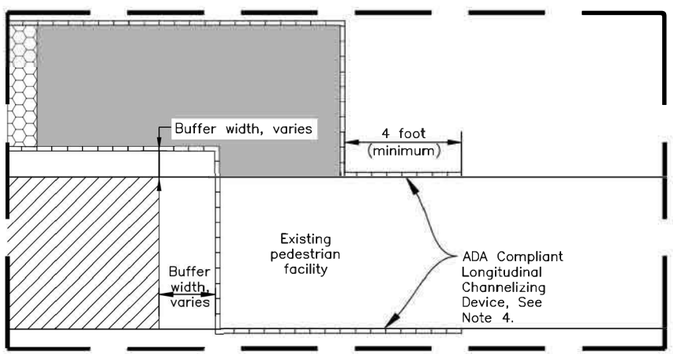


Corner



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SIDEWALK, PATHWAY, OR SHOULDER CLOSURE:
DIVERSION IN ROADWAY
TYPICAL APPLICATION DETAILS

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DIVERSION IN ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. Throughout the entire length of the TPAR diversion, maintain a minimum usable width of:
   i) 48 inches when the existing pedestrian facility width is 48 inches or more.
   ii) 36 inches when the existing pedestrian facility width is less than 48 inches.

   If the TPAR diversion width is less than 60 inches, provide a 60 x 60-inch passing space at least every 200 feet to allow individuals in wheelchairs to pass. When it is not possible to maintain a minimum passing space, use an alternate route.

   If the TPAR diversion grade exceeds 5%, construct a ramp as needed meeting the requirements of Section 405 of the 2006 ADA Standards for Transportation Facilities.

B. Where the pre-construction posted speed limit exceeds 40 mph, separate the longitudinal channelizing devices from the traffic lane by at least 5 feet. Where that is not feasible, install portable concrete barriers as a positive protection device (PPD) between the longitudinal channelizing devices and the traffic lane, meeting the deflection buffer requirements stated on Standard Plan G-47. See pedestrian diversion typical section.

C. Place or construct temporary curb ramp as needed. Curb ramp must meet ADA requirements, see Sheet 4.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Temporary Curb Ramp (See Note C)

State of Alaska DOT&PF
ALASKA STANDARD PLAN

TEMPORARY PEDESTRIAN ACCESSIBLE ROUTES

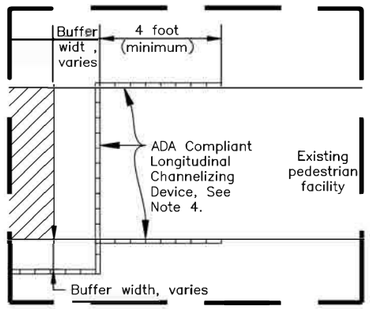
Adopted as an Alaska Standard Plan by:

Lauren Little, P.E.
Interim Chief Engineer

Adoption Date: 01/29/2024

Last Code and Stds. Review By: ZSH Date: 12/18/2023

Next Code and Standards Review Date: 12/18/20



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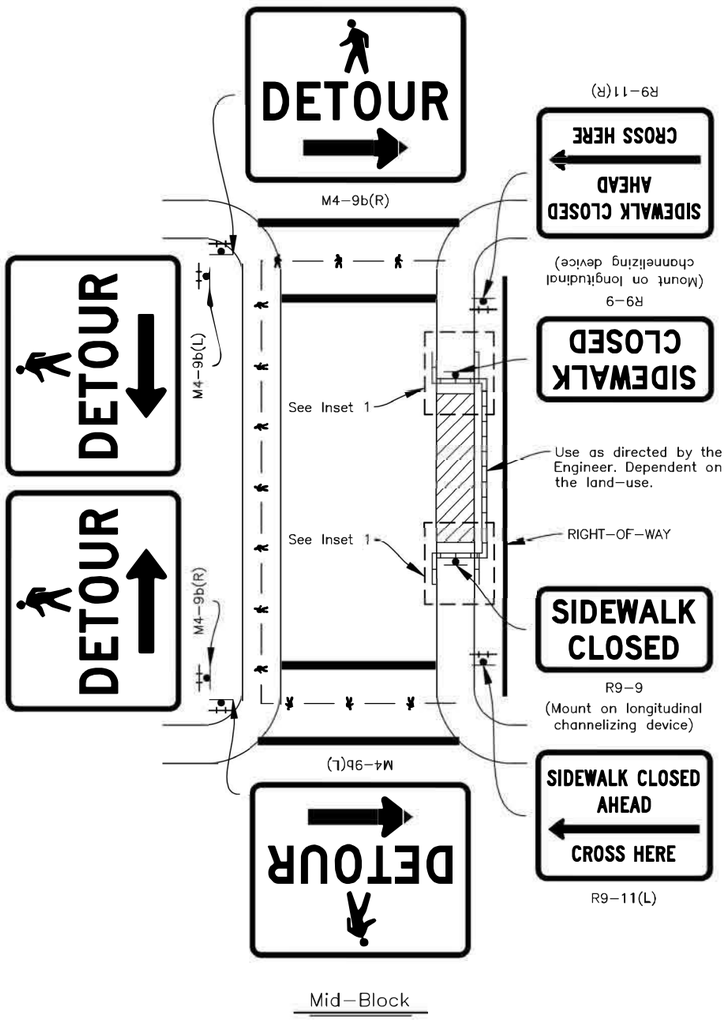

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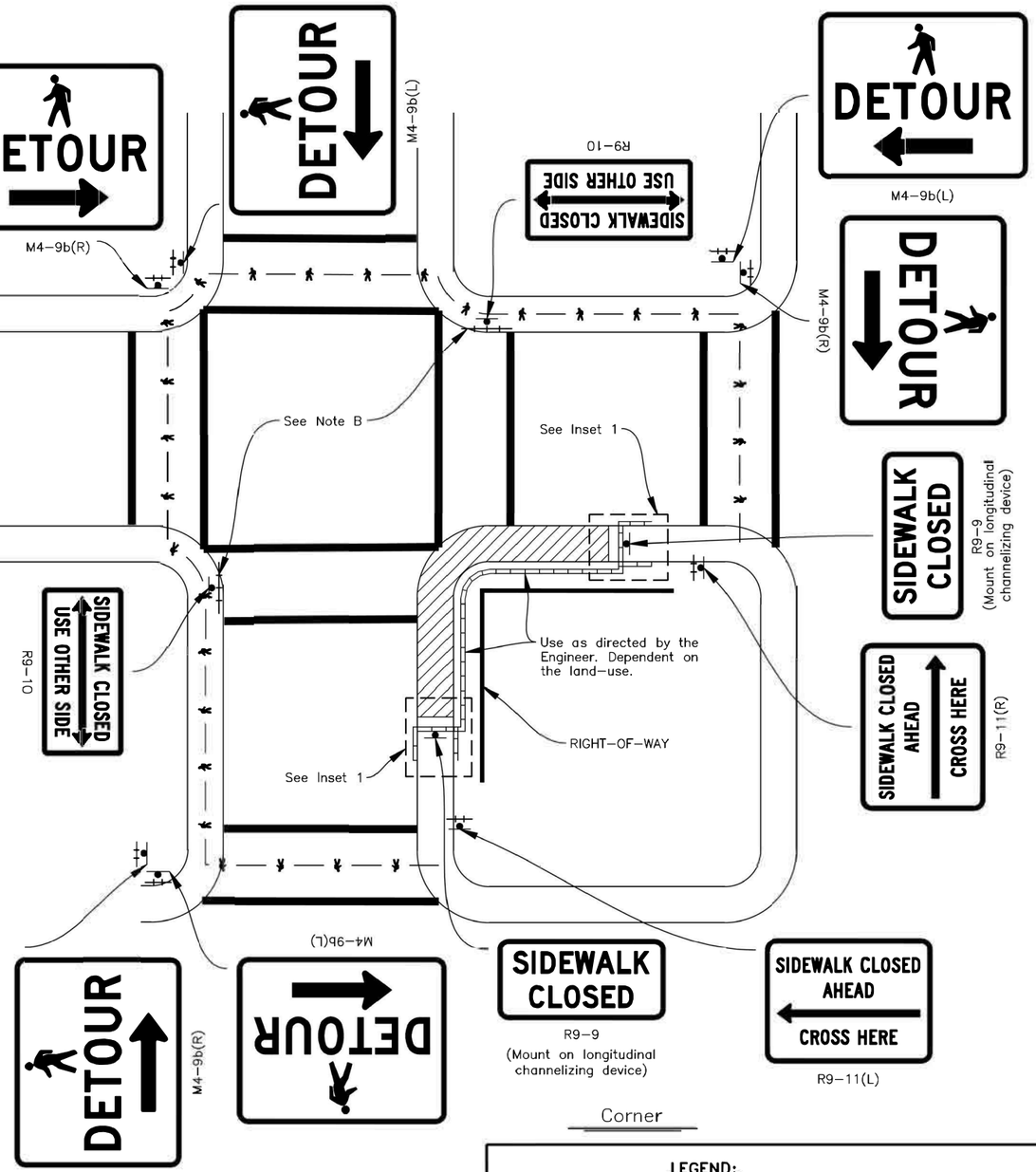

Corner

SIDEWALK, PATHWAY, OR SHOULDER CLOSURE:
DETOUR ACROSS ROADWAY
TYPICAL APPLICATION DETAILS

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DETOUR ACROSS ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. When a crosswalk is closed at signalized intersections, cover corresponding pedestrian traffic signal display(s).

B. Where noted, install pedestrian signs on Type III barricades or longitudinal channelizing devices.

C. Route pedestrians to the safest and closest crossing point near the work zone.

D. Limit work to one corner at a time to minimize pedestrian disruption and detour length.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Type II Barricade
- Type III Barricade

State of Alaska DOT&PF
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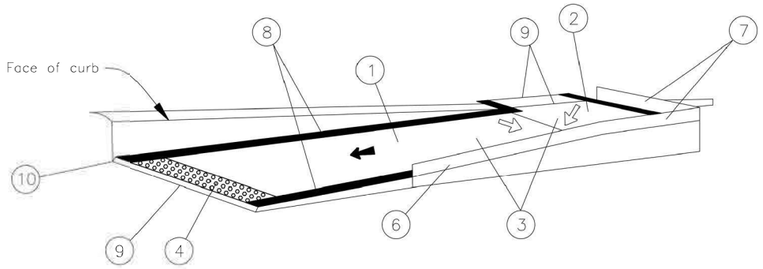
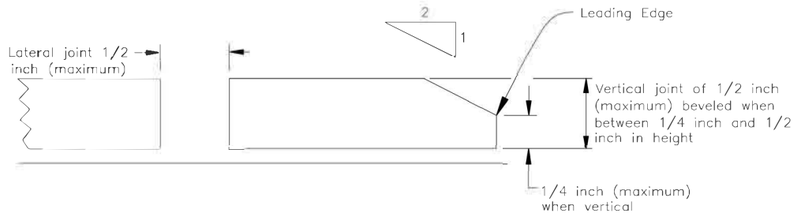
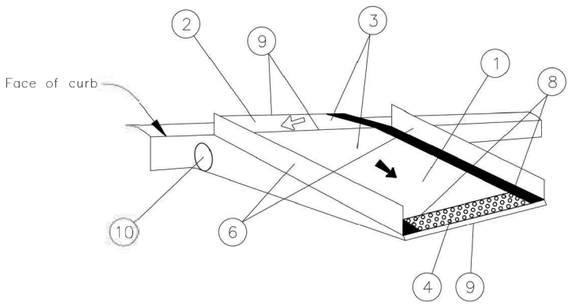


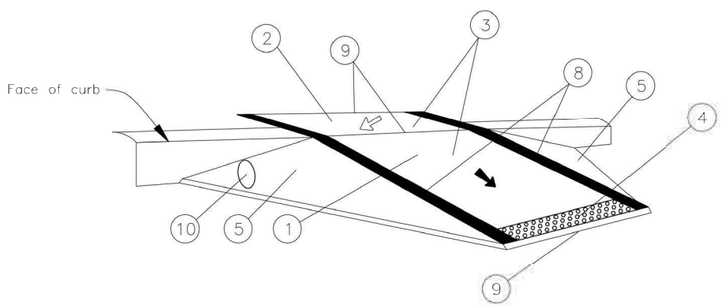
EXAMPLE TEMPORARY CURB RAMP, PARALLEL TO CURB



EDGE TREATMENT DETAIL



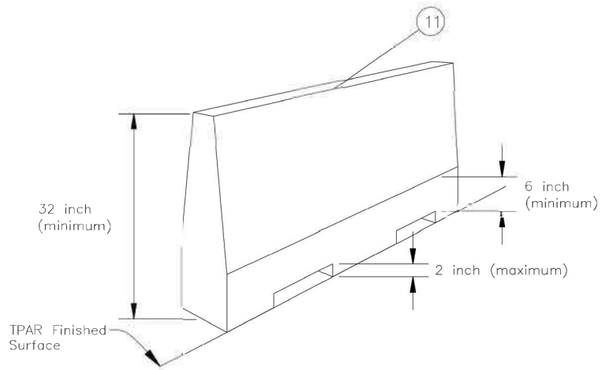
With Protective Edge



With Side Flares

Detectable edging are not required when meeting the requirements of Detail Note 6

EXAMPLE TEMPORARY CURB RAMP, PERPENDICULAR TO CURB



EXAMPLE LONGITUDINAL CHANNELIZING DEVICE DETAIL

GENERAL NOTES:

1. The curb ramp shall be either self-ballasting or include an anchoring system capable of keeping the platform stationary under pedestrian traffic, including motorized wheelchairs.
2. The curb ramp platform shall be free of sharp, rough edges, or abrasive elements that may harm pedestrians.

DETAIL NOTES:

(1) Clear width per requirements stated in sheets 1 and 2, Note A.

(2) Landing shall be provided at the top of curb ramps. The landing clear length shall be 36 inches minimum. The landing clear width shall be at least as wide as the curb ramp (excluding flared sides, leading to the landing).

(3) Ramps shall have a running slope of 8.3% maximum (7.7% nominal) and cross slope of 2.0% maximum (1.5% nominal). If the landing functions as a turning space, slope in any direction (including diagonal) of the turning space shall be 2.0% maximum (1.5% nominal).

(4) Install detectable warning surface at pedestrian street crossings. The detectable warning shall extend the full width of the curb ramp (excluding flared sides) and shall be 24 inches (minimum) deep measured from the back of the curb on the ramp surface. Omit detectable warning surfaces at end of sidewalk transitions that are not at a crosswalk.

(5) Curb ramp flares where provided shall have 10% maximum (8.3% nominal) slope.

(6) Detectable edging with 6 inch (minimum) height shall be placed along the ramp run when there is a vertical drop exceeding 6 inches or is adjacent to a side slope exceeding 1:3 (vertical:horizontal).

(7) Detectable edging with 6 inch (minimum) height and contrasting color shall be placed on all turning spaces where the walkway changes direction.

(8) The curb ramp walkway edge shall be marked with a contrasting color, 4 inch wide stripe. The marking is optional where a contrasting detectable edging is used.

(9) See edge treatment detail for requirements on lateral and vertical joints or gaps between surfaces. Surface slopes that meet at a grade break shall be flush.

(10) Provide an approved means to maintain water flow along existing curb flow line and to prevent water from accumulating at the bottom of the ramp, or overflowing onto the ramp surface.

(11) Where longitudinal channelizing devices are used to delineate a TPAR, continuous detectable top and bottom surfaces in compliance with the Alaska Traffic Manual shall be provided such that pedestrians using a long cane can follow it. The top of the top surface shall be at least 32 inches above the TPAR surface. The bottom surface shall be at least 6 inches in height with a gap no greater than 2 inches above the TPAR surface. Longitudinal channelizing devices shall be interlocked and not have gaps that allow pedestrians to stray from the channelizing path.

SIGN SIZE TABLE

ALASKA SIGN DESIGN SPECIFICATIONS CODE	SIZE H X V (INCHES)		
R9-9	24	X	12
R9-10	24	X	12
R9-100(L/R), R9-100(L), R9-100(R)	24	X	12
R9-11(L), R9-11(R)	24	X	18
M4-9b(L), M4-9b(R)	30	X	24

LEGEND:

- Running slope
- Cross slope
- Detectable warning surface

State of Alaska DOT&PF
ALASKA STANDARD PLAN

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Adopted as an Alaska Standard Plan by:

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C-03.30

1102

CITY OF VALDEZ

PAVEMENT REHABILITATION

SPECIAL PROVISIONS

MODIFICATIONS TO CITY OF VALDEZ STANDARD SPECIFICATIONS

The following listed provisions of the C.V.S.S. are amended as hereinafter stated:

REPLACE

SECTION 70.15 TRAFFIC MAINTENANCE

Article 15.1 General

The Work under this section consists of performing all the necessary measures to protect and control traffic during the life of the project including but not limited to furnishing, erecting, maintaining, replacing, cleaning, moving and removing the traffic control devices required to safeguard the traveling public and all administrative responsibilities necessary to implement this Work.

The Contractor shall be liable for any damages or injuries suffered by reasons of their operations or their failure to provide adequate safeguarding services.

The Contractor shall maintain all roadways, and pedestrian and bicycle facilities affected by the work in a smooth and traversable condition. Construct and maintain such approaches, crossings, or intersections, and other features as may be necessary throughout the life of the Contract.

Traffic Control Plans (TCPs) are required for this project. The Contractor shall provide TCPs approved by the Engineer, and when the project limits include State right-of-way, the DOT&PF Regional Traffic Engineer prior to commencement of associated work activities.

The Contractor is required to have a Worksite Traffic Supervisor (WTS) on the job site during working hours for traffic control and implementation. The WTS shall be certified as a Traffic Control Supervisor by either the American Traffic Safety Services Association (ATSSA) or Laborers' International Union of North America (LIUNA), or be certified as a Work Zone Temporary Traffic Control Technician by the International Municipal Signal Association (IMSA).

All traffic channelization, detours, lane closures, and/or street closures shall conform to the approved TCP and Division 10, Section 10.04, Article 4.13 Street Closures.

Article 15.2 Traffic Control Plan

A TCP is a graphic/text plan that describes traffic control to be used to assist road and non-motorized facility users (drivers, bicyclists, and pedestrians) through a temporary traffic control zone. The TCP depicts the traffic control devices and their placement and times of use.

The degree of detail in the TCP depends on the nature of the project. The TCP includes but is not limited to signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the construction zone according to these specifications and the Alaska Traffic Manual (ATM).

These TCPs shall also address placement of traffic control devices including location, size, mounting height, and type. The details shown for signs shall include the code designation, size, and legend in accordance with the ATM and Alaska Sign Design Specifications (ASDS). The TCP shall also indicate the method of safely routing pedestrian and bicycle traffic through or around the construction zone.

Submit TCPs to the Engineer for approval. All TCPs shall include the following information:

1. Project name and number.
2. A designated TCP number and TCP name provided on each page.
3. For TCPs with multiple pages, each page must be numbered.
4. The posted speed for each roadway.
5. Existing striping width, lane width, and road surfacing.
6. Construction lane widths, striping layout, and temporary pavement marker layout.
7. Provisions for pedestrian, bicycle, and ADA travel through the work zone.
8. Dates and times the TCP will be in effect and why it is being used.
9. TCP preparer’s signature certifying the TCP conforms to the ATM and the Contract.
10. Project Superintendent’s signature confirming the TCP is compatible with work plan.

11. The name of the WTS and his/her 24-hour telephone number.
12. Signs to be used and the ASDS designation number and size.
13. Locations and spacing of all devices and signs.
14. A plan to address any possible slopes, drop offs, paving joints, or similar temporary features that may occur during use of the TCP.

Allow 7 days for review of each TCP submittal. All required modifications to a TCP require a new submission and an additional 7 days for review. A minor revision to a previously approved TCP requires 48 hours for review and Engineer approval.

For road closures and major traffic events, the Contractor shall submit a written request with planned road closure TCPs 21 days prior to the proposed event.

No Work shall occur within rights-of-way or easements until the Contractor has implemented an approved TCP for the Work proposed.

The TCPs, Plans, and Alaska Standard Plan C-03.30 Temporary Pedestrian Accessible Routes show the minimum required number of traffic control devices. If unsafe conditions occur, the Engineer may require additional traffic control signage or devices.

Article 15.3 Pedestrian Traffic

The Contractor shall provide pedestrian access in accordance with the requirements of Division 10, Section 10.04, Article 4.10 Protection of Persons and Property, the current Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), and Alaska Standard Plan C-03.30.

The Contractor shall provide and maintain a pedestrian traffic route through and/or around the Project for its duration or until a permanent pedestrian walkway has been completed. 4-ft high construction orange safety fencing shall be required along the pedestrian route as necessary to separate work zone from the pedestrian route.

Article 15.4 Worksite Traffic Supervisor

The Contractor shall provide a Worksite Traffic Supervisor (WTS) responsible for maintaining 24-hour traffic operations. The Worksite Traffic Supervisor shall meet the following minimum requirements:

1. Is currently certified as a Traffic Control Supervisor by ATSSA; or
2. Is currently certified as a Traffic Control Supervisor by LIUNA; or
3. Is currently certified as a Work Zone Temporary Traffic Control Technician by IMSA

The Work Site Traffic Supervisor's duties shall include the following:

1. Understand the requirements of the ATM, the Drawings, and the Specifications.
2. Prepare the TCPs and public notices and coordinate traffic maintenance operations with the Engineer.
3. Physically inspect the condition and position of all traffic control devices in use on the Project and ensure that all traffic control devices are in proper working order, clean, visible, and conform to the approved TCP in use. The inspection shall occur daily at a minimum.
4. Supervise the repair or replacement of damaged or missing traffic control devices.
5. Review and anticipate traffic control needs. Make available proper traffic control devices necessary for safe and efficient traffic movement.
6. Review work areas, equipment storage, and traffic-safety material handling and storage.
7. Supervise all traffic control workers and flaggers.
8. Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Engineer to these meetings.

Article 15.5 Materials

Materials for traffic control devices shall conform to the requirements set forth below:

1. Signs. Permanent Construction Signs, Construction Signs, and Special Construction Signs including sign supports shall conform to the ATM, ADOT&PF Standard Specifications for Highway Construction, and the ASDS.
2. Portable Sign Supports. Contractor shall provide portable sign supports that are wind resistant with no external ballasting and capable of supporting a forty-eight by forty-eight inch (48" x 48") traffic control sign such that the height of the sign above the adjacent roadway surface conforms to the ATM. The sign support shall support the traffic control sign vertically.
3. Barricades and Vertical Panels. Contractor shall provide barricades and vertical panels that are constructed of wood, metal, or plastic, and conform to the requirements of the ATM. Type III barricades shall have a minimum width of eight feet (8’). Contractor shall equip barricades with warning lights.

4. Warning Lights. Contractor shall provide Type A (low intensity flashing), Type B (high intensity flashing), or Type C (steady burn) warning lights conforming to the requirements of the ATM.
5. Drums. Contractor shall provide plastic drums conforming to the requirements of the ATM.
6. Traffic Cones. Contractor shall provide traffic cones and/or tubular markers conforming to the requirements of the ATM. The minimum height is twenty-eight inches (28”). All cones and tubular markers shall be reflectorized.
7. Plastic Safety Fence. Use 4 foot high construction orange fence.
8. Portable Changeable Message Board Signs. Contractor shall provide portable, truck- or trailer-mounted, changeable message board signs with a self-contained power supply for the sign that has the following features:
    a. Message sign panel large enough to display three lines of nine inch (9”) high characters.
    b. Eight-character display per message line.
    c. Message modules containing at least 36 different preprogrammed messages (three line displays) to be selected by the Engineer.
    d. The capacity to create, preview, and display new messages and message sequences
    e. A waterproof, lockable cover for the controller keyboard.
    f. An operator's manual, a service manual, and wiring diagram.
    g. Quick release attachments on display panel cover.
    h. Variable flash and sequence rates.
    i. Manual and automatic dimming capability on lamp bulb matrix models.
    j. Variable mounting height of at least seven feet (7’) from the pavement to the bottom of the message sign panel.
    k. The capacity to operate with a battery pack for two hours under full load.
9. Portable Concrete Barriers. Portable concrete barriers shall conform to the requirements of Alaska Standard Plan G-47.00. Portable concrete barriers shall be equipped with warning lights.
10. Work Zone Pavement Markings. Work zone pavement markings shall be either painted with glass beads or preformed marking tape (removable or non-removable).
11. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:

a. Use plywood at least 1/2-inch thick for areas continuously supported by subgrade. Use plywood at least 1 inch thick for areas that are not continuously supported.

b. Do not use unsupported 1-inch plywood longer than 30 inches.

c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 1/2-inch. Bevel overlap joints so the maximum slope of the overlapping edge is 2 horizontal to 1 vertical.

d. Fasten so wind and traffic will not displace temporary surfacing.

Article 15.6 Public Notice

The Worksite Traffic Supervisor shall give notice at least 3 days before major changes, delays, or lane restrictions, or road closures to the following local officials and transportation organizations, including but not limited to:

1. Alaska Trucking Association
2. Alaska State Troopers
3. Alaska Court System
4. Valdez Police Department
5. Valdez Fire Department
6. U.S. Postal Service
7. Local Emergency Medical Services
8. Local Schools and Universities
9. COV Parks and Recreation Department
10. COV Solid Waste Department
11. Major Tour and Cruise Ship Operators

The Contractor shall also provide the Alaska State Troopers, Valdez Police Department, and Valdez Fire Department with a list of radio frequencies and cellular telephone numbers used on the project, and the 24-hour telephone numbers of the WTS and the project Superintendent. This contact information shall be for alerting the Contractor of emergencies which will require passage of vehicles through the project. When so notified, the Contractor shall use all equipment and effort necessary to expedite rapid passage.

Article 15.7 Traffic Control Devices

Prior to the start of construction operations, the Contractor shall erect such permanent and temporary traffic control devices as may be required by the approved Traffic Control Plan (TCP). Traffic control devices shall be operated only

when they are needed and only those devices that apply to conditions that exist shall be used.

Use only one type of traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary traffic control devices. If sign panels are post mounted and cannot be readily removed, cover the panels with either metal or plywood sheeting.

Contractor shall keep clean reflective sheeting on signs, drums, barricades, and other devices. Contractor shall promptly replace any devices with scratches, rips, or tears in the sheeting deemed unacceptable by the Engineer at no additional expense to the Owner.

Furnish trained and competent flaggers and all necessary equipment, including lighting of the flagging position during nighttime operations, to control traffic through the traffic control zone. The Engineer will approve each flagging operation before it begins and will direct adjustments as conditions change.

Flaggers must be certified as one of the following:

1. Flagger by ATSSA
2. Flagging Instructor by ATSSA
3. Flagger by LIUNA
4. Traffic Control Technician by LIUNA
5. Work Zone Temporary Traffic Control Technician by IMSA

Flaggers must maintain their assigned flagging location at all times, unless another qualified flagger relieves them, or the approved traffic control plan terminates the flagging requirements. Keep the flaggers' area free of encumbrances. Keep the flagger's vehicle well off the roadway and away from the flagging operation so the flagger can easily be seen. Remove, fully cover, or lay down flagger signs when no flagger is present.

Provide approved equipment for two-way radio communications between the flaggers when flaggers are not in plain, unobstructed view of each other.

Article 15.8 Authority of the Engineer

When, in the opinion of the Engineer, conditions are such that the safety and/or convenience of the traveling public are adversely affected, the Engineer will immediately notify the Contractor in writing. The notice will state the defects, the corrective actions required, and the time required to complete such actions. In no case shall this time exceed 24 hours.

In the event that the Contractor fails to take the corrective actions within the specified time, (a) the Engineer will immediately direct that the offending operations cease until the defects are corrected, and (b) the Engineer reserves the right to order the corrective actions be accomplished by outside forces.

The Engineer will deduct the cost of Work by outside forces from any moneys due or that may become due under the terms of this Contract.

Article 15.9 Execution

The Contractor shall maintain traffic control in accordance with the approved TCP. The Contractor shall submit a new TCP each time traffic control is revised. Approval of each new TCP is required.

The Contractor shall protect and adequately delineate open trenches, ditches, pavement edge drop-offs, and other excavations and hazardous areas with barricades as required by OSHA.

Unless otherwise provided hereinafter, the Contractor shall maintain all roadways open to traffic. Temporary closure of residential, commercial, or street approaches require prior approval of the Engineer.

The Contractor shall provide access through and around the project for emergency vehicles.

The Contractor shall properly sign and/or flag all locations requiring redirection or stopping of the traveling public.

The Contractor shall provide flagger(s) any time Work operations may affect safety, or as directed by the Engineer. Unless approved by the Engineer on the TCP, flagger(s) are required at all times when one-lane traffic is in effect. All flagging operations shall conform to the procedures outlined in the ATM.

Article 15.10 Measurement

The work will be measured according to Division 10, Article 7.1 Method of Measurement, as directed by the Engineer as follows:

a. Lump Sum. No measurement of quantities will be made.
b. Contingent Sum. The pay unit is measured by the number of approved hours, supported by certified payroll.

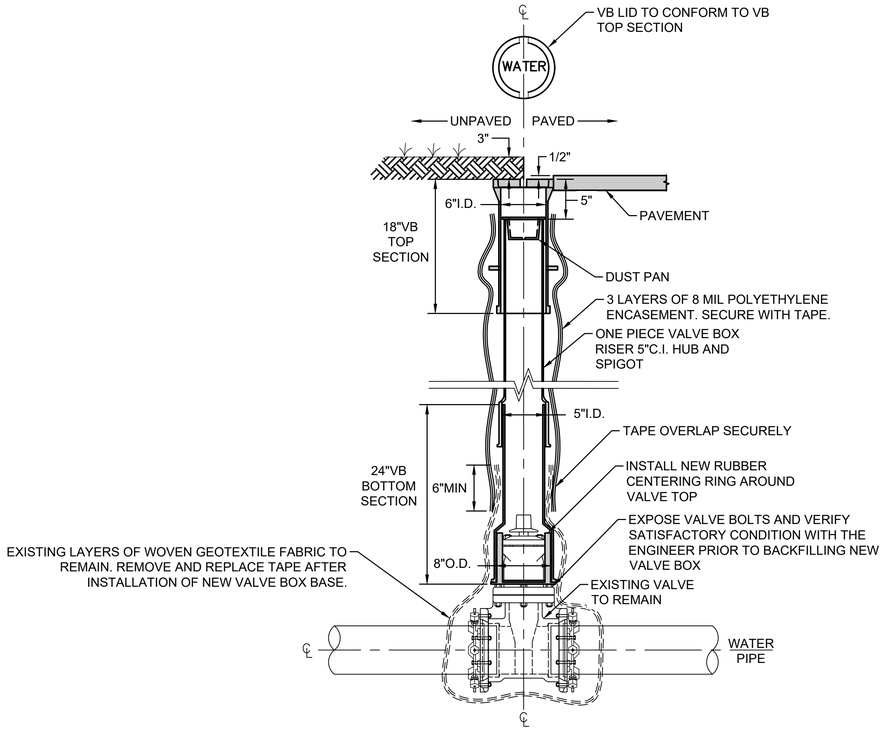
Article 15.11 Payment

Pay items include all necessary personnel, equipment, transportation, and supplies to accomplish the work described in the Contract, or as directed by the Engineer.

1. Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, and the maintenance of all roadways, approaches, crossings, intersections, and pedestrian & bicycle facilities, as required.
2. Traffic Control. The contract price encompasses all Contractor traffic control work described in the Contract, including the preparation and implementation of all temporary traffic control plans, detours, and permits within the project limits. This work also includes all necessary permanent construction signs.
3. Flagging. The contract price includes all required labor, vehicles, radios, flagger paddles, and transportation to and from the worksite. The Engineer will pay this item on a contingent sum basis at the rate of $82.00/hour.

Payment will be made under:

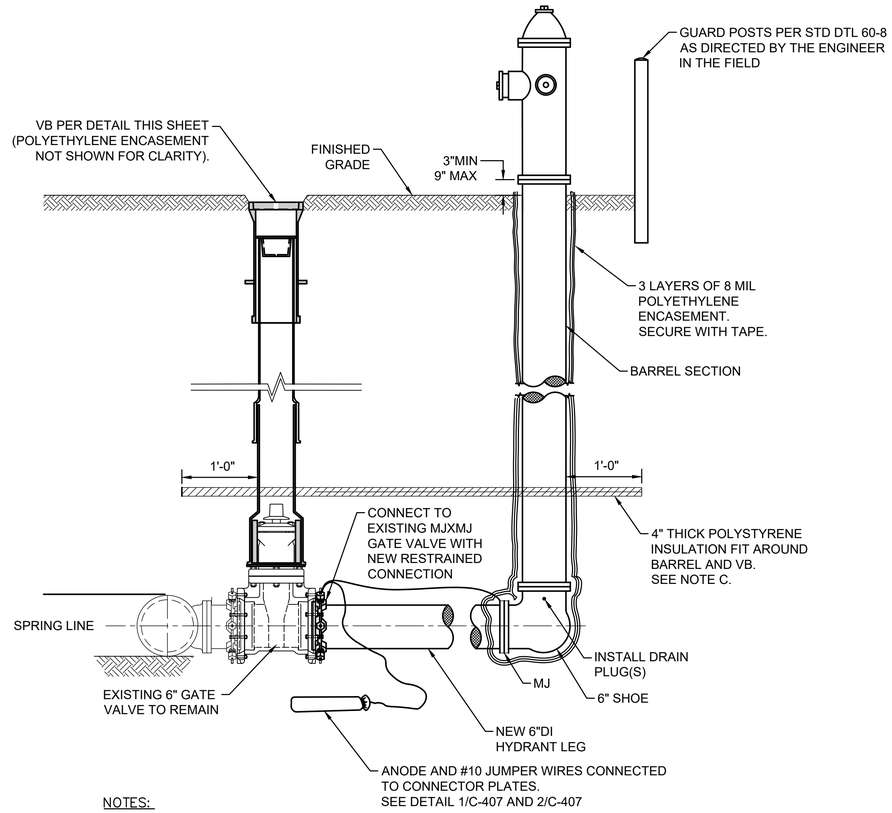
ITEM	UNITS
Traffic Maintenance	Lump Sum
Traffic Control	Lump Sum
Flagging	Contingent Sum



NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. VALVE BOX ASSEMBLY IS TO BE PLUMB.
3. DIMENSIONS ARE NOMINAL.

1 C-406 TYPICAL VALVE BOX (VB) REPLACEMENT
NTS



NOTES:

A. HYDRANT SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.

B. ALL BACKFILL MATERIALS WITHIN 3 FEET OF HYDRANT BARRELL SHALL BE NFS.

C. RIGID BOARD INSULATION (R-20) SHALL BE 4-FT WIDE AND CENTERED ON THE HYDRANT AND VALVE BOX.

D. ALL HYDRANT LEGS ASSUMED TO BE AT A 10-FT BURY. CONTRACTOR TO FIELD VERIFY DEPTHS VIA THE VALVE BOX PRIOR TO BEGINNING INSTALLATION.

2 C-406 SINGLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
FEB. 2, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

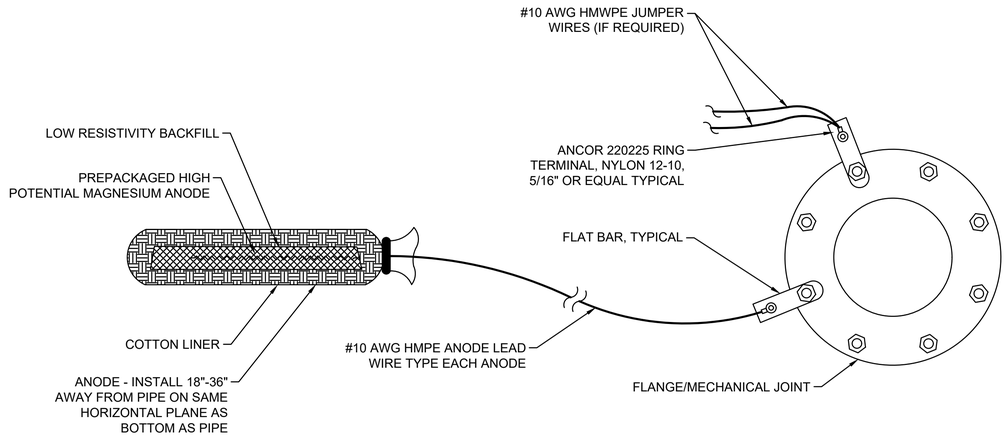
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

WATER DETAILS

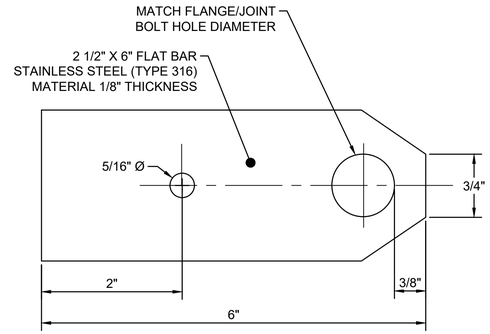
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

C-406



1 C-407 TYPICAL ANODE ASSEMBLY
NTS



2 C-407 ANODE FLAT BAR DETAIL
NTS

ANODE SCHEDULE

SHEET NUMBER	STATION	OFFSET

ANODE SCHEDULE

SHEET NUMBER	STATION	OFFSET

ANODE ASSEMBLY AND CONNECTION NOTES

1. CONTRACTOR TO FABRICATE FLAT BAR
2. INSTALL FLAT BAR ON BODY SIDE OF FLANGE OR MECHANICAL JOINT. REMOVE COATING AT THE FLAT BAR LOCATION PRIOR TO INSTALLATION. METAL TO METAL CONTACT IS REQUIRED. REPAIR VISIBLE COATING DAMAGE WITH DENSYL TAPE AND PRIMER.
3. CONNECT WIRE WITH COMPRESSION RING CONNECTOR AND 1/4" Ø X 1" STAINLESS STEEL BOLT (TYPE 316) WITH WASHER AND SELF LOCKING NUT.
4. TWO #10 AWG HMWPE JUMPER WIRES REQUIRED TO CONNECT EACH VALVE/HYDRANT.
5. WRAP ELECTRICAL INSULATION TAPE AROUND RING CONNECTOR AND BOND STRAP (WIRE END ONLY). DENSYL TAPE OR APPROVED EQUAL.
6. WRAP ELECTRICAL INSULATION TAPE A MINIMUM OF 3" DOWN ON WIRE INSULATION TO ENCAPSULATE CONNECTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13329
FEB. 2, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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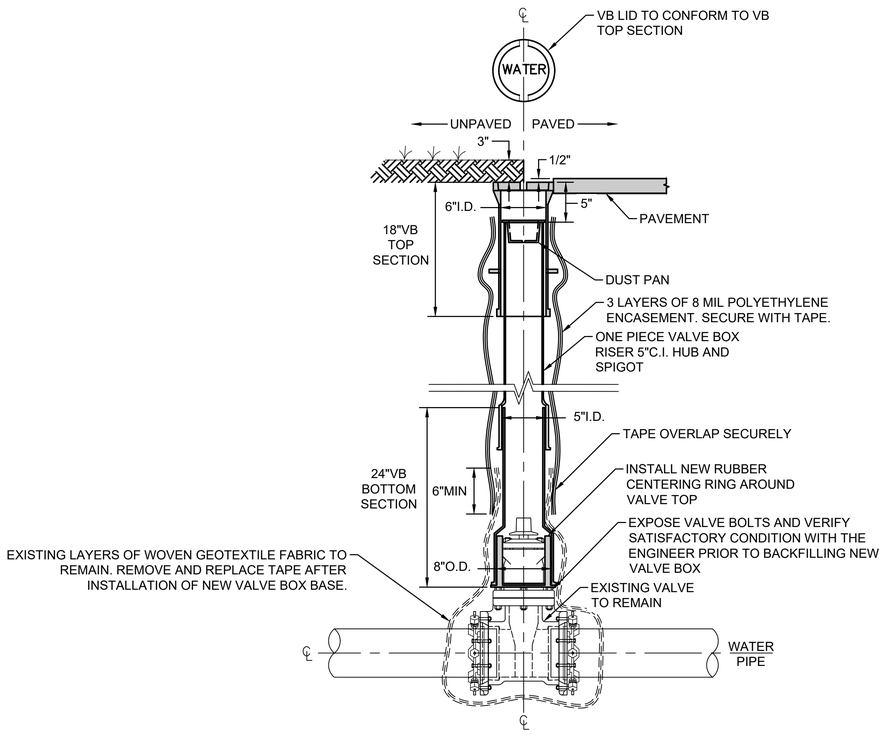
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

ANODE DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/28/2026

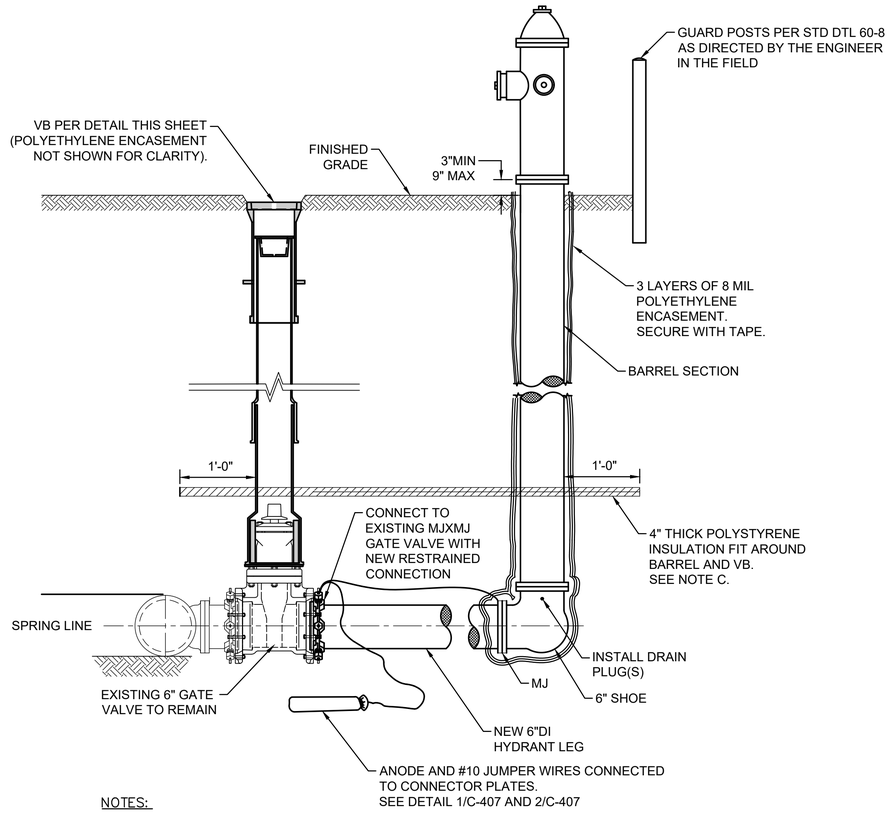
C-407



NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. VALVE BOX ASSEMBLY IS TO BE PLUMB.
3. DIMENSIONS ARE NOMINAL.

1 C-406 TYPICAL VALVE BOX (VB) REPLACEMENT
NTS



NOTES:

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B. ALL BACKFILL MATERIALS WITHIN 3 FEET OF HYDRANT BARRELL SHALL BE NFS.

C. RIGID BOARD INSULATION (R-20) SHALL BE 4-FT WIDE AND CENTERED ON THE HYDRANT AND VALVE BOX.

D. ALL HYDRANT LEGS ASSUMED TO BE AT A 10-FT BURY. CONTRACTOR TO FIELD VERIFY DEPTHS VIA THE VALVE BOX PRIOR TO BEGINNING INSTALLATION.

2 C-406 SINGLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
FEB. 2, 2026
REGISTERED PROFESSIONAL ENGINEER

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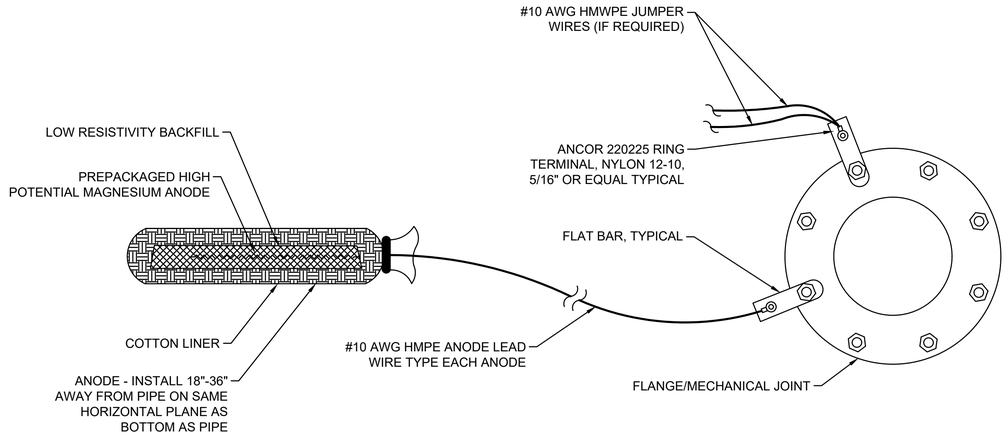
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

WATER DETAILS

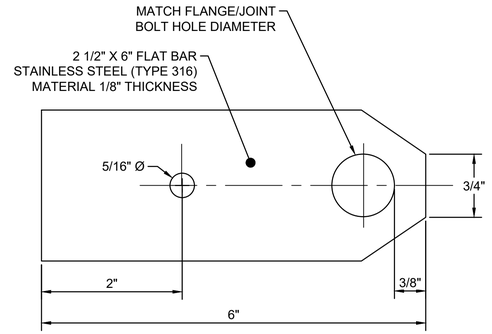
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-406



1 C-407 TYPICAL ANODE ASSEMBLY
NTS



2 C-407 ANODE FLAT BAR DETAIL
NTS

ANODE SCHEDULE

SHEET NUMBER	STATION	OFFSET

ANODE SCHEDULE

SHEET NUMBER	STATION	OFFSET

ANODE ASSEMBLY AND CONNECTION NOTES

1. CONTRACTOR TO FABRICATE FLAT BAR
2. INSTALL FLAT BAR ON BODY SIDE OF FLANGE OR MECHANICAL JOINT. REMOVE COATING AT THE FLAT BAR LOCATION PRIOR TO INSTALLATION. METAL TO METAL CONTACT IS REQUIRED. REPAIR VISIBLE COATING DAMAGE WITH DENSYL TAPE AND PRIMER.
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REVISIONS

REV	DATE	DESCRIPTION	BY

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FEB. 2, 2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

ANODE DETAILS

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-407

CITY OF VALDEZ
Project Title: Pavement Management Phase IV Meals Avenue
Project No.: 25-310-1118
Contract No.: 2450

TO: All Recipients **Date: February 17, 2026**

SUBJECT: Addendum No. 2

This One (1) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

Response to Questions:

1. It has recently come to our attention that some subcontractors interested in bidding on this project have just become aware of it. Could the bid date be moved back 1 week to allow those subcontractors ample time to study bid documents and prepare a bid?

   Response – Yes, the Bid Opening date will be extended as well as the deadline for question. The new bid opening date will now be February 27, 2026, at 2pm local time and the deadline for question will be February 20, 2026, at 4:30pm local time.

Change to the Invitation to Bid (page 4) of the contract documents:

BID OPENING – February 27, 2026, at 2:00 pm local time.

DEADLINE FOR QUESTIONS – February 23, 2026, at 4:30 pm local time.

End of Addendum

CITY OF VALDEZ
Project Title: Pavement Management Phase IV Meals Avenue
Project No.: 25-310-1118
Contract No.: 2450

TO: All Recipients **Date: February 19, 2026**

SUBJECT: Addendum No. 3

This Five (5) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

RESPONSES TO QUESTIONS:

1. A handrail and stair detail is shown on sheet C-404 but not referenced in the drawings. Is this stairway and handrail part of the project?

   Response – No, the handrail and stairway detail is not part of this project. Please disregard this detail on sheet C-404 when bidding this project.

2. Can you provide the Geotechnical Report referenced in Note 3 sheet G-002?

   Response – Yes, attached is the report titled "Valdez Pavement Rehabilitation, Phases IV-VI, Valdez Alaska Geotechnical Exploration and Recommendations."

3. Item 50.19 specification states that the Sewer Lines are to be CCTV inspected for a condition assessment, Pre-rehabilitation, Prior to acceptance of New Pipe, Post rehabilitation, and rehabilitation. Can you confirm the lines need to be CCTV'd 5 times? Can you clarify when the CCTV inspection needs to occur? Can the City of Valdez supply a disposal site for material from the sanitary sewer cleaning?

   Response - Specification 50.19 has been revised for clarity on the number of inspections and to define cleaning vs CCTV scope of sewer lines. The material from the sanitary sewer cleaning can be disposed of at the City's sewer treatment plant.

4. Item 55.16 specification states that the Storm Drain Lines are to be CCTV inspected for a condition assessment, Pre-rehabilitation, Prior to acceptance of New Pipe, Post rehabilitation, and rehabilitation. Can you confirm the lines need to be CCTV'd 5 times?

Can you clarify when the CCTV inspection needs to occur? Can you confirm the Storm Drain lines that need to be CCTV'd are being identified by Key Note 5?

Response - Specification 55.16 has been revised for clarity on the number of inspections and to define cleaning vs cctv scope of storm lines. There are no cctv inspections for storm lines in this bid set of plans. Key notes in the plans have been revised to clarify cleaning vs cctv work, and summary tables have been added on C-111. The material from the sanitary sewer cleaning can be disposed of at the City's sewer treatment plant.

5. Are any gate valve replacements included in the fire hydrant replacement bid item?

Response – Yes, two (2) of the 9 fire hydrants will include gate valve replacement. Please see attached modification to the specification. See attached updated bid schedule with changes to the line items 29, 30, and 31 of the Base Bid Meals Avenue.

6. I see that #4 AWG conductor is noted on Sheet(s) E-001 (Calcs), and E-003 Detail 3 (Street Lighting Schematic), but there is not an identifier on the actual conduit runs in the electrical drawings. This is not typical for street lighting, and I would like to confirm this is not a misprint. Typically, 3C#8 with a Bare CU #8 Ground is required (potentially with Voltage drop, bump up to 3C#6 and #6 Ground).

Response - The #4 AWG, CU shown on the drawings is correct.

7. E-003 detail 3 shows #10 AWG from the J boxes to the "Fixture". Is the intent to use some kind of 3M splice kit at the j boxes? Are the standard fused connections (Cow tit) at the pole hand hole not required/desired?

Response -If splices are made in the nearest junction box as shown on Detail 3/E-003, the maximum required wire size to the light fixture is #10 AWG CU and the splices shall made utilizing a waterproof splice kit. An approved alternative to splicing within the nearest junction box would be to route the #4 AWG CU "main run" conductors in and out of the pole utilizing the line side of the fused terminal blocks within the handhole. In this option, the #10 AWG CU would extend from the load side of the fused terminal blocks up to the light fixture(s). The fused terminal blocks are desired within the handhole.

8. The plans indicate that a geotechnical report was completed for this project. Can a copy of this report be provided.

Response - Response - Yes, attached is the report titled "Valdez Pavement Rehabilitation, Phases IV-VI, Valdez Alaska Geotechnical Exploration and Recommendations."

9. Sheet G-002 of project drawings general note 3 references a geotechnical report. It does not appear this was provided in the project docs. Could the City of Valdez provide this for review?

Response - Response - Yes, attached is the report titled "Valdez Pavement Rehabilitation, Phases IV-VI, Valdez Alaska Geotechnical Exploration and Recommendations."

10. Is there any utility relocation work by others (utility companies) that the contractor should be aware of?

Response – There is no known utility relocation work by other utility companies on this project. However, during construction unknown utilities may be found and thus need to be relocated. This type of situation would be dealt with in the field and require a change order approved by the engineer and City's project manager.

Note – Local utility companies have coordinated on City projects to add conduit and/or other utilities to open trenches and vaults. This work must be coordinated between the utility company, contractor, City of Valdez, and project engineer. The work cannot cause any delay in time or additional cost to the project unless an agreement is made between the City and the utility company.

11. In the Addendum 1 bid schedule for Alternate 4 - Robe River Drive line AA4-14 shows 3 curb ramps but C-110 and the plans show 4. Should the line be 4 EA? Was the SY for all 4 taken out of line AA4-13?

Response - Yes, the line item should be for four curb ramps. The bid schedule has been revised. Quantity for PCC Sidewalk has been revised.

12. items AA4-35 and AA4-35 for retaining wall removal and installation denote the backing curb shown on Alternate 4 - Robe River sheet C202?

Response - Yes, the backing curb shown on C-202 in the Robe River Alternate 4 plan set is captured by that pay item. The pay items have been revised for clarity. The retaining wall removal and retaining wall install pay items are now respectively described as Remove Existing Backing Curb and Backing Curb. The specifications have been modified to capture the minor adjustments to the Work scope. The plans have been revised to reference a backing curb detail for this work on C-406.

13. Regarding the temporary gravel access road. It was clarified that the Type II-A classified fill and the leveling course required are included in the respective bid schedule line items and will be paid under such. Upon completion of the project the temporary gravel access road is to be removed and remediated. Is the excavation, topsoil, & seeding required for this work also included in the respective bid schedule line items and furthermore will be measured and paid under those line items?

Response - The topsoil and seeding quantities required for remediating the area of the temporary gravel access road are included in the bid schedule pay items. The removal of the Type II-A and Leveling Course was not captured. A lump sum pay item has been added to capture import of Type II-A and Leveling Course for construction of the temporary gravel access road, and to capture removal of the imported materials. Sheet C-110 has been revised to include a table with quantities for this work.

14. I have a question regarding the ADA detectable tiles. I would like to know the radius of the tiles so I can price them out accordingly. I have a question regarding the ADA detectable tiles. I would like to know the radius of the tiles so I can price them out accordingly.

Response - Curve tables are shown on sheet C-110 in the Meals Avenue Base Bid plan set and C-110 in the Robe River Add Alt 4 plan set. These tables correspond to plan view callouts in the C-20X sheets. The curves are measured to back of curb (see note 10 on G-002).

15. Do base bid items 36 and 37 Retaining Wall Removal and Installation denote the backing curb on sheet C202?

Response - Yes. The retaining wall removal and retaining wall install pay items are now respectively described as Remove Existing Backing Curb and Backing Curb. Sheet C-202 has been revised to clarify the work as backing curb, and a backing curb detail has been added to C-406.

16. Can a list of the radius detectable warning plate lengths be provided so that vendors can provide pricing?

Response - Same response as question 14.

17. Can you please provide the insurance requirements.

Response – Please refer to Division 10 Section 10.02 Bidding Requirements and Conditions and Section 10.03 Award and Execution of Contract Article 3.5 Bonds, and Insurance. The City's Standard Specifications can be found on the City's website valdezak.gov under capital projects and engineering.

18. Is the 10/31/2025 completion date in the Specs correct?

Response – No. The year was incorrect in the contract documents. The correct date should be October 31, 2026.

Note – The completion date for all roadway and/or sidewalk asphalt paving is also incorrect. The correct date is September 15, 2026.

ATTACHED DOCUMENTS:

- Updated Bid Schedule 2-18-26, Please use this updated Bid Scheule for Biding this project. The updated schedule will also be copied to Bid Express replacing the previous schedule.
- Updated Sheets for Meals Avenue Base Bid Drawings 2-18-26. See attached sheets G-002, C-110, C-111, C-201, C-202, C-203, C-204, C-205, C-206, C-211, C-303, C-308, C-404 and C-406. *These updated sheets will replace the original sheets in the drawings and should be used for bidding on this project.*
- Updated Sheets for Robe River Drive Alternate #4 Drawings 2-18-26. See attached sheets G-002, C-110, C-111, C-201, C-202, C-230, C-404, and C-406. *These updated sheets will replace the original sheets in the drawings and should be used for bidding on this project.*
- Updated Modifications to City of Valdez Standard Specifications 2-18-26.

Note - This attachment includes changes or modifications to the specifications for the following items: Submittal schedule, field engineering, removal of existing curb/gutter, SWPPP, mobilization and demobilization, structures/retaining walls, CCTV inspections for sewer/storm drains, furnish/install hydrants, construction surveying, traffic maintenance, and owner's contingency. Please use these updated specifications when bidding on this project.

End of Addendum

City of Valdez
Bid Schedule
Page 1 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Base Bid – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
1	10.04 SP	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST	LS	1	N/A	
2	20.04	USABLE EXCAVATION	CY	6		
3	20.04	UNUSABLE EXCAVATION	CY	5,650		
4	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	TON	9,340		
5	20.06	LEVELING COURSE	TON	1,875		
6	20.07	TRENCH EXCAVATION AND BACKFILL	LF	870		
7	20.11	BEDDING MATERIAL (CLASS C)	TON	529		
8	20.17	REMOVE EXISTING SIDEWALK	SY	1,500		
9	20.18 SP	REMOVE EXISTING CURB AND GUTTER	LF	5,000		
10	20.18 SP	REMOVE EXISTING BACKING CURB	LF	135		
11	20.19	REMOVE EXISTING PAVEMENT	SY	15,550		
12	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	SY	15,100		
13	20.22	GEOTEXTILE, SEPARATION (TYPE A)	SY	4,050		
14	20.30 SP	STORM WATER POLLUTION PREVENTION PLAN	LS	1	N/A	
15	20.32 SP	MOBILIZATION AND DEMOBILIZATION	LS	1	N/A	
16	30.01	PCC CURB AND GUTTER	LF	5,150		
17	30.03	PCC SIDEWALK 4" THICK	SY	1,200		
18	30.03	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	EA	18		
19	30.04 SP	BACKING CURB	LF	130		
20	40.02	HMA, TYP II; CLASS A	TON	2,850		
21	50.19 SP	SEWER LINE CLEANING	LF	0		
22	50.19 SP	SEWER LINE CCTV INSPECTION	LF	280		

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
23	55.02	FURNISH AND INSTALL PIPE (12")	LF	550		
24	55.02	FURNISH AND INSTALL PIPE (18")	LF	320		
25	55.04	CONSTRUCT MANHOLE	EA	36		
26	55.16 SP	STORM DRAIN LINE CLEANING	LF	560		
27	55.16 SP	STORM DRAIN LINE CCTV INSPECTION	LF	0		
28	60.02	INSTALL WATER SERVICE (2" COPPER)	LF	0		
29	60.04 SP	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA	2		
30	60.04 SP	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE	EA	3		
31	60.11	REMOVE AND REPLACE VALVE BOX TOP SECTION	EA	1		
32	60.19 SP	CLEAN AND CLEAR VALVE	EA	1		
33	65.02 SP	CONSTRUCTION SURVEYING	LS	1	N/A	
34	70.03	ADJUST MANHOLE RING TO FINISH GRADE	EA	21		
35	70.05	RELOCATE CATCH BASIN OR CBMH	EA	1		
36	70.06	REMOVE EXISTING MANHOLE	EA	33		
37	70.13	PAINTED TRAFFIC MARKINGS	LS	1		
38	70.14	STANDARD SIGN POST	EA	25		
39	70.14	STANDARD SIGNS	SF	204		
40	70.15 SP	TRAFFIC MAINTENANCE	LS	1	N/A	
41	70.15 SP	TRAFFIC CONTROL	LS	1	N/A	
42	70.15 SP	FLAGGING	CS	1	$20,000.00	$20,000.00
43	70.15 SP	TEMPORARY ACCESS ROAD	LS	1	N/A	
44	70.16	REMOVE PIPE	LF	690		
45	75.04	TOP SOIL AT 2" DEPTH	MSF	87		
46	75.05	SEEDING (SCHEDULE A)	MSF	87		
47	26 05 05	DEMOLITION	LS	1	N/A	
48	26 24 16	100A LIGHTING LOADCENTER	EA	N/A	N/A	N/A
49	26 05 26	SERVICE FEEDER	LF	N/A	N/A	N/A
50	26 50 00	LIGHT FIXTURES	EA	13		

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
51	26 50 00	10' MAST ARM	EA	13		
52	26 50 00	POLES	EA	11		
53	26 50 00	POLE BASES	EA	11		
54	26 05 33	2" RIGID CONDUIT	LF	3,480		
55	26 05 19	BRANCH CIRCUIT WIRING	LF	10,450		
56	26 05 33	IN-GRADE JBS	EA	20		
57	80.01 SP	OWNER'S CONTINGENCY	CS	1	$400,000.00	$400,000.00
BASE BID – TOTAL AMOUNT					**$**	

City of Valdez
Bid Schedule
Page 3 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #1 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA1-1	20.04	USABLE EXCAVATION	CY	35		
AA1-2	20.04	UNUSABLE EXCAVATION	CY	154		
AA1-3	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	TON	225		
AA1-4	20.06	LEVELING COURSE	TON	76		
AA1-5	20.19	REMOVE EXISTING PAVEMENT	SY	452		
AA1-6	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	SY	750		
AA1-7	20.30 SP	STORM WATER POLLUTION PREVENTION PLAN	LS	1	N/A	
AA1-8	30.01	PCC CURB AND GUTTER	LF	380		
AA1-9	40.02	HMA, TYP II; CLASS A	TON	118		
AA1-10	65.02 SP	CONSTRUCTION SURVEY	LS	1	N/A	
AA1-11	70.15 SP	TRAFFIC MAINTENANCE	LS	1	N/A	
AA1-12	70.15 SP	TRAFFIC CONTROL	LS	1	N/A	
AA1-13	75.04	TOP SOIL AT 2" DEPTH	MSF	1		
AA1-14	75.05	SEEDING (SCHEDULE A)	MSF	1		
ADDITIVE ALTERNATE #1 – TOTAL AMOUNT					**$**	

City of Valdez
Bid Schedule
Page 4 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #2 – Phase IV Meals Avenue

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA2-1	20.04	UNUSABLE EXCAVATION	CY	263		
AA2-2	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	TON	393		
AA2-3	20.06	LEVELING COURSE	TON	121		
AA2-4	20.07	TRENCH EXCAVATION AND BACKFILL	LF	243		
AA2-5	20.11	BEDDING MATERIAL (CLASS C)	TON	170		
AA2-6	20.19	REMOVE EXISTING PAVEMENT	SY	900		
AA2-7	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	SY	1,150		
AA2-8	20.30 SP	STORM WATER POLLUTION PREVENTION PLAN	LS	1	N/A	
AA2-9	30.01	PCC CURB AND GUTTER	LF	386		
AA2-10	40.02	HMA, TYP II; CLASS A	TON	190		
AA2-11	55.02	FURNISH AND INSTALL PIPE (12")	LF	40		
AA2-12	55.02	FURNISH AND INSTALL PIPE (18")	LF	203		
AA2-13	55.04	CONSTRUCT MANHOLE	EA	2		
AA2-14	65.02 SP	CONSTRUCTION SURVEY	LS	1	N/A	
AA2-15	70.06	REMOVE EXISTING MANHOLE	EA	2		
AA2-16	70.15 SP	TRAFFIC MAINTENANCE	LS	1	N/A	
AA2-17	70.15 SP	TRAFFIC CONTROL	LS	1	N/A	
AA2-18	70.16	REMOVE PIPE	LF	243		
ADDITIVE ALTERNATE #2 – TOTAL AMOUNT					**$**	

City of Valdez
Bid Schedule
Page 5 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Alternate #3 – Phase IV Meals Avenue HDPE Conduit

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Meals						
A3-1	26 05 33	2" HDPE CONDUIT	LF	3,480		
Robe River						
A3-2	26 05 33	2" HDPE CONDUIT	LF	1,230		

City of Valdez
Bid Schedule
Page 6 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternate #4 Robe River Drive

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA4-1	10.04 SP*	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST	LS	1	N/A	
AA4-2	20.04	USABLE EXCAVATION	CY	15		
AA4-3	20.04	UNUSABLE EXCAVATION	CY	1,850		
AA4-4	20.05	TYPE II-A CLASSIFIED FILL AND BACKFILL	TON	3,050		
AA4-5	20.06	LEVELING COURSE	TON	646		
AA4-6	20.07	TRENCH EXCAVATION AND BACKFILL	LF	120		
AA4-7	20.11	BEDDING MATERIAL (CLASS C)	TON	63		
AA4-8	20.17	REMOVE EXISTING SIDEWALK	SY	630		
AA4-9	20.18 SP	REMOVE EXISTING CURB AND GUTTER	LF	2,150		
AA4-10	20.18 SP	REMOVE EXISTING BACKING CURB	LF	45		
AA4-11	20.19	REMOVE EXISTING PAVEMENT	SY	5,200		
AA4-12	20.22	GEOTEXTILE (SEPARATION & STABILIZE)	SY	6,200		
AA4-13	20.22	GEOTEXTILE, SEPARATION (TYPE A)	SY	800		
AA4-14	20.30 SP*	STORM WATER POLLUTION PREVENTION PLAN	LS	1	N/A	
AA4-15	20.32 SP*	MOBILIZATION AND DEMOBILIZATION	LS	1	N/A	
AA4-16	30.01	PCC CURB AND GUTTER	LF	2,150		
AA4-17	30.03	PCC SIDEWALK 4" THICK	SY	560		
AA4-18	30.03	ADA CURB RAMPS (ALL LABOR AND MATERIALS)	EA	4		
AA4-19	30.04 SP	BACKING CURB	LF	45		
AA4-20	40.02	HMA, TYP II; CLASS A	TON	1,010		

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA4-21	50.19 SP	SEWER LINE CLEANING	LF	332		
AA4-22	50.19 SP	SEWER LINE CCTV INSPECTION	LF	346		
AA4-23	55.02	FURNISH AND INSTALL PIPE (12")	LF	120		
AA4-24	55.02	FURNISH AND INSTALL PIPE (18")	LF			N/A
AA4-25	55.04	CONSTRUCT MANHOLE	EA	5		
AA4-26	55.16 SP	STORM DRAIN LINE CLEANING	LF			N/A
AA4-27	55.16 SP	STORM DRAIN LINE CCTV INSPECTION	LF			N/A
AA4-28	60.02	INSTALL WATER SERVICE (2" COPPER)	LF			N/A
AA4-29	60.04 SP	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA			N/A
AA4-30	60.04 SP	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE	EA	4		
AA4-31	60.11	REMOVE AND REPLACE VALVE BOX TOP SECTION	EA			N/A
AA4-32	60.19 SP	CLEAN AND CLEAR VALVE	EA	2		
AA4-33	65.02 SP*	CONSTRUCTION SURVEYING	LS	1	N/A	
AA4-34	70.03	ADJUST MANHOLE RING TO FINISH GRADE	EA	5		
AA4-35	70.05	RELOCATE CATCH BASIN OR CBMH	EA			N/A
AA4-36	70.06	REMOVE EXISTING MANHOLE	EA	5		
AA4-37	70.13	PAINTED TRAFFIC MARKINGS	LS	1	N/A	
AA4-38	70.14	STANDARD SIGN POST	EA	10		
AA4-39	70.14	STANDARD SIGNS	SF	80		
AA4-40	70.15 SP*	TRAFFIC MAINTENANCE	LS	1	N/A	
AA4-41	70.15 SP*	TRAFFIC CONTROL	LS	1	N/A	
AA4-42	70.15 SP	FLAGGING	CS	1	$10,000.00	$10,000.00
AA4-43	70.15 SP	TEMPORARY ACCESS ROAD	LS			N/A
AA4-44	70.16	REMOVE PIPE	LF	120		
AA4-45	75.04	TOP SOIL AT 2" DEPTH	MSF	8		
AA4-46	75.05	SEEDING (SCHEDULE A)	MSF	8		
AA4-47	26 05 05	DEMOLITION	LS	1		
AA4-48	26 24 16	100A LIGHTING LOADCENTER	EA			N/A

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
AA4-49	26 05 26	SERVICE FEEDER	LF			N/A
AA4-50	26 50 00	LIGHT FIXTURES	EA	6		
AA4-51	26 50 00	10' MAST ARM	EA	6		
AA4-52	26 50 00	POLES	EA	5		
AA4-53	26 50 00	POLE BASES	EA	5		
AA4-54	26 05 33	2" RIGID CONDUIT	LF	1,230		
AA4-55	26 05 19	BRANCH CIRCUIT WIRING	LF	3,670		
AA4-56	26 05 33	IN-GRADE JBS	EA	8		
ADDITIVE ALTERNATE #4 – TOTAL AMOUNT					**$**	

Bidder Note

* Additive Alternate #4 lump sum pay items supplement respective Base Bid lump sum pay items.

* Unit prices for lump sum pay items for Additive Alternate #4 capture the additional effort beyond Base Bid pricing to complete the Work.

Bid Schedule
Page 8 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Additive Alternates #5 and #6 Fiber Optic

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL ITEM PRICE
Additive Alternate # 5 Meals						
AA5-1	26 05 33	2" HDPE FIBER CONDUIT	LF	5,190		
AA5-2	26 05 33	FIBER HANDHOLES	EA	3		
AA5-3	26 05 33	FIBER VAULTS	EA	2		
Additive Alternate #6 Robe River Drive						
AA6-1	26 05 33	2" HDPE FIBER CONDUIT	LF	2,060		
AA6-2	26 05 33	FIBER VAULTS	EA	1		

City of Valdez
Bid Schedule
Page 9 of 9

Project: Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2450

Total Base Bid Amount:

_____ Dollars _____ Cents

($ _____)

I, _____, hereinafter called Bidder, an individual doing business as _____, (strike out inapplicable words:) a partnership, a corporation incorporated in the State of Alaska, a joint venture, hereby submits this bid and agrees: to hold this bid open for forty five (45) days, to accept the provisions of the Instruction to Bidders, to accomplish the work in accordance with the contract documents, plans, specifications, for the lump sum and unit price amounts as set forth in this bid schedule.

Respectfully submitted this _____ day of _____, 202___

BIDDER:

_____
Company Name

_____
Address

_____
City, State, Zip Code

_____
Telephone Number

_____
Federal I.D. or S.S.N.

_____
Authorizing Name

_____
Title

_____
Signature

_____
Email Address

CORPORATE SEAL

ATTEST:

_____
Signature of Corporate Sec.

_____
Print Name

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
1 AKDOT&PF	AK DEPARTMENT OF TRANS. & PUBLIC FACILITIES
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
1 MASS	MUNICIPALITY OF ANCHORAGE STD SPEC'S
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
1 RFP	REQUEST FOR PROPOSAL
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	D
TYPE III STORM MANHOLE		9
SEWER MANHOLE	S	S
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
FEB. 18, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
NOTES, LEGEND, AND ABBREVIATIONS
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

G-002

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
23	RR-ML	136+13.82	20.50 L	24'
24	RR-ML	158+55.39	20.50 L	48'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
344	RR-ML	138+76.78	37.50 R	SEE PLAN VIEW KEY NOTES
331	RR-ML	144+37.55	41.00 R	SEE PLAN VIEW KEY NOTES
322	RR-ML	149+97.40	41.50 R	SEE PLAN VIEW KEY NOTES
315	RR-ML	155+56.19	42.00 R	SEE PLAN VIEW KEY NOTES
303	RR-ML	161+28.54	38.00 R	SEE PLAN VIEW KEY NOTES

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1004	RR-ML	136+45.93	22.50 R	PARALLEL
1005	RR-ML	138+64.06	22.50 R	TYPE II PARALLEL
1006	RR-ML	139+32.07	28.00 R	PARALLEL
1007	RR-ML	141+57.27	28.00 R	PARALLEL (MODIFIED SEE GRADING)
1008	RR-ML	142+28.35	22.50 R	TYPE II PARALLEL
1009	RR-ML	144+22.27	22.50 R	TYPE II PARALLEL
1010	RR-ML	144+93.32	28.00 R	PARALLEL
1011	RR-ML	147+17.14	28.00 R	PARALLEL
1012	RR-ML	147+88.21	22.50 R	TYPE II PARALLEL
1013	RR-ML	149+97.27	28.00 R	PARALLEL
1014	RR-ML	150+68.34	22.50 R	TYPE II PARALLEL
1015	RR-ML	152+79.29	29.54 R	PARALLEL
1016	RR-ML	153+48.73	22.50 R	TYPE II PARALLEL
1017	RR-ML	155+56.89	28.00 R	PARALLEL
1018	RR-ML	156+27.97	22.50 R	TYPE II PARALLEL
1019	RR-ML	158+22.11	22.50 R	TYPE II PARALLEL
1020	RR-ML	158+93.17	28.00 R	PARALLEL
1021	RR-ML	161+24.54	28.00 R	PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C6	43.20	27.50	90.00	S45° 02' 16"E	38.89
C7	95.80	72.50	75.71	N37° 53' 33"W	88.98
C8	36.14	23.00	90.03	S44° 56' 20"W	32.54
C9	36.14	23.00	90.04	S45° 01' 09"E	32.54
C10	40.80	28.00	83.49	S41° 44' 42"W	37.29
C11	55.56	33.00	96.47	S48° 16' 28"E	49.23
C12	36.13	23.00	90.00	S44° 57' 40"W	32.53
C13	36.13	23.00	90.00	S45° 02' 20"E	32.53
C14	29.05	30.00	55.48	S27° 42' 05"W	27.93
C15	18.30	30.00	34.95	S72° 59' 41"E	18.02
C16	36.13	23.00	90.00	S44° 57' 40"W	32.53
C17	36.13	23.00	90.00	S45° 02' 20"E	32.53
C18	36.13	23.00	90.00	S44° 57' 40"W	32.53
C19	36.13	23.00	90.00	S45° 02' 20"E	32.53
C20	36.13	23.00	90.00	S44° 57' 44"W	32.53
C21	36.13	23.00	90.00	S45° 02' 16"E	32.53
C22	36.13	23.00	90.00	S44° 57' 44"W	32.53
C23	36.13	23.00	90.00	S45° 02' 16"E	32.53
C24	36.13	23.00	90.00	S44° 57' 44"W	32.53
C25	36.13	23.00	90.00	S45° 02' 16"E	32.53
C26	28.28	18.00	90.00	S44° 57' 47"W	25.46
C27	28.27	18.00	90.00	S45° 02' 13"E	25.45
C28	36.13	23.00	90.01	S44° 57' 49"W	32.53
C29	36.13	23.00	89.99	S45° 02' 11"E	32.53
C30	36.13	23.00	90.01	S44° 57' 49"W	32.53
C31	36.13	23.00	89.99	S45° 02' 08"E	32.52
C32	36.13	23.00	90.00	S44° 57' 40"W	32.53
C33	36.13	23.00	90.00	S45° 02' 20"E	32.53
C34	36.13	23.00	90.00	S44° 57' 42"W	32.53

PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	28.87 LF	1.00%	108-CBMH	109-SDMH	RR-ML
CPEP	12"	17.17 LF	1.00%	110-CBMH	111-SDMH	RR-ML
CPEP	12"	33.72 LF	1.00%	112-CBMH	113-SDMH	RR-ML
CPEP	12"	33.04 LF	1.50%	118-CBMH	119-SDMH	RR-ML
CPEP	12"	49.91 LF	0.50%	122-CBMH	123-CBMH	RR-ML
CPEP	12"	10.62 LF	0.50%	123-CBMH	124-SDMH	RR-ML
CPEP	12"	25.76 LF	0.75%	129-CBMH	128-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	131-CBMH	130-CBMH	RR-ML
CPEP	12"	32.00 LF	0.50%	132-CBMH	135-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	134-CBMH	133-CBMH	RR-ML
CPEP	18"	51.15 LF	0.50%	136-SDMH	135-SDMH	RR-ML
CPEP	12"	45.27 LF	0.95%	137-CBMH	136-SDMH	RR-ML
CPEP	12"	46.45 LF	0.50%	138-CBMH	139-CBMH	RR-ML
CPEP	12"	20.59 LF	0.50%	139-CBMH	141-SDMH	RR-ML
CPEP	12"	38.24 LF	1.00%	140-CBMH	141-SDMH	RR-ML
CPEP	12"	33.28 LF	1.00%	144-CBMH	145-SDMH	RR-ML
CPEP	18"	76.45 LF	0.99%	146-CBMH	145-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	152-CBMH	151-CBMH	RR-ML
CPEP	12"	14.00 LF	1.00%	156-CBMH	155-SDMH	RR-ML
CPEP	18"	191.02 LF	0.64%	160-CBMH	136-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	1001-CBMH	1002-CBMH	RR-ML
CPEP	18"	202.85 LF	0.50%	1002-CBMH	145-SDMH	RR-ML

C-201
C-202
C-203
C-204
C-205
C-206
C-306
C-308

*REFERENCED DETAILS - COV

DETAIL NO.	DETAIL NAME
20-11	TRENCH BACKFILL
20-13	CLASS B AND C BEDDING
20-16	COMPACTION OF BACKFILL WITHIN RIGHT-OF-WAY
30-1	CURB AND GUTTER CROSS SECTIONS
40-1	RESURFACING DETAIL TYPICAL GRAVEL SECTION
40-2	RESURFACING DETAIL TYPICAL BITUMINOUS SURFACE TREATMENT
40-3	PAVEMENT CUT REPLACEMENT
50-5	MANHOLE HEIGHTS
55-3	STORM DRAIN MANHOLE TYPE I
55-5	STORM DRAIN MANHOLE TYPE III
55-7	MANHOLE STEP
55-8	MANHOLE STEP (ALTERNATE)
55-9	TOP INTAKE - USE WITH STANDARD GRADE RING
55-10	MANHOLE COVER
55-11	MANHOLE FRAME
55-12	MANHOLE HEIGHTS
55-13	PRECAST CATCH BASIN FOR TYPE 1 CURB AND GUTTER
60-8	HYDRANT GUARD POSTS
70-2	MANHOLE RING ADJUSTMENT
70-16	TYPICAL WATER AND SEWER LOCATIONS
70-22	SIGN PLACEMENT NO CURB OR SHOULDER
70-23	SIGN PLACEMENT SHOULDER WITHOUT CURB
70-24	SIGN PLACEMENT CURB WITHOUT SIDEWALK
70-25	SIGN PLACEMENT CURB WITH SIDEWALK AND PARKWAY
70-26	SIGN PLACEMENT CURB WITH SIDEWALK
70-27	SIGN PLACEMENT MEDIANS
70-31	CONCRETE FOUNDATION FOR SIGN POST
70-32	FIRE HYDRANT SIGN

*REFERENCED DETAILS - AKDOT&PF

DETAIL NO.	DETAIL NAME
C-3.30	TEMPORARY PEDESTRIAN ACCESS ROUTES
D-24.00	INLET FRAME AND GRATES

*REFERENCED DETAILS - MASS

DETAIL NO.	DETAIL NAME
80-13	DRIVEN PILE LUMINAIRE POLE FOUNDATION BREAKAWAY BASE
80-19	FLANGE-MOUNTED LUMINAIRE POLE
80-20	LUMINAIRE ARM DETAIL
80-21	CONCRETE FOUNDATION FOR FIXED BASE LUMINAIRE POLE
80-25	SIGNAL POLE NOTES

*REFERENCED DETAILS LIST IS NOT EXHAUSTIVE. ADDITIONAL DETAILS NOT LISTED MAY BE NEEDED.

TEMPORARY GRAVEL ACCESS ROAD

DESCRIPTION	UNIT	QUANTITY
IMPORTED TYPE II-A CLASSIFIED FILL	TON	4310
IMPORTED LEVELING COURSE	TON	1745
REMOVAL OF IMPORTED MATERIAL	CY	3090

*TABLE DISPLAYS QUANTITIES OF MATERIAL TO CONSTRUCT THE TEMPORARY GRAVEL ACCESS ROAD AND REMOVAL OF IMPORTED MATERIAL. WORK CAPTURED IN TABLE IS PAID FOR UNDER A LUMP SUM PAY ITEM. TOPSOIL AND SEED OF DISTURBED AREA WHEN ACCESS ROAD IS REMOVED IS CAPTURED UNDER RESPECTIVE TOPSOIL AND SEEDING PAY ITEMS

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
EXPIRES: 12/31/2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

C-110

PROPOSED STRUCTURES

NAME	DESCRIPTION
108-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH	NEW; HORSESHOE MANHOLE
110-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
112-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
116-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
118-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
120-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES
121-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
122-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
123-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
125-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES
126-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
129-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
132-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
136-SDMH	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)
138-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

C-201 — C-202 — C-203 — C-204

PROPOSED STRUCTURES

NAME	DESCRIPTION
141-SDMH	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
144-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
146-CBMH	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
148-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
151-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
154-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
156-CBMH	NEW; CATCH BASIN (COV 55-13)

C-204 — C-205 — C-206

PROPOSED STRUCTURES (ADD ALT 2)

NAME	DESCRIPTION
1001-CBMH	NEW; CATCH BASIN & TYPE II CURB INLET (COV 55-15) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)
1002-CBMH	NEW; TYPE I MH (55-3) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)

C-308

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
111-SDMH	EXISTING	RR-ML 136+44.80	40.65 L
113-SDMH	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 138+85.08	26.81 L
114-SDMH	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE	RR-ML 139+04.53	26.87 L
115-CBMH	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE	RR-ML 138+89.31	40.23 L
119-SDMH	EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 141+64.99	27.61 L
124-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 144+45.17	27.27 L
127-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 145+90.04	25.57 L
128-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 147+25.04	27.10 L
135-SDMH	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 150+04.71	26.98 L
145-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 155+64.61	27.55 L
149-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.53	27.25 L
150-CBMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.28	40.16 L
155-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 161+06.03	27.01 L

C-201 — C-202 — C-203 — C-204 — C-205 — C-206

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
254-SSMH	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE	RR-ML 136+50.51	22.47 L
255-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 139+32.98	38.53 L
256-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 142+12.10	38.31 L
257-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 144+92.28	38.02 L
258-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 147+71.78	38.00 L
259-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 150+52.20	38.36 L
260-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 153+31.22	37.72 L
261-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 156+10.90	37.45 L
262-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 158+91.35	36.23 L

C-201 — C-202 — C-203 — C-204 — C-205 — C-206

EXISTING WATER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET	
WV-120	CLEAN VALVE BOX AND INSPECT GATE VALVE	RR-ML 148+61.78	1.06 L	C-203
WV-124	REPLACE TOP SECTION	RR-ML 155+76.51	31.45 R	C-205

*EXISTING STRUCTURES TABLES HIGHLIGHT STRUCTURES LOCATED WITHIN DISTURBED AREAS AS WELL AS STRUCTURES REQUIRING MAINTENANCE. SEE SHEETS C-201 THROUGH C-206 FOR ADDITIONAL INFORMATION. OTHER STRUCTURES WITHIN WORK LIMITS MAY STILL REQUIRE ADJUSTMENTS, SEE GENERAL NOTE 7 ON SHEET G-002.

CCTV OF SEWER

START STRUCTURE	START STATION	END STRUCTURE	END STATION	LENGTH	
258-SSMH	147+71.78	259-SSMH	150+52.20	280	C-203 TO C-204

CLEANING OF STORM

START STRUCTURE	START STATION	END STRUCTURE	END STATION	LENGTH	
124-SDMH	144+45.17	127-SDMH	145+90.04	145	C-202 TO C-203
127-SDMH	145+90.04	128-SDMH	147+25.04	135	C-203
128-SDMH	147+25.04	135-SDMH	150+04.71	280	C-203 TO C-204

REMOVED STRUCTURES

STATION	OFFSET
BR 259+72.14	18.58 L
BR 259+72.31	17.79 R
RR-ML 136+45.39	20.61 L
RR-ML 138+60.40	21.40 L
RR-ML 138+84.52	49.32 R
RR-ML 139+27.00	49.17 R
RR-ML 141+55.31	16.42 L
RR-ML 141+64.40	49.27 R
RR-ML 142+07.01	49.33 R
RR-ML 144+14.98	19.32 R
RR-ML 144+33.93	16.63 L
RR-ML 144+44.08	49.92 R
RR-ML 144+86.73	50.04 R
RR-ML 146+99.92	16.42 L
RR-ML 147+24.17	49.86 R
RR-ML 147+67.04	50.25 R
RR-ML 149+85.20	16.42 L
RR-ML 149+99.88	77.94 L
RR-ML 150+04.13	50.41 R
RR-ML 150+45.83	50.72 R
RR-ML 152+54.36	19.63 R
RR-ML 152+65.76	16.26 L
RR-ML 152+83.95	50.67 R
RR-ML 152+84.96	26.91 L
RR-ML 153+25.96	50.55 R

C-308 — C-201 — C-202 — C-203 — C-204

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 155+48.64	21.35 L
RR-ML 155+63.82	50.83 R
RR-ML 156+06.10	51.03 R
RR-ML 158+43.76	50.49 R
RR-ML 158+44.68	21.21 L
RR-ML 158+85.59	50.71 R
RR-ML 160+96.85	20.13 R
RR-ML 161+06.23	32.30 L
RR-ML 161+06.45	24.07 R
RR-ML 161+06.47	21.12 L

C-205 — C-206

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

REVISIONS

STATE OF ALASKA
NICHOLAS M. CONWAY
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REGISTERED PROFESSIONAL ENGINEER
Feb. 18, 2026

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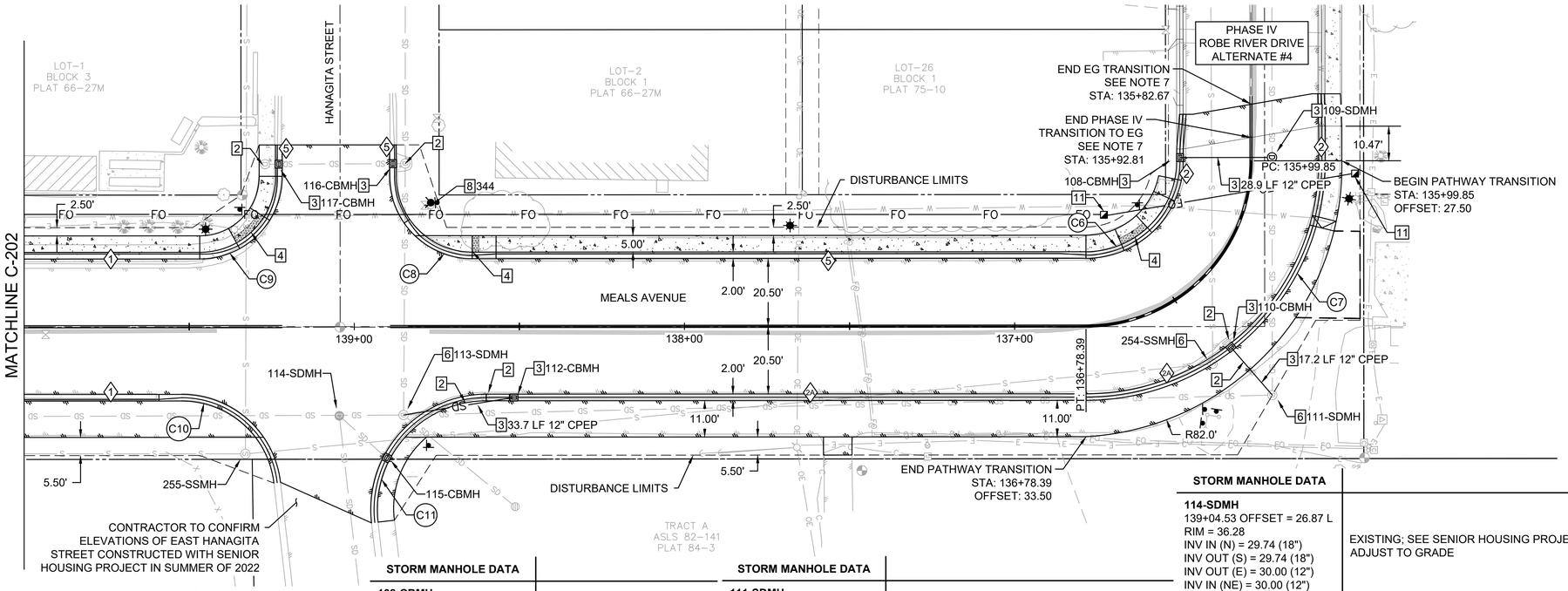
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

C-111

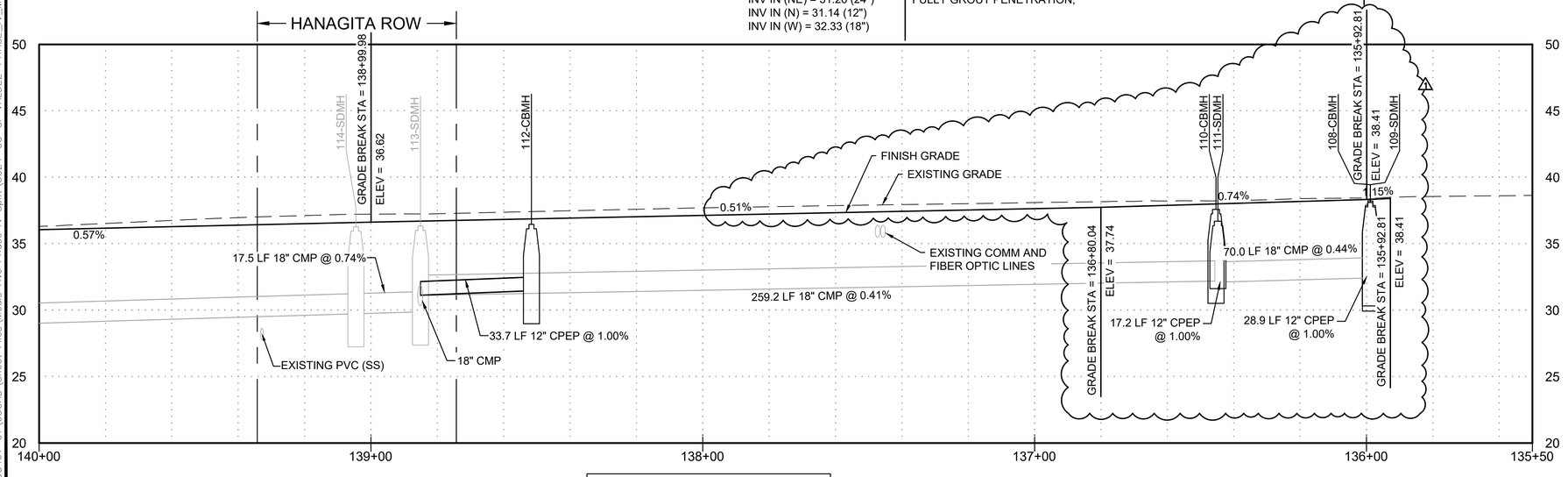


SANITARY MANHOLE DATA	
254-SSMH 136+50.51 OFFSET = 22.47 L RIM = 37.54 INV IN (W) = 29.56 (10") INV OUT (S) = 29.45 (10")	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE
255-SSMH 139+32.98 OFFSET = 38.53 L RIM = 36.51 INV IN (N) = 27.35 (10") INV OUT (S) = 27.24 (12") INV IN (W) = 27.44 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
108-CBMH 135+98.85 OFFSET = 22.50 R RIM = 38.10 INV OUT (N) = 32.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH 135+98.83 OFFSET = 6.37 L RIM = 38.22 INV IN (S) = 32.53 (12") INV IN (W) = 32.45 (18") INV OUT (E) = 32.43 (18")	NEW; HORSESHOE MANHOLE
110-CBMH 136+45.36 OFFSET = 21.50 L RIM = 37.58 INV OUT (NE) = 33.01 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
111-SDMH 136+44.80 OFFSET = 40.65 L RIM = 37.63 INV IN (W) = 32.12 (18") INV OUT (S) = 32.20 (18") INV IN (SW) = 32.84 (12")	EXISTING
112-CBMH 138+51.64 OFFSET = 22.50 L RIM = 36.46 INV OUT (S) = 31.48 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
113-SDMH 138+85.08 OFFSET = 26.81 L RIM = 36.33 INV IN (N) = 31.13 (18") INV OUT (S) = 29.87 (18") INV IN (NE) = 31.26 (24") INV IN (N) = 31.14 (12") INV IN (W) = 32.33 (18")	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
114-SDMH 139+04.53 OFFSET = 26.87 L RIM = 36.28 INV IN (N) = 29.74 (18") INV OUT (S) = 29.74 (18") INV OUT (E) = 30.00 (12") INV IN (NE) = 30.00 (12")	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE
115-CBMH 138+89.31 OFFSET = 40.23 L RIM = 36.52 INV OUT (SW) = 30.20 (12")	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE
116-CBMH 138+87.27 OFFSET = 49.31 R RIM = 36.74 INV IN (S) = 32.60 (18") INV IN (W) = 32.83 (18") INV OUT (E) = 32.34 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH 139+23.77 OFFSET = 49.18 R RIM = 36.88 INV OUT (N) = 32.94 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE



STATIONING RIGHT TO LEFT

GENERAL NOTES

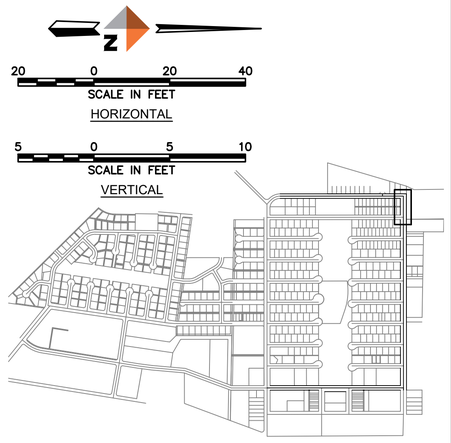
1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. IF ALTERNATE #4 IS SELECTED, SEE "PHASE IV-ROBE RIVER DRIVE-ALTERNATE 4" PLANSET UNDER SEPARATE COVER. TRANSITION TO EG NOT REQUIRED IF ALERNATE IS SELECTED.
8. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO CONTRACTOR.

KEY NOTES

1 CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2 REMOVE UTILITY STRUCTURE OR PIPE
3 INSTALL NEW UTILITY STRUCTURE
4 CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5 CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6 REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7 ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10 FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11 FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
4/9/26
NICHOLAS M. CONWAY
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EXP. 12-31-26
REGISTERED PROFESSIONAL ENGINEER

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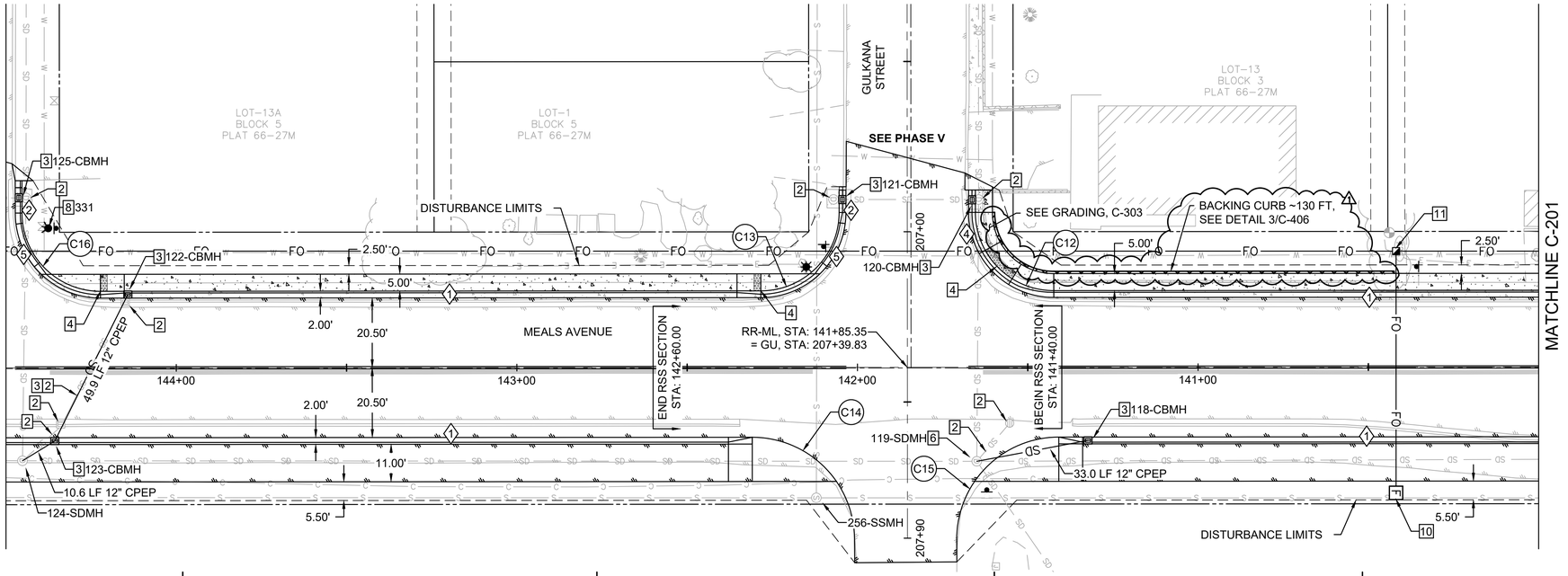
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

C-201

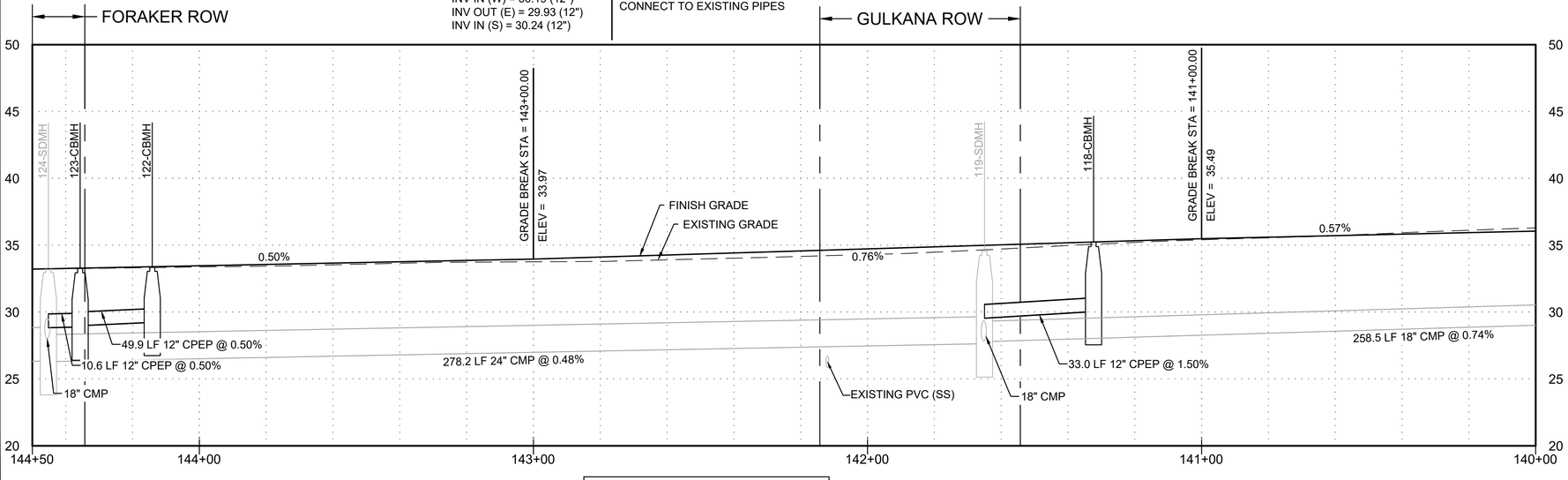


SANITARY MANHOLE DATA	
256-SSMH 142+12.10 OFFSET = 38.31 L RIM = 34.34 INV IN (N) = 25.24 (12") INV OUT (S) = 25.15 (12") INV IN (W) = 25.31 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
118-CBMH 141+32.34 OFFSET = 22.50 L RIM = 35.23 INV OUT (S) = 30.06 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
119-SDMH 141+64.99 OFFSET = 27.61 L RIM = 34.57 INV IN (N) = 27.82 (18") INV OUT (S) = 27.64 (24") INV IN (W) = 29.35 (12") INV IN (NE) = 28.36 (24") INV IN (NW) = 29.56 (12")	EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
120-CBMH 141+65.35 OFFSET = 49.20 R RIM = 33.86 INV IN (W) = 30.19 (12") INV OUT (E) = 29.93 (12") INV IN (S) = 30.24 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES

STORM MANHOLE DATA	
121-CBMH 142+05.35 OFFSET = 49.30 R RIM = 34.06 INV OUT (N) = 30.59 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
122-CBMH 144+14.09 OFFSET = 22.50 R RIM = 33.38 INV OUT (SE) = 29.25 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
123-CBMH 144+35.68 OFFSET = 22.50 L RIM = 33.28 INV OUT (SE) = 28.90 (12") INV IN (NW) = 29.00 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402

STORM MANHOLE DATA	
124-SDMH 144+45.17 OFFSET = 27.27 L RIM = 33.30 INV IN (W) = 27.99 (18") INV IN (NW) = 28.85 (12") INV IN (N) = 26.31 (24") INV OUT (S) = 26.35 (30")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
125-CBMH 144+45.25 OFFSET = 50.00 R RIM = 32.61 INV IN (W) = 28.84 (12") INV OUT (E) = 28.69 (18") INV IN (S) = 28.83 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

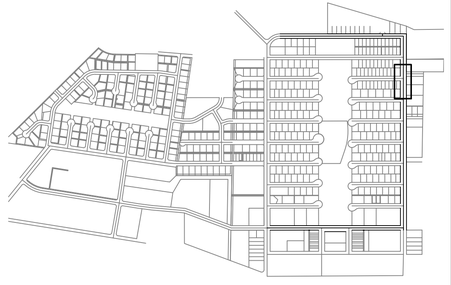
KEY NOTES

1 CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2 REMOVE UTILITY STRUCTURE OR PIPE
3 INSTALL NEW UTILITY STRUCTURE
4 CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5 CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6 REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7 ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10 FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11 FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13293
EXP. 12/31/2026
REGISTERED PROFESSIONAL ENGINEER

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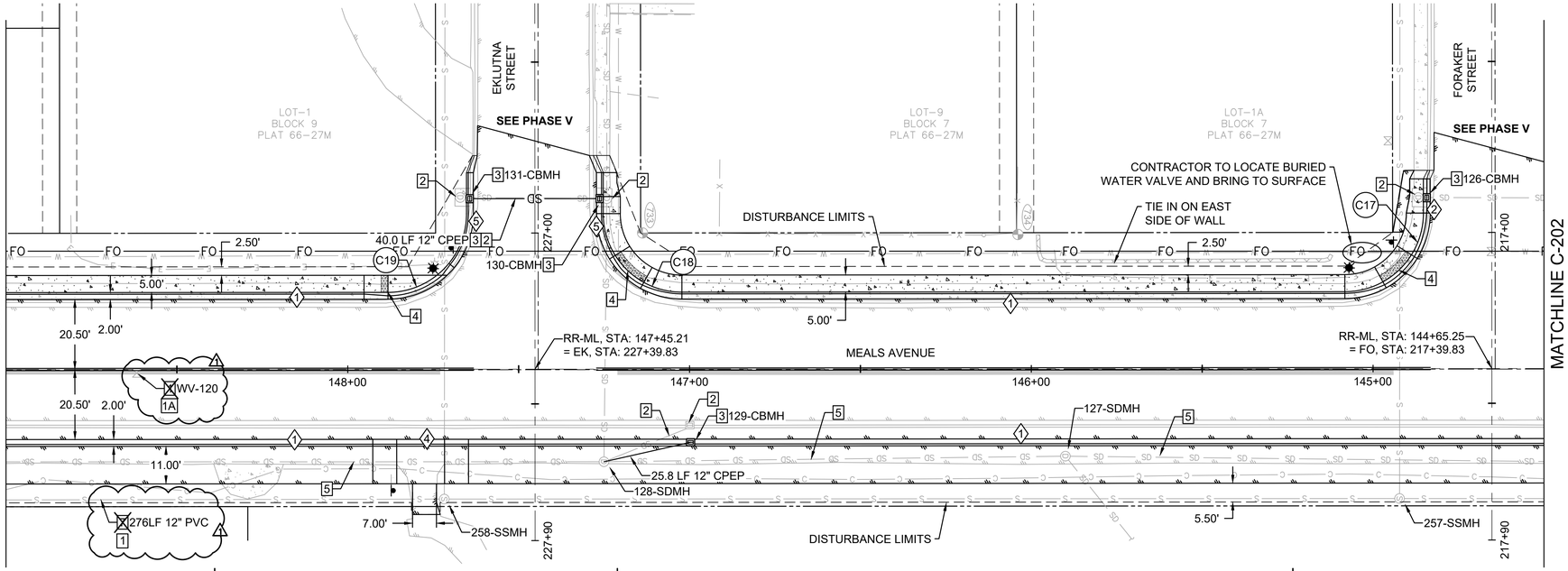
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/28/2026

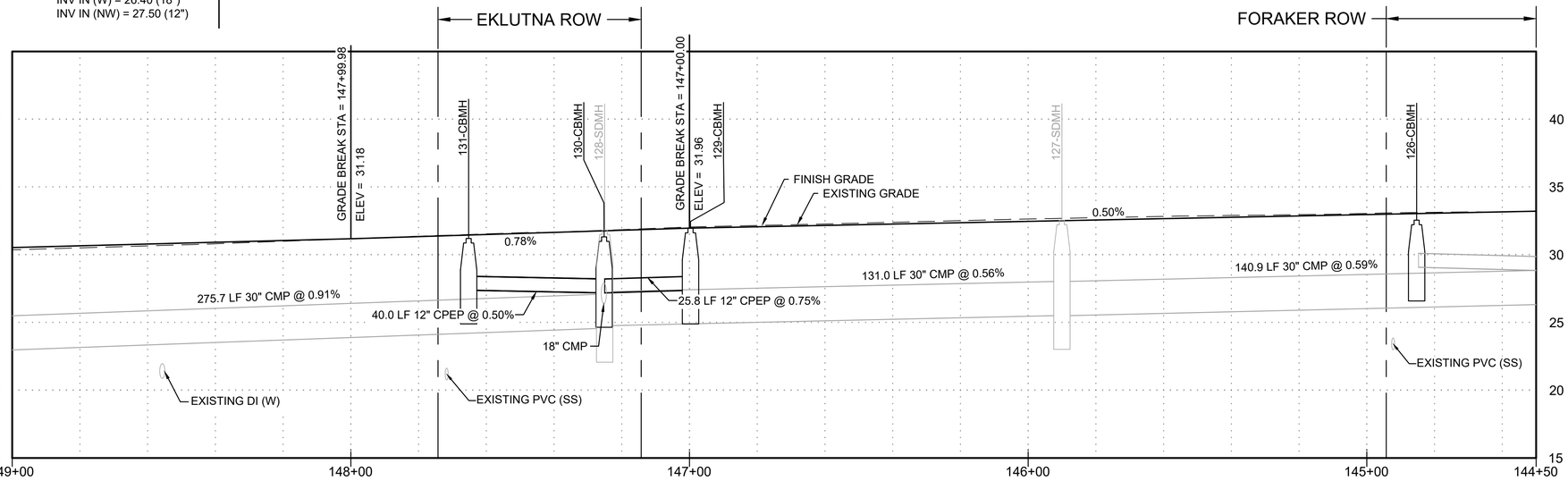
C-202



STORM MANHOLE DATA	
126-CBMH 144+85.28 OFFSET = 50.00 R RIM = 32.55 INV OUT (N) = 29.09 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
127-SDMH 145+90.04 OFFSET = 25.57 L RIM = 32.55 INV IN (N) = 25.52 (30") INV OUT (S) = 25.52 (30") INV IN (NE) = 26.02 (24")	EXISTING; ADJUST TO GRADE
128-SDMH 147+25.04 OFFSET = 27.10 L RIM = 31.83 INV IN (N) = 24.78 (30") INV OUT (S) = 24.57 (30") INV IN (W) = 26.40 (18") INV IN (NW) = 27.50 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
129-CBMH 146+99.70 OFFSET = 22.50 L RIM = 31.96 INV OUT (S) = 27.39 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH 147+25.21 OFFSET = 49.90 R RIM = 31.32 INV IN (S) = 27.20 (12") INV OUT (E) = 27.15 (18") INV IN (W) = 27.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH 147+65.21 OFFSET = 49.90 R RIM = 31.20 INV OUT (N) = 27.40 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
257-SSMH 144+92.28 OFFSET = 38.02 L RIM = 32.82 INV IN (N) = 22.97 (12") INV OUT (S) = 22.97 (12") INV IN (W) = 22.23 (10")	EXISTING; ADJUST TO GRADE
258-SSMH 147+71.78 OFFSET = 38.00 L RIM = 31.70 INV IN (N) = 19.67 (12") INV OUT (S) = 19.61 (12") INV IN (W) = 19.91 (10")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

KEY NOTES

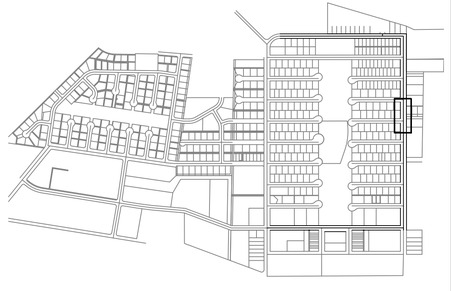
1 CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2 REMOVE UTILITY STRUCTURE OR PIPE
3 INSTALL NEW UTILITY STRUCTURE
4 CURB RAMP; SEE GRADING SHEETS. DETAILS ON C-401
5 CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6 REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7 ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10 FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11 FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2.5	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
HORIZONTAL
20 0 20 40

SCALE IN FEET
VERTICAL
5 0 5 10



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
4 9TH
NICHOLAS M. CONWAY
CE 13293
EXP. 12-31-26
REGISTERED PROFESSIONAL ENGINEER

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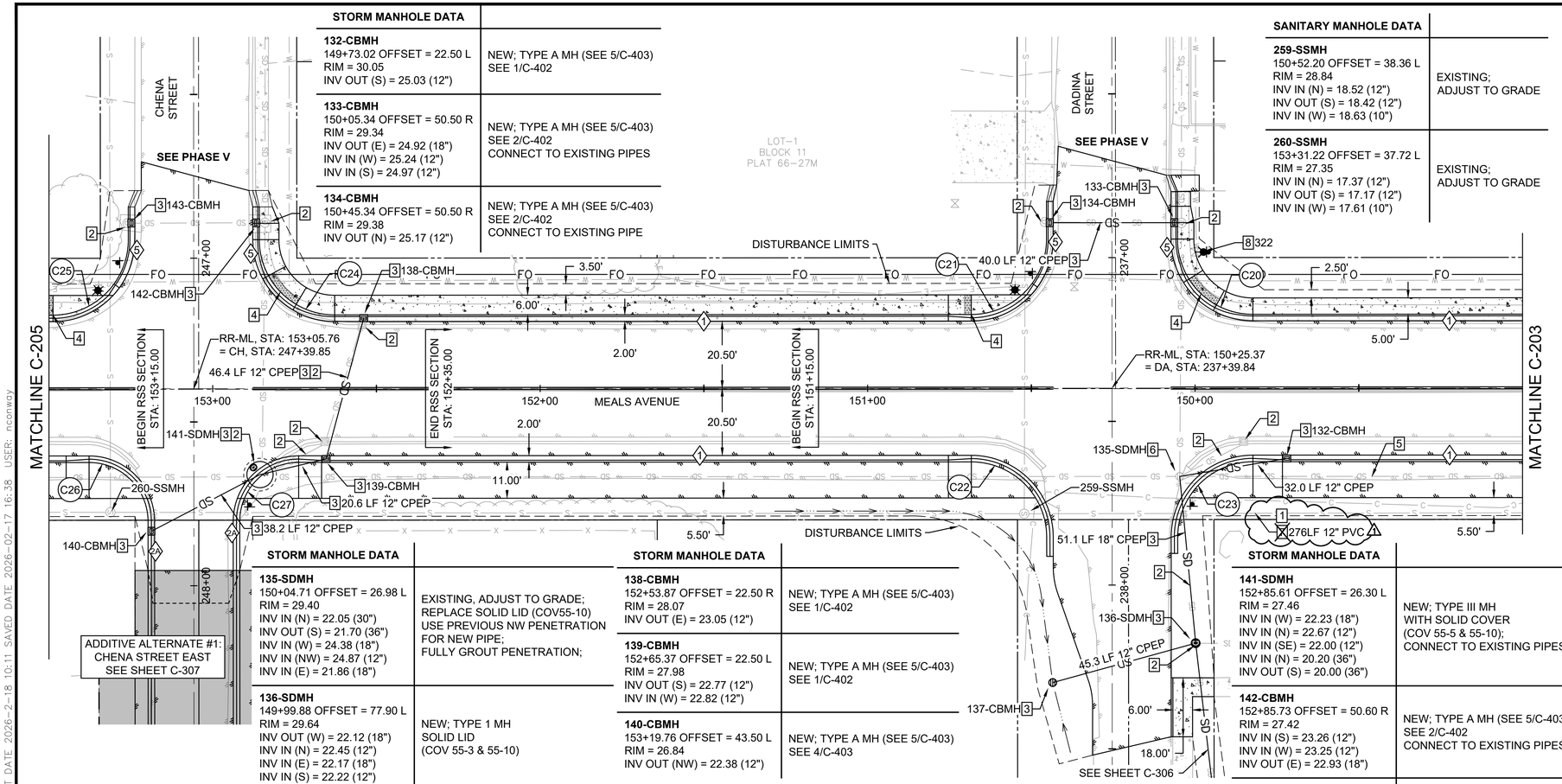
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/28/2026

C-203



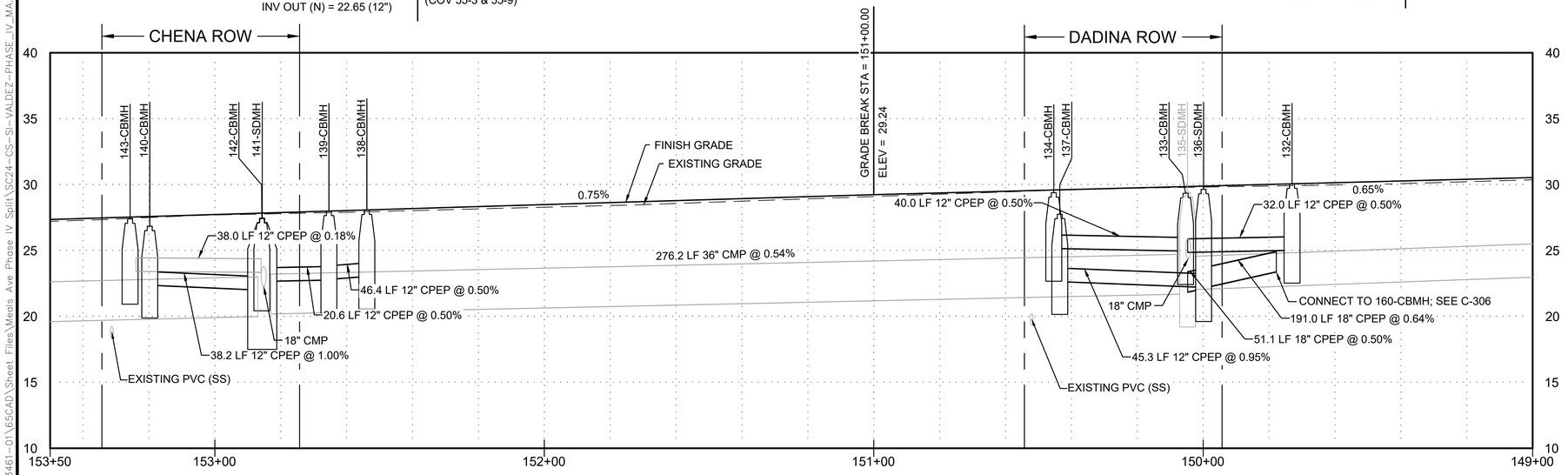
STORM MANHOLE DATA	
132-CBMH 149+73.02 OFFSET = 22.50 L RIM = 30.05 INV OUT (S) = 25.03 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH 150+05.34 OFFSET = 50.50 R RIM = 29.34 INV OUT (E) = 24.92 (18") INV IN (W) = 25.24 (12") INV IN (S) = 24.97 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH 150+45.34 OFFSET = 50.50 R RIM = 29.38 INV OUT (N) = 25.17 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
259-SSMH 150+52.20 OFFSET = 38.36 L RIM = 28.84 INV IN (N) = 18.52 (12") INV OUT (S) = 18.42 (12") INV IN (W) = 18.63 (10")	EXISTING; ADJUST TO GRADE
260-SSMH 153+31.22 OFFSET = 37.72 L RIM = 27.35 INV IN (N) = 17.37 (12") INV OUT (S) = 17.17 (12") INV IN (W) = 17.61 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
135-SDMH 150+04.71 OFFSET = 26.98 L RIM = 29.40 INV IN (N) = 22.05 (30") INV OUT (S) = 21.70 (36") INV IN (W) = 24.38 (18") INV IN (NW) = 24.87 (12") INV IN (E) = 21.86 (18")	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
136-SDMH 149+99.88 OFFSET = 77.90 L RIM = 29.64 INV OUT (W) = 22.12 (18") INV IN (N) = 22.45 (12") INV IN (E) = 22.17 (18") INV IN (S) = 22.22 (12")	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH 150+43.53 OFFSET = 89.90 L RIM = 27.75 INV OUT (N) = 22.65 (12")	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)

STORM MANHOLE DATA	
138-CBMH 152+53.87 OFFSET = 22.50 R RIM = 28.07 INV OUT (E) = 23.05 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH 152+65.37 OFFSET = 22.50 L RIM = 27.98 INV OUT (S) = 22.77 (12") INV IN (W) = 22.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH 153+19.76 OFFSET = 43.50 L RIM = 26.84 INV OUT (NW) = 22.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
141-SDMH 152+85.61 OFFSET = 26.30 L RIM = 27.46 INV IN (W) = 22.23 (18") INV IN (N) = 22.67 (12") INV IN (SE) = 22.00 (12") INV IN (N) = 20.20 (36") INV OUT (S) = 20.00 (36")	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH 152+85.73 OFFSET = 50.60 R RIM = 27.42 INV IN (S) = 23.26 (12") INV IN (W) = 23.25 (12") INV OUT (E) = 22.93 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH 153+25.73 OFFSET = 50.60 R RIM = 27.40 INV OUT (N) = 23.43 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

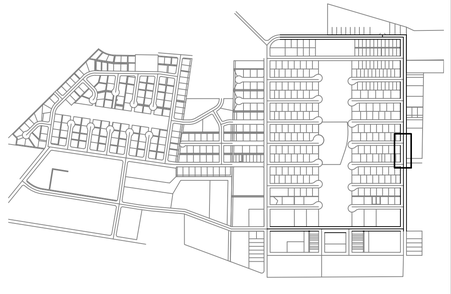
KEY NOTES

1 CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2 REMOVE UTILITY STRUCTURE OR PIPE
3 INSTALL NEW UTILITY STRUCTURE
4 CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5 CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6 REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7 ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9 REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10 FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11 FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
HORIZONTAL
20 0 20 40
SCALE IN FEET
VERTICAL
5 0 5 10



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13293
Exp. 12-31-2026
REGISTERED PROFESSIONAL ENGINEER

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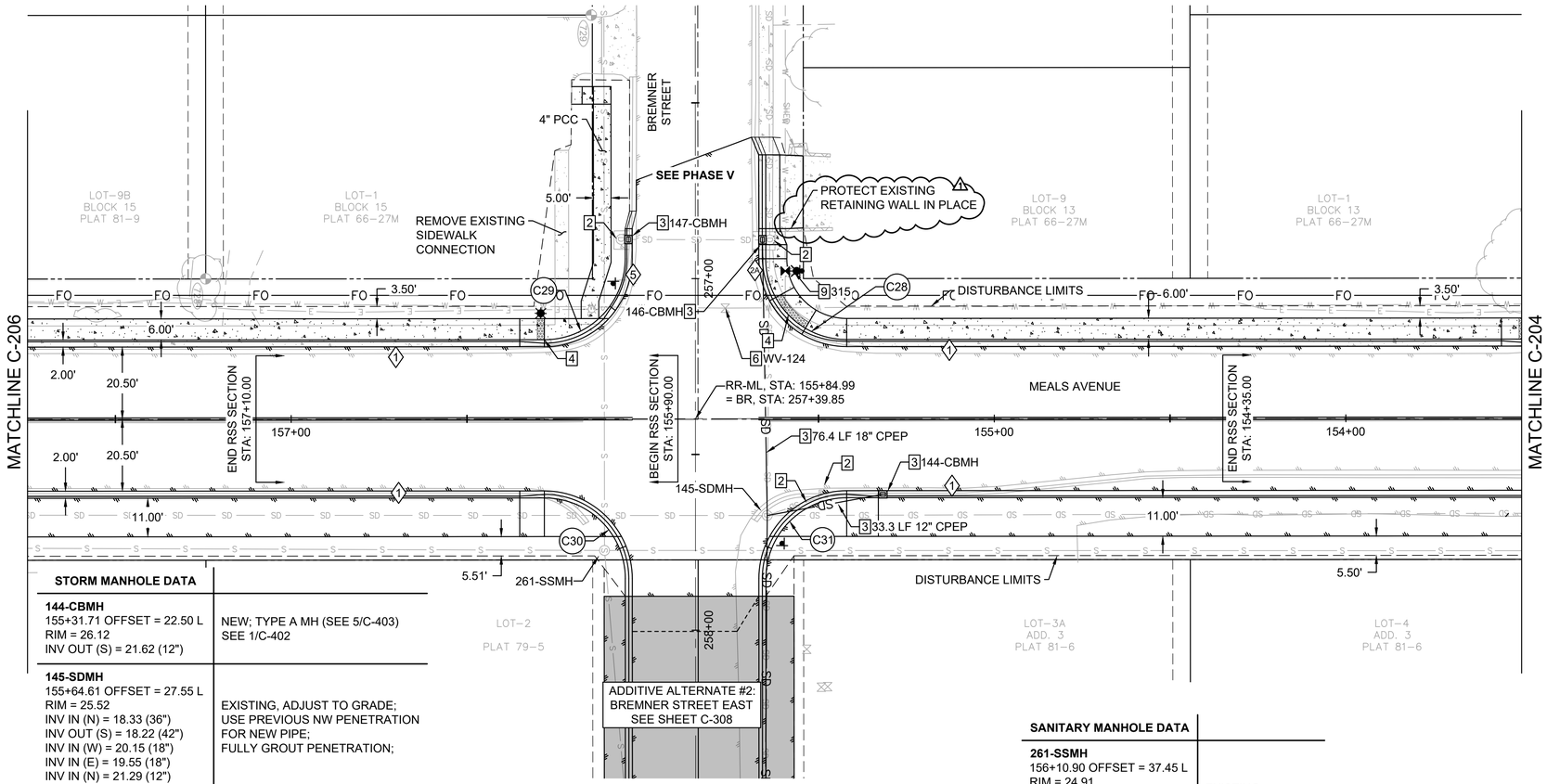
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

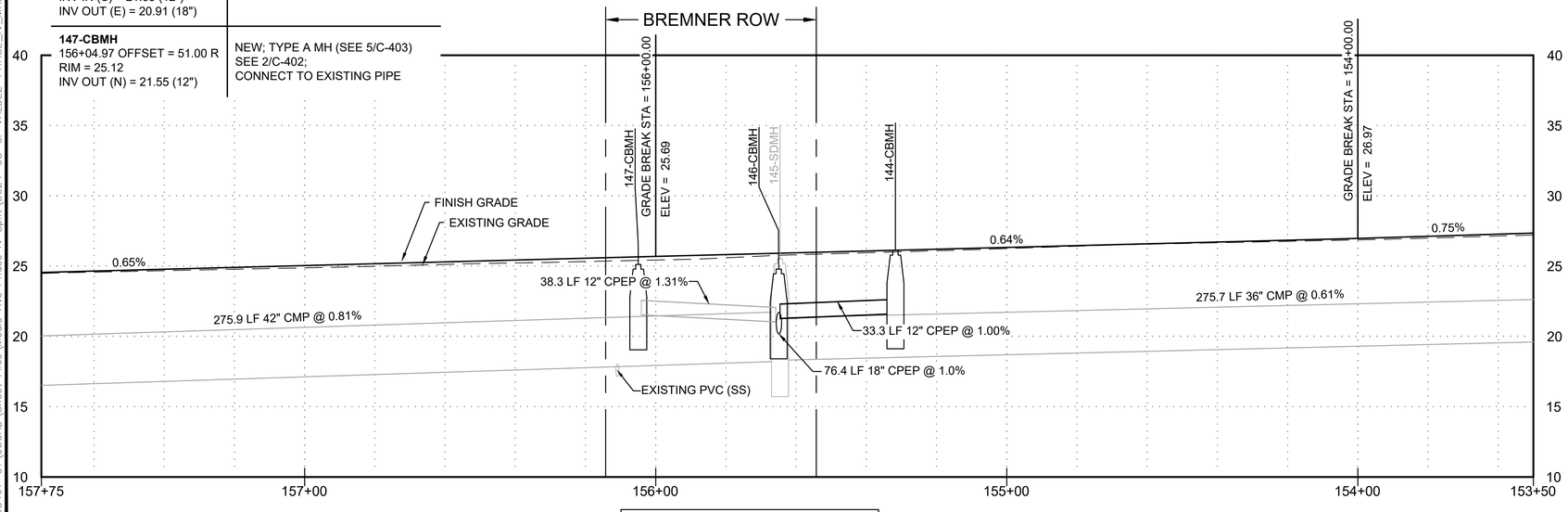
PROJECT 63461.01
DATE 01/28/2026

C-204



STORM MANHOLE DATA	
144-CBMH 155+31.71 OFFSET = 22.50 L RIM = 26.12 INV OUT (S) = 21.62 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
145-SDMH 155+64.61 OFFSET = 27.55 L RIM = 25.52 INV IN (N) = 18.33 (36") INV OUT (S) = 18.22 (42") INV IN (W) = 20.15 (18") INV IN (E) = 19.55 (18") INV IN (N) = 21.29 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
146-CBMH 155+64.97 OFFSET = 50.90 R RIM = 24.79 INV IN (W) = 21.05 (12") INV IN (S) = 21.05 (12") INV OUT (E) = 20.91 (18")	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH 156+04.97 OFFSET = 51.00 R RIM = 25.12 INV OUT (N) = 21.55 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
261-SSMH 156+10.90 OFFSET = 37.45 L RIM = 24.91 INV IN (N) = 16.10 (12") INV OUT (S) = 15.98 (12") INV IN (W) = 16.62 (10") INV IN (E) = 16.61 (6")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
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KEY NOTES

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1A CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
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CURB TABLE

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1	STANDING CURB & GUTTER
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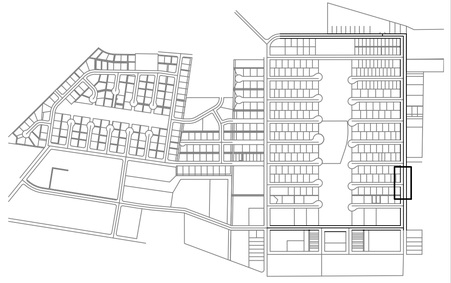
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
HORIZONTAL
20 0 20 40

SCALE IN FEET
VERTICAL
5 0 5 10



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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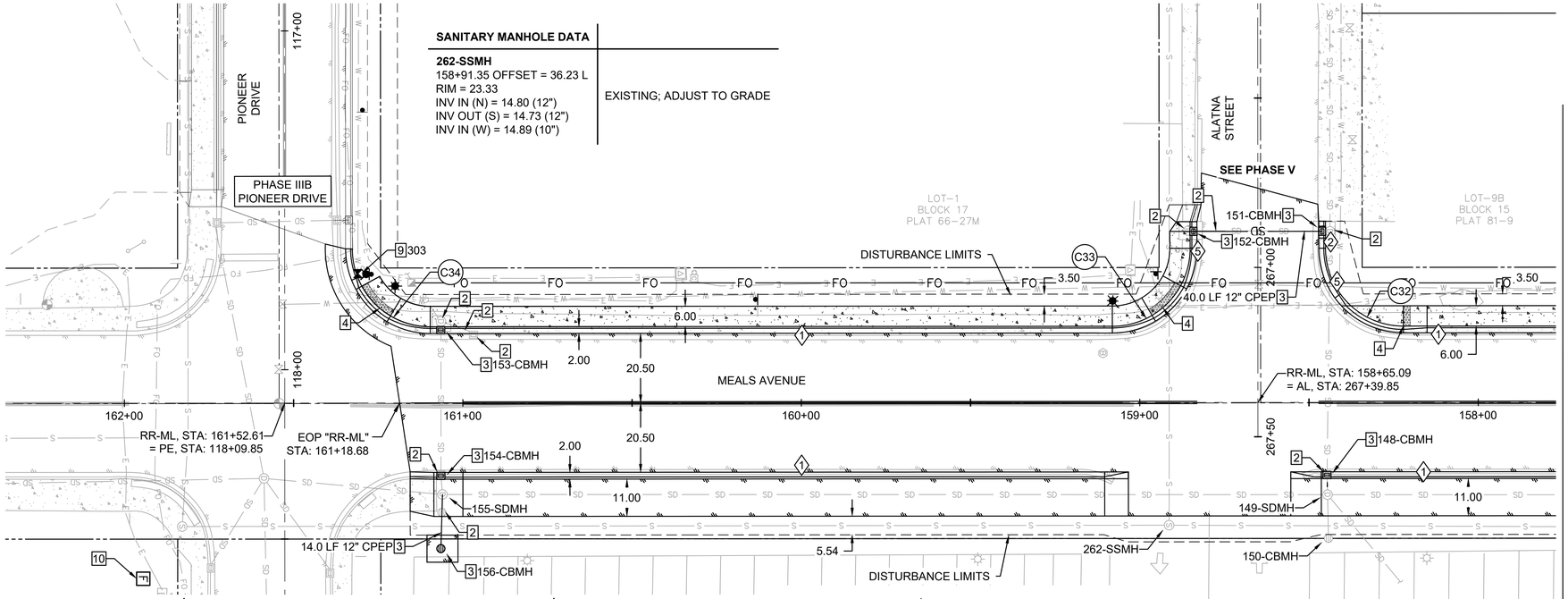
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

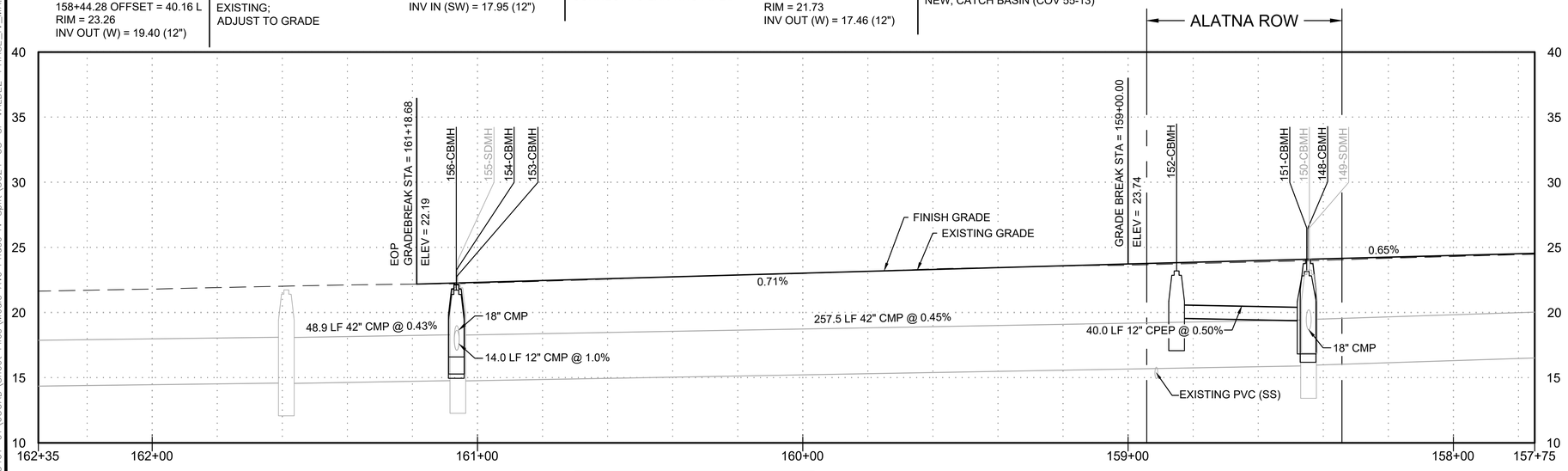
C-205



STORM MANHOLE DATA	
148-CBMH 158+44.69 OFFSET = 22.50 L RIM = 24.09 INV IN (W) = 18.75 (18") INV OUT (E) = 18.69 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
149-SDMH 158+44.53 OFFSET = 27.25 L RIM = 24.15 INV IN (N) = 15.98 (42") INV OUT (S) = 15.92 (42") INV IN (W) = 18.60 (18") INV IN (NE) = 17.09 (12") INV IN (E) = 19.24 (12")	EXISTING; ADJUST TO GRADE
150-CBMH 158+44.28 OFFSET = 40.16 L RIM = 23.26 INV OUT (W) = 19.40 (12")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
151-CBMH 158+45.09 OFFSET = 50.50 R RIM = 23.16 INV IN (W) = 19.55 (18") INV OUT (E) = 19.33 (18") INV IN (S) = 19.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH 158+85.09 OFFSET = 50.50 R RIM = 23.20 INV OUT (N) = 19.58 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH 161+06.45 OFFSET = 22.50 R RIM = 22.13 INV OUT (E) = 17.79 (18") INV IN (SW) = 17.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES

STORM MANHOLE DATA	
154-CBMH 161+06.51 OFFSET = 22.50 L RIM = 22.17 INV IN (W) = 17.20 (18") INV OUT (E) = 17.10 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
155-SDMH 161+06.03 OFFSET = 27.01 L RIM = 22.24 INV IN (N) = 14.77 (42") INV OUT (S) = 14.79 (42") INV IN (E) = 17.32 (12") INV IN (W) = 16.94 (18")	EXISTING; ADJUST TO GRADE
156-CBMH 161+06.51 OFFSET = 43.00 L RIM = 21.73 INV OUT (W) = 17.46 (12")	NEW; CATCH BASIN (COV 55-13)



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

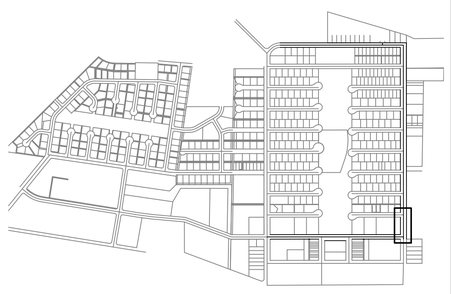
KEY NOTES

1. CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A. CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
HORIZONTAL
20 0 20 40

SCALE IN FEET
VERTICAL
5 0 5 10



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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EXP. 12/31/26
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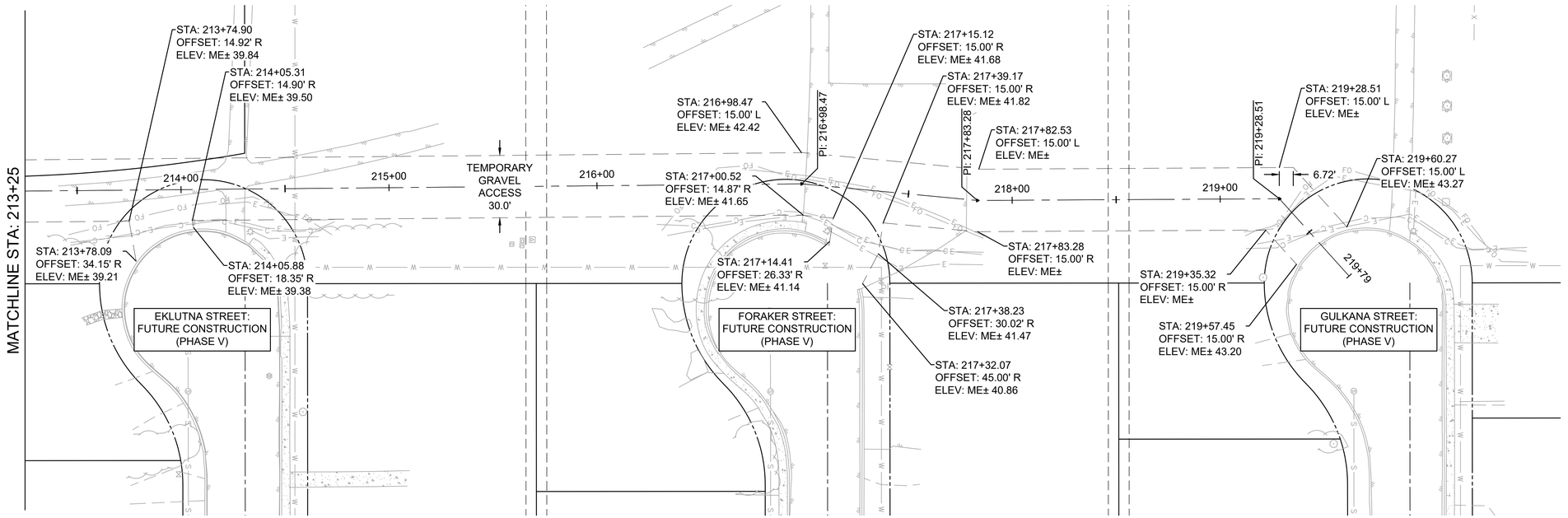
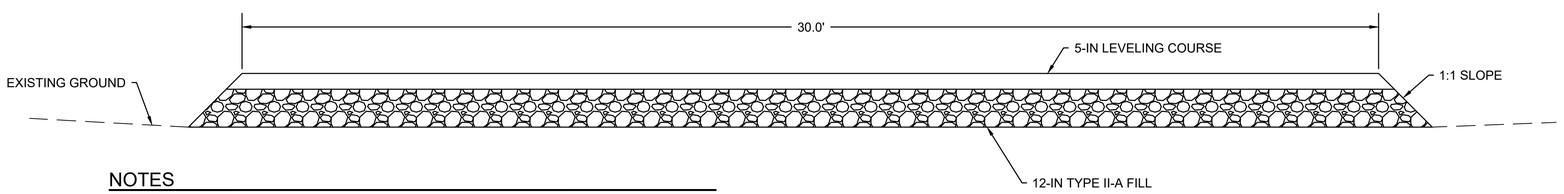
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/28/2026

C-206

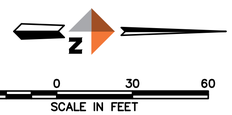


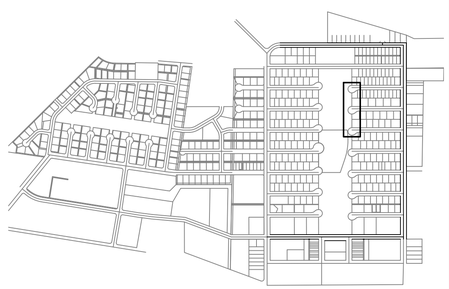


NOTES

1. ALL LAYERS ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR.
2. TEMPORARY ACCESS WILL BE REMOVED UPON COMPLETION OF VALDEZ PAVEMENT REHABILITATION PHASE IV MEALS AVENUE.
3. AFTER REMOVAL OF TEMPORARY ACCESS, DISTURBED AREAS SHALL BE REGRADED. AREA TO BE STABILIZED WITH 2" TOPSOIL AND SEED.

TEMPORARY ACCESS ROAD SECTION





KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

TEMPORARY GRAVEL ACCESS

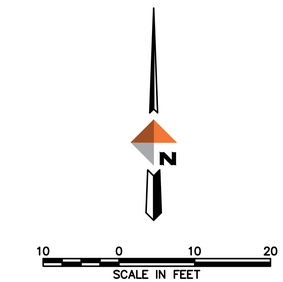
VALDEZ, ALASKA

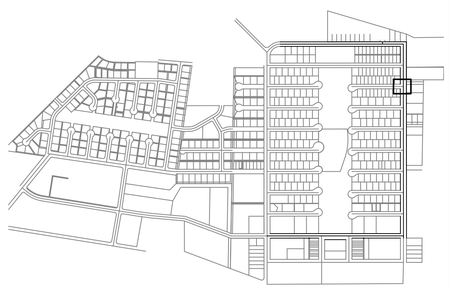
PROJECT	63461.01
DATE	01/28/2026

C-211

STA "RR-ML" 141+42.35
OFFSET: 27.50' R
TBC EL 35.24
STA "RR-ML" 141+54.56
OFFSET: 26.01' R
TBC EL 34.55
STA "RR-ML" 141+51.91
OFFSET: 30.25' R
TBC EL 34.61
STA "RR-ML" 141+62.47
OFFSET: 34.37' R
TBC EL 34.42
STA "RR-ML" 141+58.10
OFFSET: 36.79' R
TBC EL 34.47
STA "RR-ML" 141+60.35
OFFSET: 45.50' R
TBC EL 34.06
STA "RR-ML" 141+65.35
OFFSET: 52.07' R
TBC EL 33.88
STA "RR-ML" 141+68.39
OFFSET: 57.07' R
ME EL ±33.88
STA "RR-ML" 141+65.35
OFFSET: 45.50' R
TBC EL 33.98
STA "RR-ML" 141+42.35
OFFSET: 22.50' R
TBC EL 35.16
SEE GRADING, DOES NOT RAMP UP PER TYPICAL DETAIL
STA "RR-ML" 141+33.90
OFFSET: 22.50' L
TBC EL 35.22
STA "RR-ML" 141+33.90
OFFSET: 33.50' L
TP EL 35.39
STA "RR-ML" 141+40.90
OFFSET: 33.50' L
TP EL 34.95
STA "RR-ML" 141+40.90
OFFSET: 20.50' L
TP EL 34.77
STA "RR-ML" 141+65.62
OFFSET: 33.50' L
TP EL 34.55
STA "RR-ML" 141+70.90
OFFSET: 50.72' L
TP EL 34.66
STA "RR-ML" 141+70.85
OFFSET: 57.15' L
ME EL ±34.70
STA "RR-ML" 141+85.35
OFFSET: 57.26' L
ME EL ±34.68
STA "RR-ML" 141+85.35
OFFSET: 20.50' R
TP EL 34.43
STA "RR-ML" 142+00.85
OFFSET: 57.37' L
ME EL ±34.57
STA "RR-ML" 142+00.91
OFFSET: 50.28' L
TP EL 34.52
STA "RR-ML" 142+06.19
OFFSET: 33.50' L
TP EL 34.36
STA "RR-ML" 142+30.91
OFFSET: 33.50' L
TP EL 34.25
STA "RR-ML" 142+37.91
OFFSET: 33.50' L
TP EL 34.59
STA "RR-ML" 142+37.91
OFFSET: 22.50' L
TBC EL 34.43
STA "RR-ML" 142+30.91
OFFSET: 20.50' L
TP EL 34.07
STA "RR-ML" 142+28.35
OFFSET: 22.50' R
TBC EL 34.12
STA "RR-ML" 142+35.35
OFFSET: 22.50' R
TBC EL 34.45
STA "RR-ML" 142+03.24
OFFSET: 66.40' R
ME EL ±34.12
STA "RR-ML" 142+03.29
OFFSET: 57.07' R
ME EL ±34.01
STA "RR-ML" 142+05.35
OFFSET: 52.07' R
TBC EL 34.10
STA "RR-ML" 142+05.35
OFFSET: 49.35' R
TBC EL 34.06
STA "RR-ML" 142+05.35
OFFSET: 45.50' R
TBC EL 34.08
STA "RR-ML" 142+10.52
OFFSET: 30.97' R
TBC EL 34.50
STA "RR-ML" 142+14.03
OFFSET: 27.50' R
TBC EL 34.03
STA "RR-ML" 142+28.35
OFFSET: 27.50' R
SW EL 34.17
STA "RR-ML" 142+35.35
OFFSET: 27.50' R
SW EL 34.53

GULKANA STREET
MEALS AVENUE
141+00
142+00
1007
1008
2.00%
0.65%
1.76%
2.01%
1.75%
0.52%
0.50%
1.64%
3.53%
0.75%
0.55%
0.65%
0.90%
1.00%





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
3	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
4 9TH
NICHOLAS M. CONWAY
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EXP. 12.31.2026
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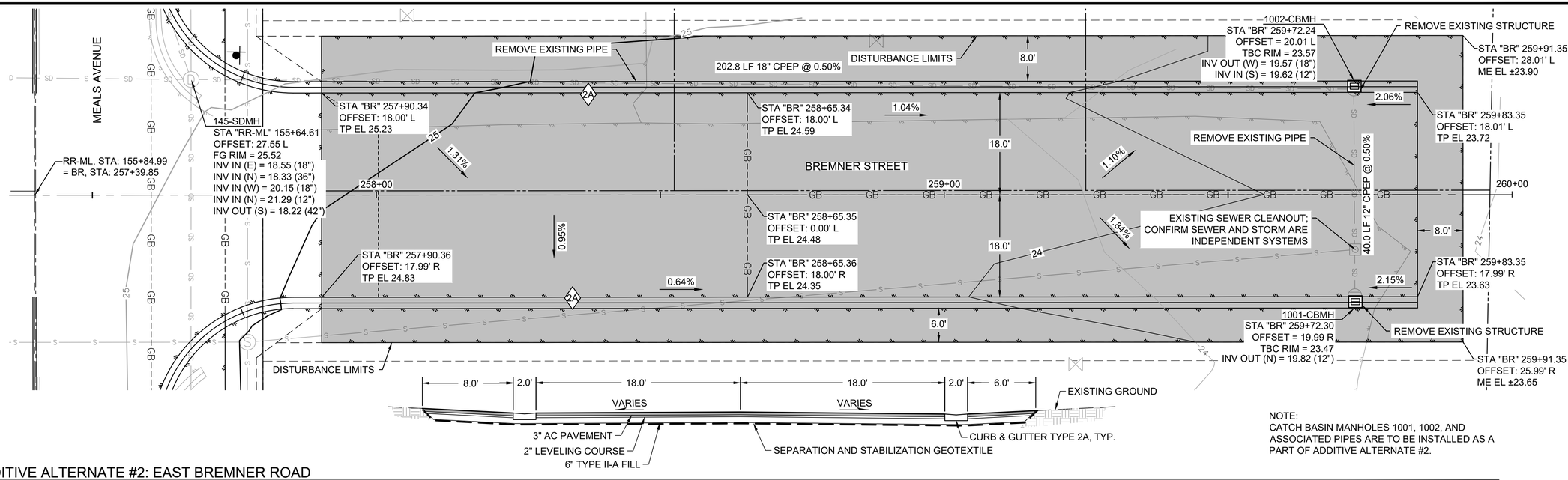
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

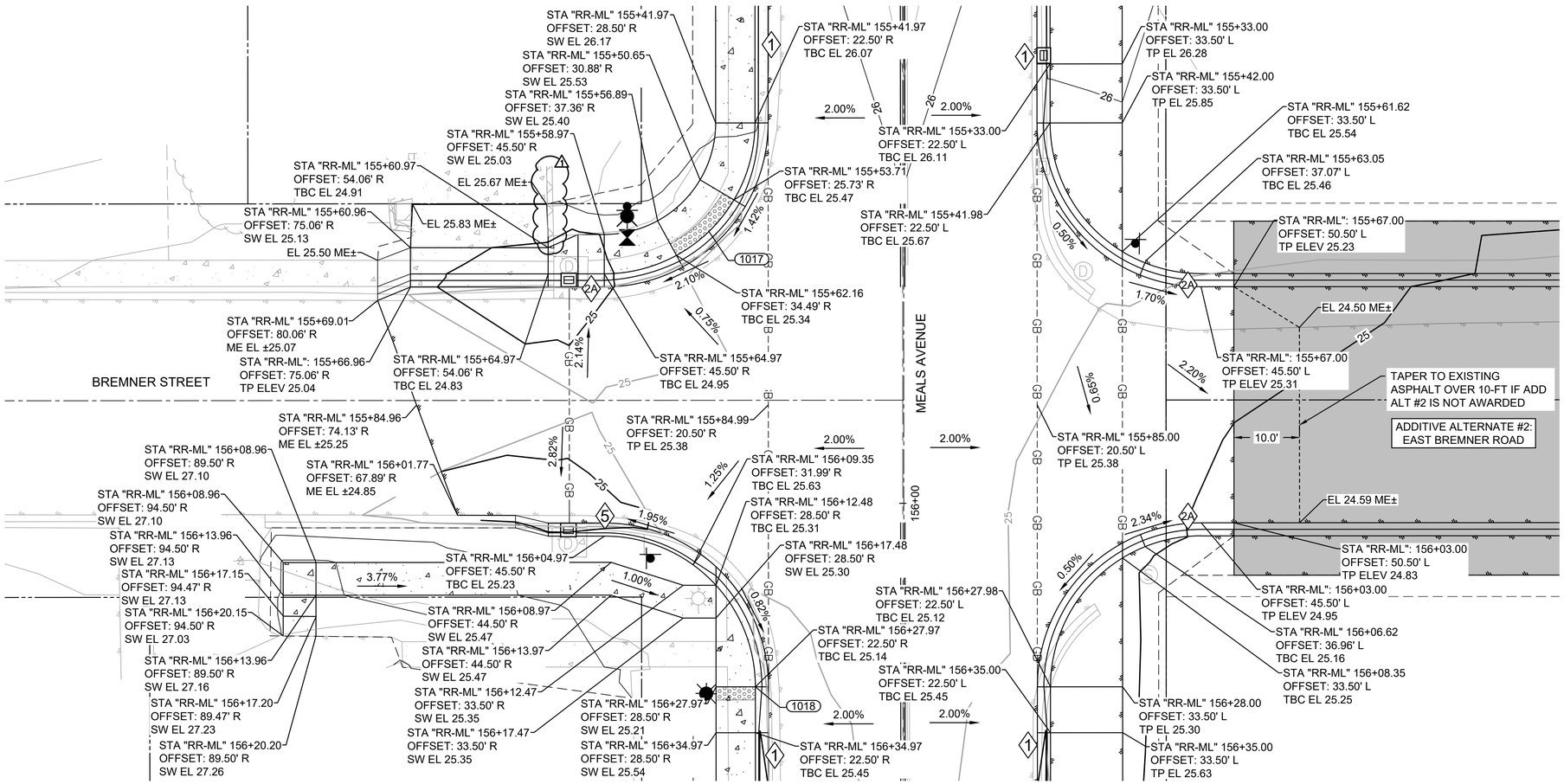
PROJECT 63461.01
DATE 01/28/2026

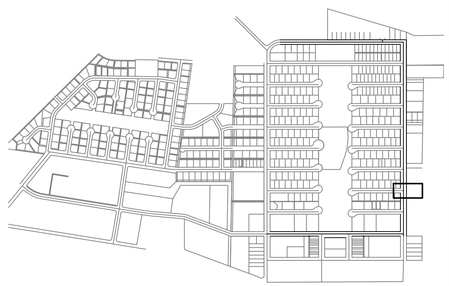
C-303



NOTE:
CATCH BASIN MANHOLES 1001, 1002, AND ASSOCIATED PIPES ARE TO BE INSTALLED AS A PART OF ADDITIVE ALTERNATE #2.

ADDITIVE ALTERNATE #2: EAST BREMNER ROAD





KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
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EXP. 12-31-2026
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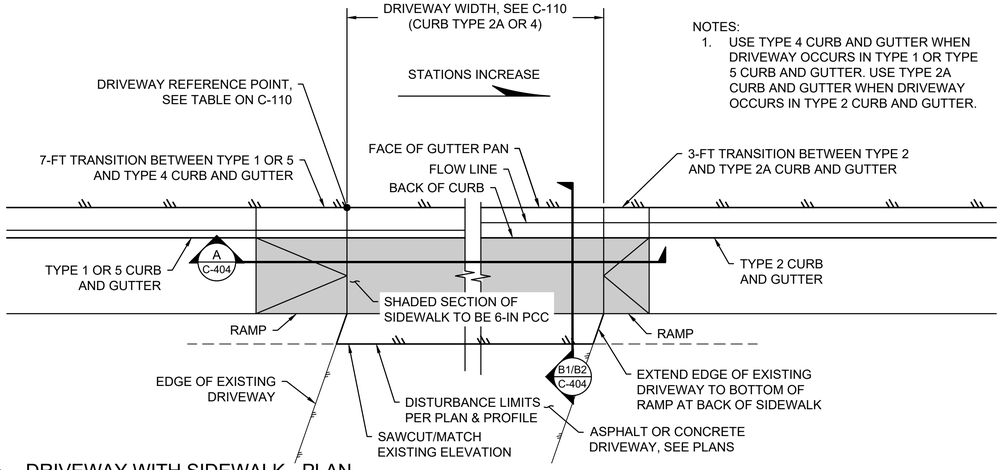
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING AND ADD ALT #2

VALDEZ, ALASKA

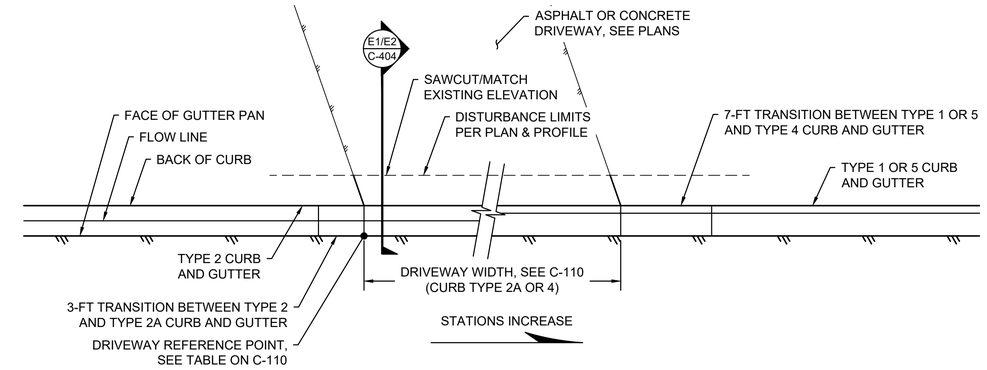
PROJECT	63461.01
DATE	01/28/2026

C-308

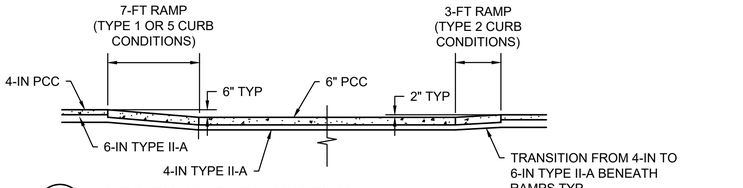


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

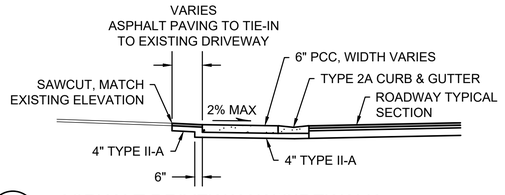
1 C-404 DRIVEWAY WITH SIDEWALK - PLAN
NTS



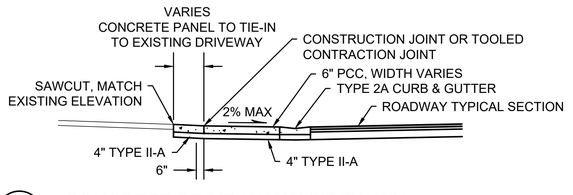
2 C-404 DRIVEWAY WITHOUT SIDEWALK - PLAN
NTS



A C-404 DRIVEWAY CUT - PROFILE
NTS

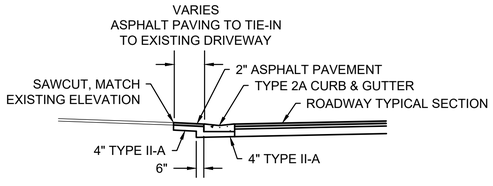


B1 C-404 ASPHALT DRIVEWAY W/SIDEWALK
NTS

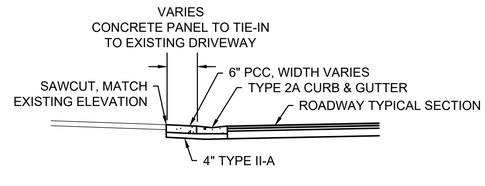


B2 C-404 CONCRETE DRIVEWAY W/SIDEWALK
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



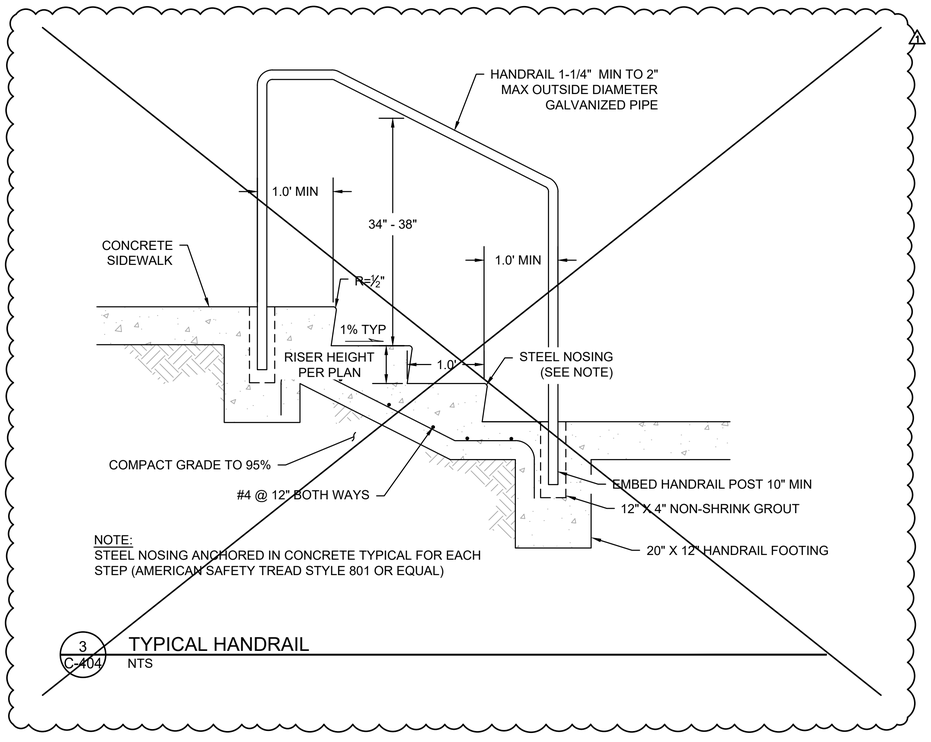
E1 C-404 ASPHALT DRIVEWAY W/OUT SIDEWALK
NTS



E2 C-404 CONCRETE DRIVEWAY W/OUT SIDEWALK
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 TYPICAL HANDRAIL
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
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4/9/26

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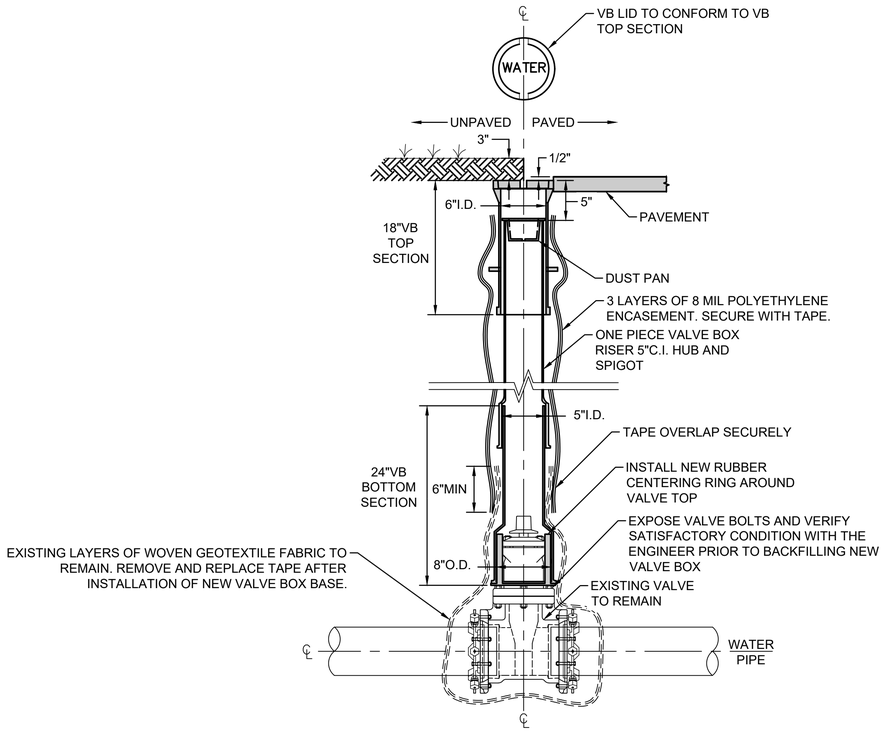
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/28/2026

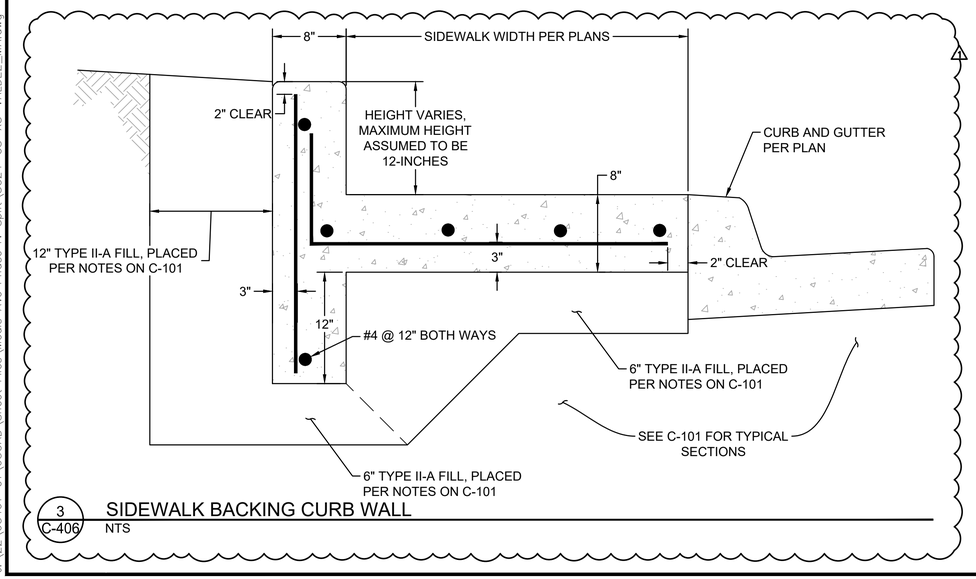
C-404



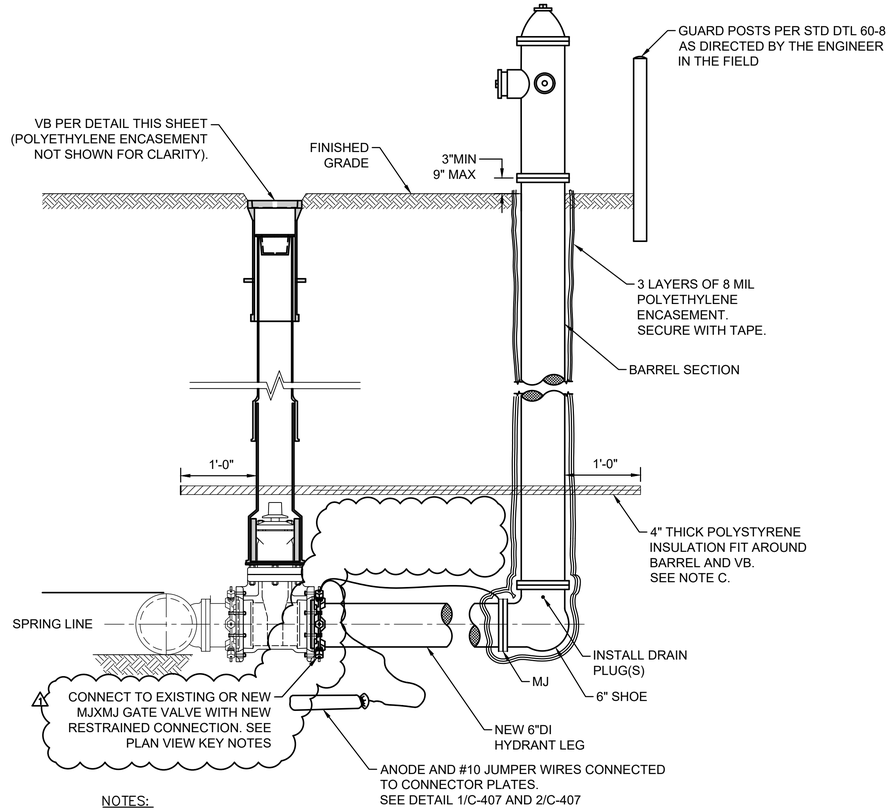
NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. VALVE BOX ASSEMBLY IS TO BE PLUMB.
3. DIMENSIONS ARE NOMINAL.

1 C-406 TYPICAL VALVE BOX (VB) REPLACEMENT
NTS



3 C-406 SIDEWALK BACKING CURB WALL
NTS



NOTES:

A. HYDRANT SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.

B. ALL BACKFILL MATERIALS WITHIN 3 FEET OF HYDRANT BARRELL SHALL BE NFS.

C. RIGID BOARD INSULATION (R-20) SHALL BE 4-FT WIDE AND CENTERED ON THE HYDRANT AND VALVE BOX.

D. ALL HYDRANT LEGS ASSUMED TO BE AT A 10-FT BURY. CONTRACTOR TO FIELD VERIFY DEPTHS VIA THE VALVE BOX PRIOR TO BEGINNING INSTALLATION.

2 C-406 SINGLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
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Feb 18, 2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

WATER DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/28/2026

C-406

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
1 AKDOT&PF	AK DEPARTMENT OF TRANS. & PUBLIC FACILITIES
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
1 MASS	MUNICIPALITY OF ANCHORAGE STD SPEC'S
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
1 RFP	REQUEST FOR PROPOSAL
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	
TYPE III STORM MANHOLE		
SEWER MANHOLE	S	
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG CALL FOR FREE UNDERGROUND LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
FEB. 18, 2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4
NOTES, LEGEND, AND ABBREVIATIONS
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-002

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
1	RR-ML	126+66.54	20.50 LT	24'
2	RR-ML	127+26.54	20.50 LT	24'
3	RR-ML	127+86.54	20.50 LT	24'
4	RR-ML	128+30.54	20.50 LT	24'
5	RR-ML	129+00.54	20.50 LT	24'
6	RR-ML	129+72.54	20.50 LT	24'
7	RR-ML	130+24.02	20.50 RT	20'
8	RR-ML	130+27.54	20.50 LT	24'
9	RR-ML	130+74.02	20.50 RT	20'
10	RR-ML	130+90.54	20.50 LT	24'
11	RR-ML	131+24.02	20.50 RT	20'
12	RR-ML	131+62.02	20.50 RT	20'
13	RR-ML	131+74.54	20.50 LT	32'
14	RR-ML	132+34.02	20.50 RT	20'
15	RR-ML	132+56.54	20.50 LT	32'
16	RR-ML	132+88.02	20.50 RT	20'
17	RR-ML	133+38.02	20.50 RT	20'
18	RR-ML	133+88.02	20.50 RT	20'
19	RR-ML	134+38.02	20.50 RT	20'
20	RR-ML	134+78.02	20.50 RT	20'
21	RR-ML	135+33.02	20.50 RT	20'
22	RR-ML	135+63.02	20.50 RT	20'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
356	RR-ML	126+48.71	31.00 LT	SEE PLAN VIEW KEY NOTES
352	RR-ML	129+30.44	32.49 LT	SEE PLAN VIEW KEY NOTES
351	RR-ML	132+39.35	32.00 LT	SEE PLAN VIEW KEY NOTES
360	RR-ML	135+40.31	31.00 LT	SHIFTED SOUTH, SEE PLAN VIEW KEY NOTES

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	20.86	38.00	31.46	S74° 18' 25"E	20.60
C2	36.13	23.00	90.00	N44° 57' 48"E	32.53
C3	36.14	23.00	90.04	S45° 01' 06"E	32.54
C4	30.69	23.00	76.44	N51° 44' 33"E	28.46
C5	34.28	28.00	70.15	S54° 57' 44"E	32.18

PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	9.43 LF	0.75%	102-CBMH	101-SDMH	RR-ML
CPEP	12"	45.00 LF	0.75%	103-CBMH	102-CBMH	RR-ML
CPEP	12"	65.08 LF	0.75%	106-CBMH	104-SDMH	RR-ML

C-201 C-203

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1000	RR-ML	125+87.46	28.00 LT	PARALLEL (MODIFIED SEE GRADING)
1001	RR-ML	126+60.54	22.50 LT	TYPE II PARALLEL
1002	RR-ML	133+30.59	22.50 LT	TYPE II PARALLEL
1003	RR-ML	134+28.48	22.50 LT	TYPE II PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

EXISTING WATER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
WV-002	CLEAN VALVE BOX AND INSPECT GATE VALVE	RR-ML 129+95.27	20.27 L
WV-003	CLEAN VALVE BOX AND INSPECT GATE VALVE	RR-ML 130+05.33	19.98 L

C-203

*REFERENCED DETAILS - COV

DETAIL NO.	DETAIL NAME
20-11	TRENCH BACKFILL
20-13	CLASS B AND C BEDDING
20-16	COMPACTION OF BACKFILL WITHIN RIGHT-OF-WAY
30-1	CURB AND GUTTER CROSS SECTIONS
40-1	RESURFACING DETAIL TYPICAL GRAVEL SECTION
40-2	RESURFACING DETAIL TYPICAL BITUMINOUS SURFACE TREATMENT
40-3	PAVEMENT CUT REPLACEMENT
50-5	MANHOLE HEIGHTS
55-3	STORM DRAIN MANHOLE TYPE I
55-5	STORM DRAIN MANHOLE TYPE III
55-7	MANHOLE STEP
55-8	MANHOLE STEP (ALTERNATE)
55-9	TOP INTAKE - USE WITH STANDARD GRADE RING
55-10	MANHOLE COVER
55-11	MANHOLE FRAME
55-12	MANHOLE HEIGHTS
55-13	PRECAST CATCH BASIN FOR TYPE 1 CURB AND GUTTER
60-8	HYDRANT GUARD POSTS
70-2	MANHOLE RING ADJUSTMENT
70-16	TYPICAL WATER AND SEWER LOCATIONS
70-22	SIGN PLACEMENT NO CURB OR SHOULDER
70-23	SIGN PLACEMENT SHOULDER WITHOUT CURB
70-24	SIGN PLACEMENT CURB WITHOUT SIDEWALK
70-25	SIGN PLACEMENT CURB WITH SIDEWALK AND PARKWAY
70-26	SIGN PLACEMENT CURB WITH SIDEWALK
70-27	SIGN PLACEMENT MEDIANS
70-31	CONCRETE FOUNDATION FOR SIGN POST
70-32	FIRE HYDRANT SIGN

*REFERENCED DETAILS - AKDOT&PF

DETAIL NO.	DETAIL NAME
C-3.30	TEMPORARY PEDESTRIAN ACCESS ROUTES
D-24.00	INLET FRAME AND GRATES

*REFERENCED DETAILS - MASS

DETAIL NO.	DETAIL NAME
80-13	DRIVEN PILE LUMINAIRE POLE FOUNDATION BREAKAWAY BASE
80-19	FLANGE-MOUNTED LUMINAIRE POLE
80-20	LUMINAIRE ARM DETAIL
80-21	CONCRETE FOUNDATION FOR FIXED BASE LUMINAIRE POLE
80-25	SIGNAL POLE NOTES

*REFERENCED DETAILS LIST IS NOT EXHAUSTIVE. ADDITIONAL DETAILS NOT LISTED MAY BE NEEDED.

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
NICHOLAS M. CONWAY
CE 13293
EXP. 12/31/2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-110

CCTV OF SEWER

START STRUCTURE	START STATION	END STRUCTURE	END STATION	LENGTH
251-SSMH	126+80.15	252-SSMH	130+26.21	346

C-201 TO C-202

CLEANING OF SEWER

START STRUCTURE	START STATION	END STRUCTURE	END STATION	LENGTH
252-SSMH	130+26.21	253-SSMH	133+58.61	332

C-202 TO C-203

PROPOSED STRUCTURES

NAME	DESCRIPTION
102-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
105-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
106-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

C-201 / C-203

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
101-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 125+62.27	28.72 L
104-SDMH	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION	RR-ML 133+74.21	6.20 L

C-201 / C-203

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 125+69.37	21.32 L
RR-ML 125+69.63	23.10 R
RR-ML 133+47.75	31.78 L
RR-ML 133+74.65	22.80 R
RR-ML 134+25.74	23.35 L

C-201 / C-203

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
251-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 126+80.15	12.89 R
252-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 130+26.21	12.87 R
253-SSMH	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE	RR-ML 133+58.61	12.99 R

C-201 / C-202 / C-203

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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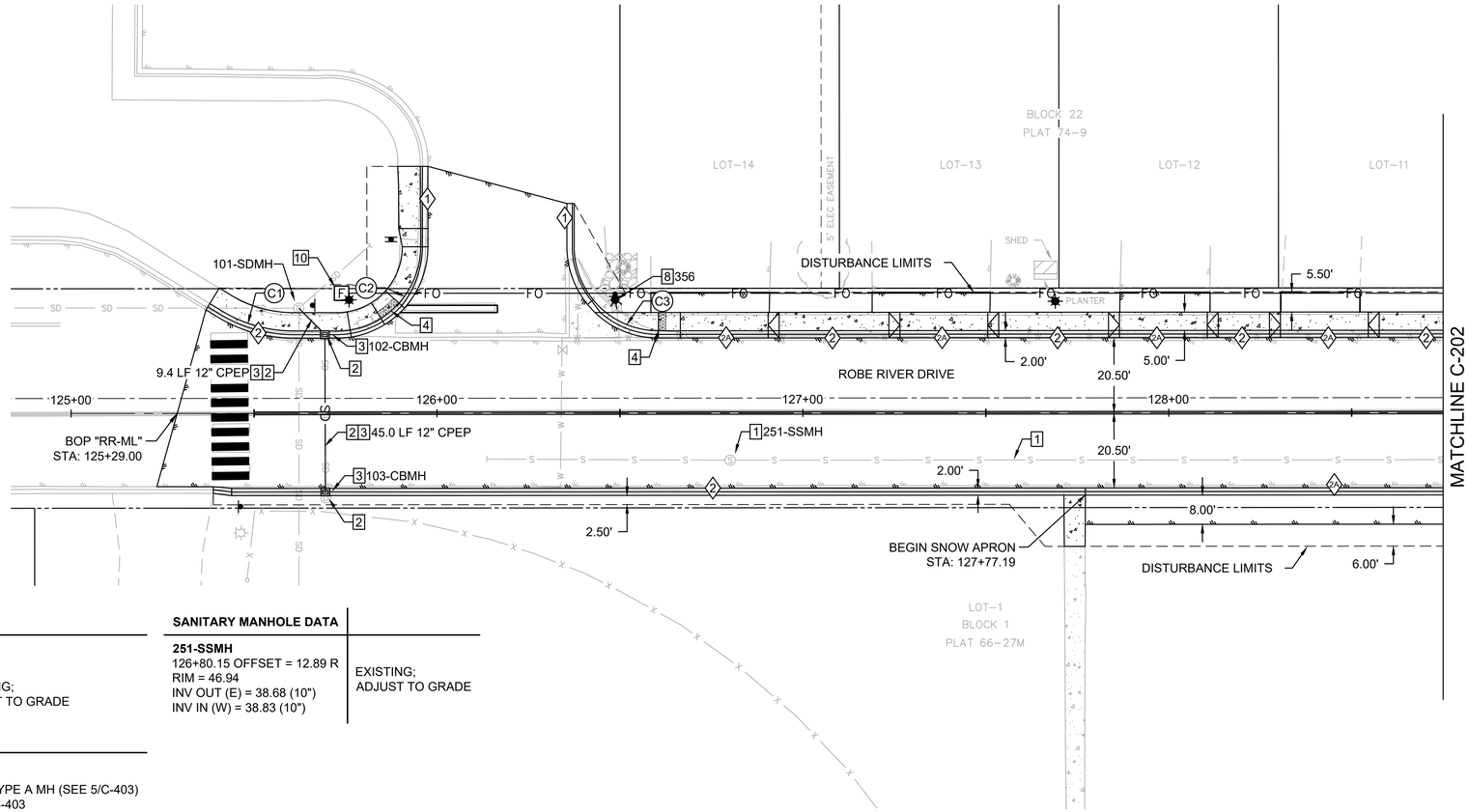
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

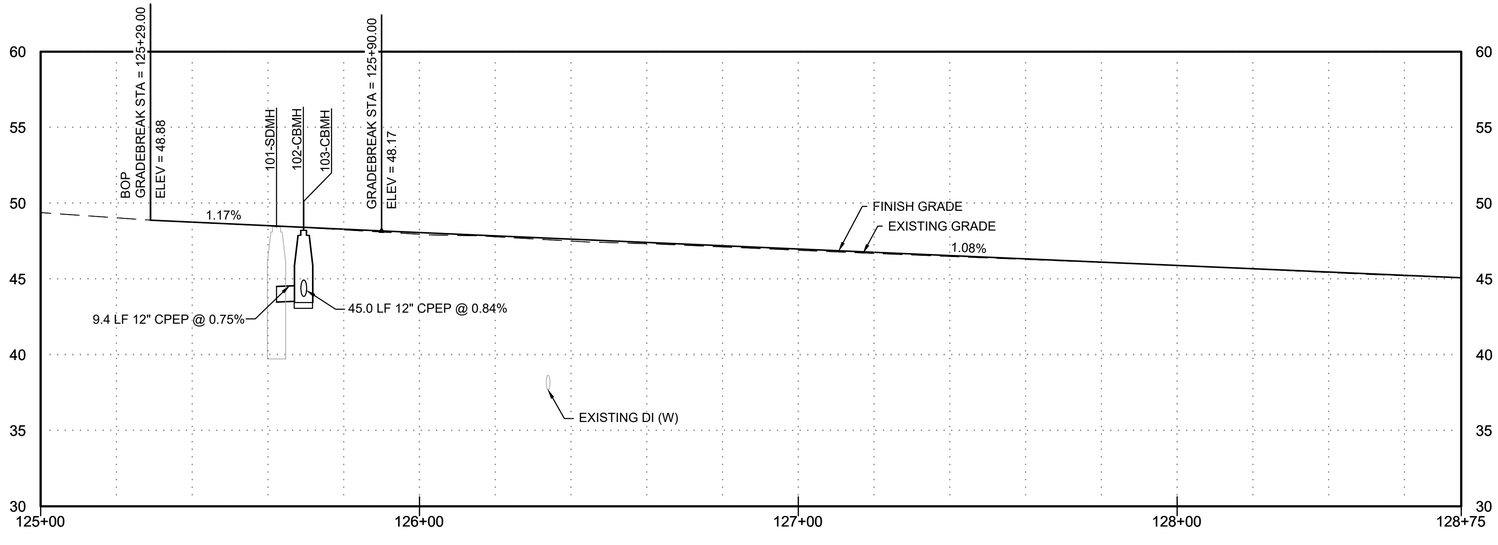
PROJECT 63461.01
DATE 01/16/2026

C-111



STORM MANHOLE DATA	
101-SDMH 125+62.27 OFFSET = 28.72 L RIM = 48.43 INV IN (SE) = 43.49 (12") INV OUT (S) = 42.22 (18") INV IN (W) = 42.26 (12") INV IN (NE) = 42.79 (12")	EXISTING; ADJUST TO GRADE
102-CBMH 125+69.36 OFFSET = 22.50 L RIM = 48.21 INV IN (S) = 43.61 (12") INV OUT (NW) = 43.56 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH 125+69.49 OFFSET = 22.50 R RIM = 48.21 INV OUT (N) = 43.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403

SANITARY MANHOLE DATA	
251-SSMH 126+80.15 OFFSET = 12.89 R RIM = 46.94 INV OUT (E) = 38.68 (10") INV IN (W) = 38.83 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

KEY NOTES

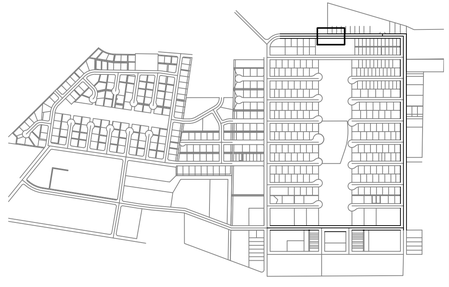
1. CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A. CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS. DETAILS ON C-401
5. CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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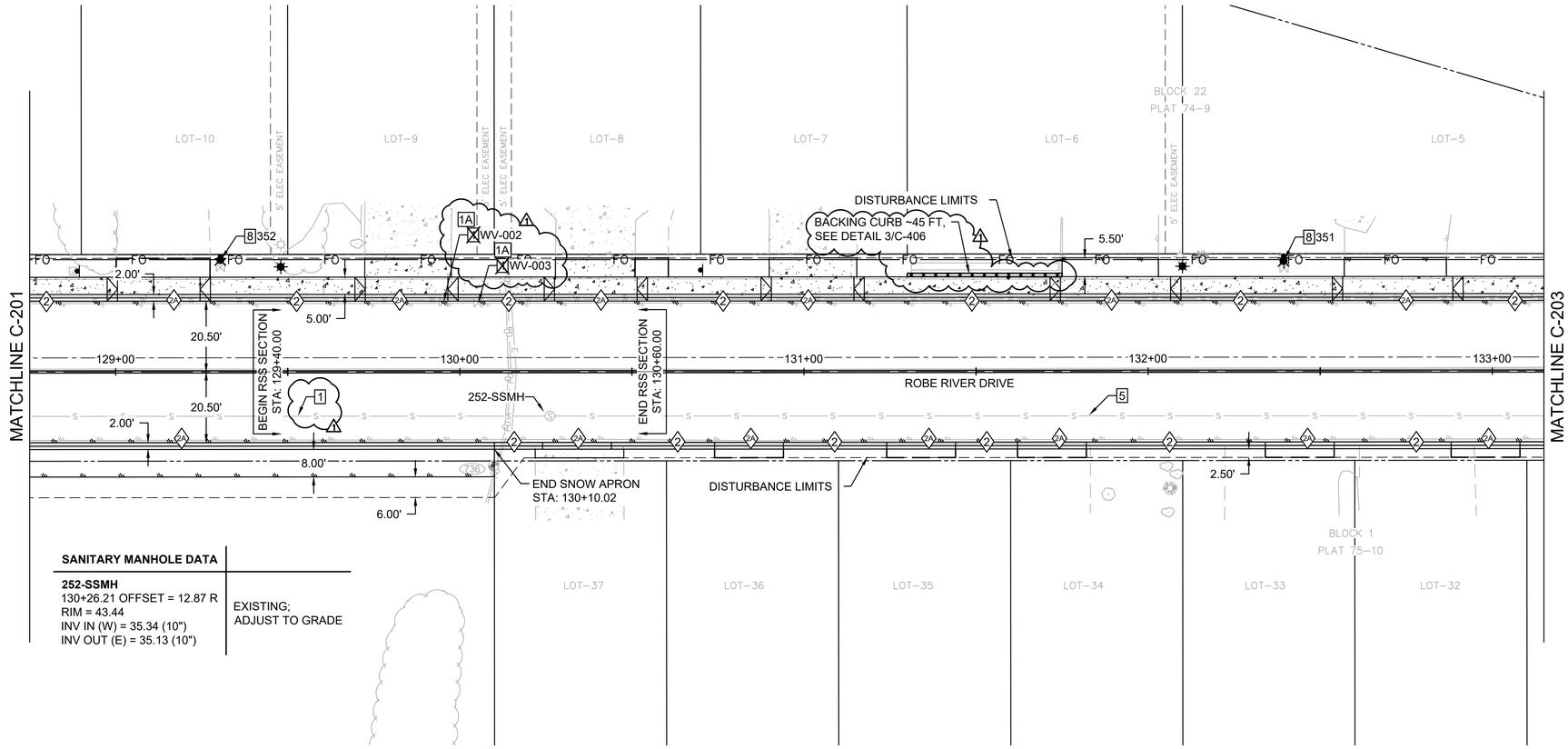
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

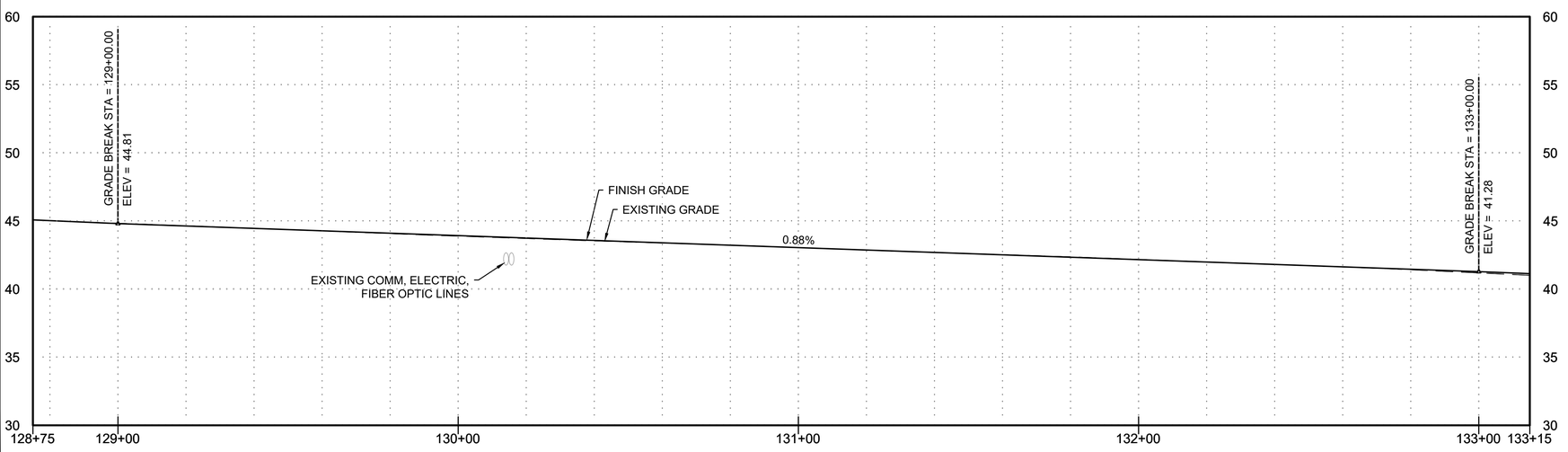
PROJECT	63461.01
DATE	01/16/2026

C-201



SANITARY MANHOLE DATA

252-SSMH 130+26.21 OFFSET = 12.87 R RIM = 43.44 INV IN (W) = 35.34 (10") INV OUT (E) = 35.13 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

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2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
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4. CURB RAMP; SEE GRADING SHEETS. DETAILS ON C-401
5. CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
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11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

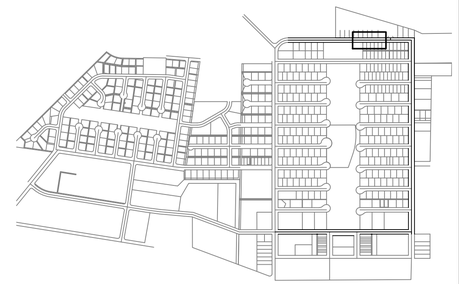
*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

REVISIONS

STATE OF ALASKA
4 9TH
NICHOLAS M. CONWAY
CE 133293
EXP. 12-31-26
REGISTERED PROFESSIONAL ENGINEER

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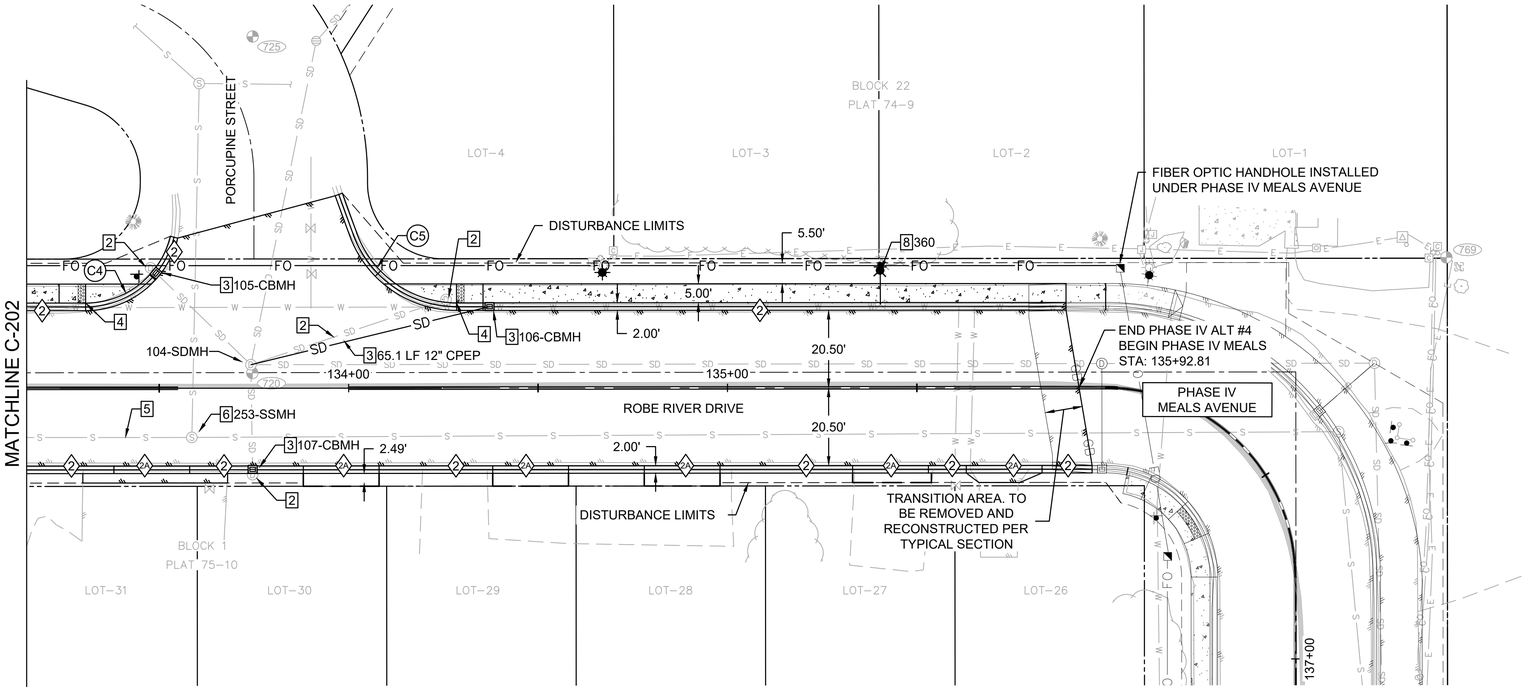
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

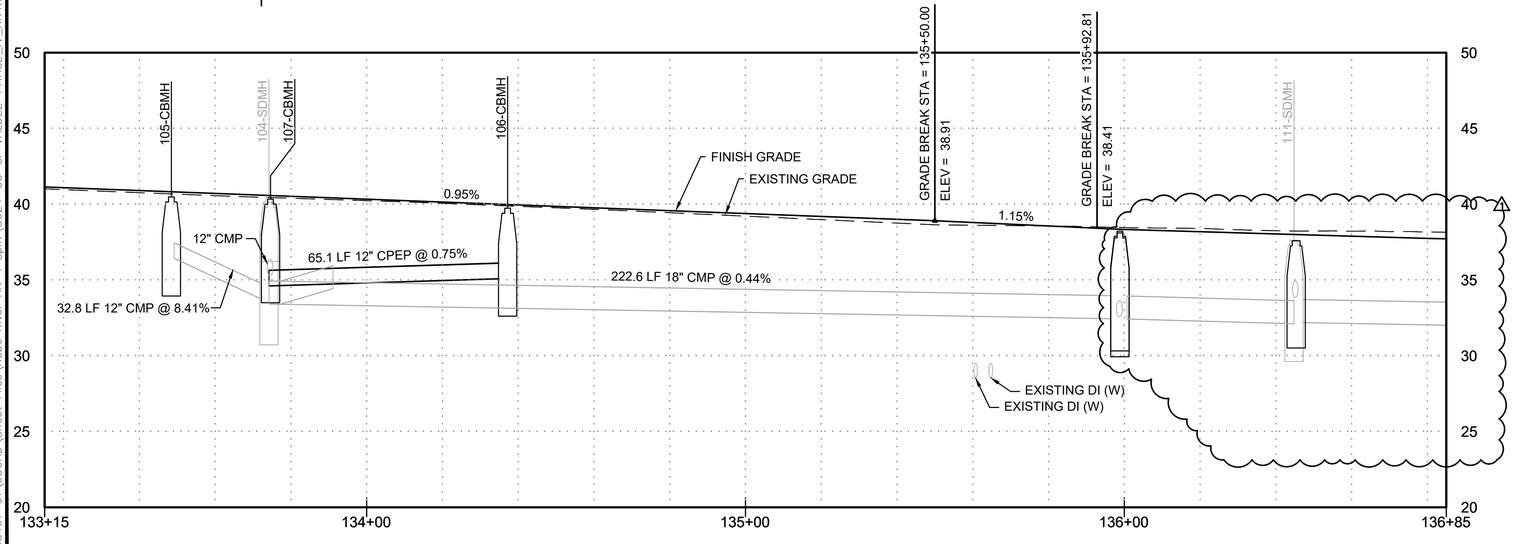
C-202



STORM MANHOLE DATA	
104-SDMH 133+74.21 OFFSET = 6.20 L RIM = 40.45 INV OUT (E) = 33.42 (18") INV IN (N) = 33.22 (18") INV IN (NW) = 33.68 (12") INV IN (E) = 34.62 (12") INV IN (S) = 33.79 (12")	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION
105-CBMH 133+48.45 OFFSET = 31.00 L RIM = 40.48 INV OUT (SE) = 36.44 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

STORM MANHOLE DATA	
106-CBMH 134+37.21 OFFSET = 22.50 L RIM = 39.74 INV OUT (W) = 35.11 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH 133+74.63 OFFSET = 22.50 R RIM = 40.33 INV OUT (N) = 36.00 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
253-SSMH 133+58.61 OFFSET = 12.99 R RIM = 40.46 INV IN (W) = 31.84 (10") INV OUT (E) = 31.78 (10") INV IN (N) = 31.85 (10")	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE



GENERAL NOTES

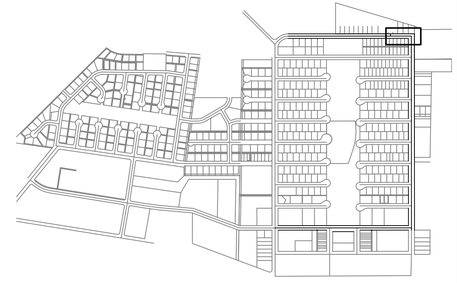
1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. ADDITIONAL WORK MAY BE REQUIRED AS A RESULT OF UTILITY INSPECTIONS. THIS WORK WILL BE CAPTURED THROUGH FIELD ISSUED RFPS TO THE CONTRACTOR.

KEY NOTES

1. CONTRACTOR SHALL CCTV INSPECT SEWER UTILITY
1A. CONTRACTOR SHALL CLEAN VALVE BOX AND INSPECT GATE VALVE
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS. DETAILS ON C-401
5. CONTRACTOR SHALL CLEAN STORM OR SEWER UTILITY
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. ~~CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.~~
8. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. EXISTING GATE VALVE AND VALVE BOX TO REMAIN.
9. REMOVE AND REPLACE WITH CONTRACTOR FURNISHED HYDRANT PER DETAIL 2/C-406. REPLACE GATE VALVE AND VALVE BOX.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET: 20 0 20 40
HORIZONTAL
SCALE IN FEET: 5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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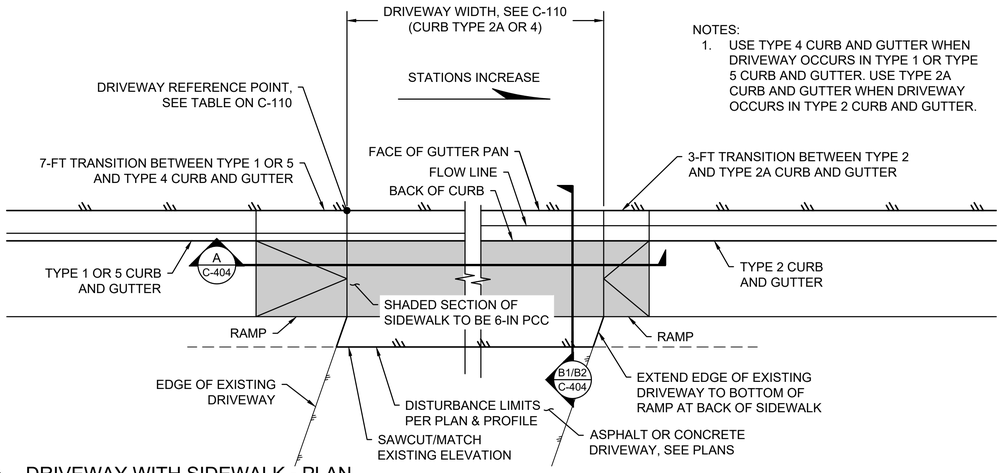
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4
PLAN AND PROFILE
VALDEZ, ALASKA

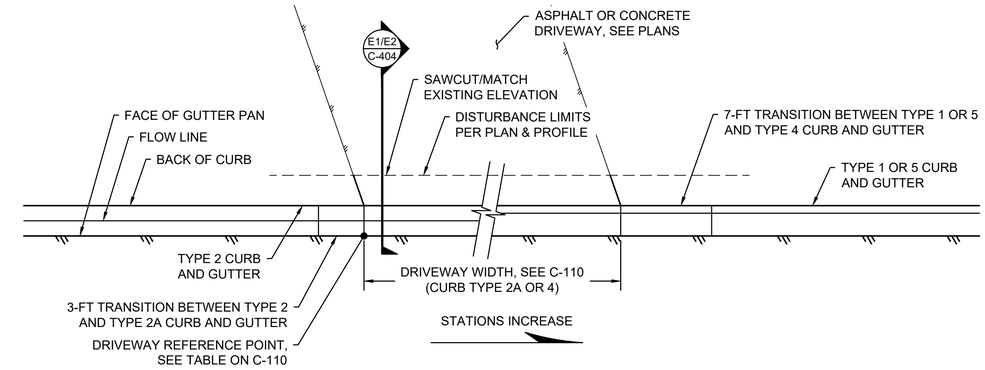
PROJECT	63461.01
DATE	01/16/2026

C-203

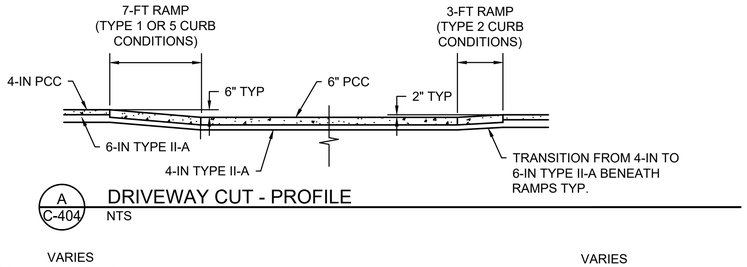


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

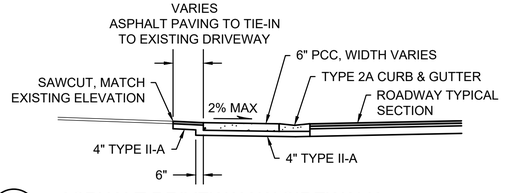
1 C-404 DRIVEWAY WITH SIDEWALK - PLAN
NTS



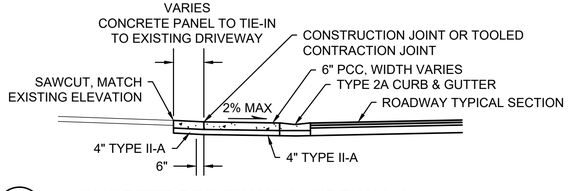
2 C-404 DRIVEWAY WITHOUT SIDEWALK - PLAN
NTS



A C-404 DRIVEWAY CUT - PROFILE
NTS

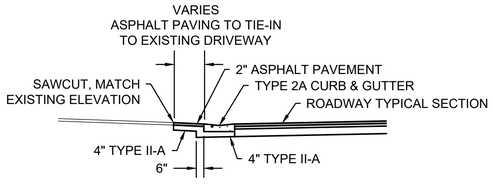


B1 C-404 ASPHALT DRIVEWAY W/SIDEWALK
NTS

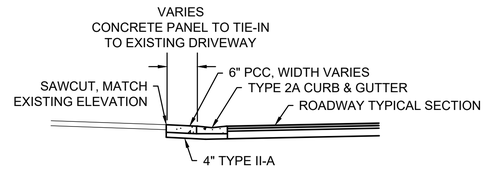


B2 C-404 CONCRETE DRIVEWAY W/SIDEWALK
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



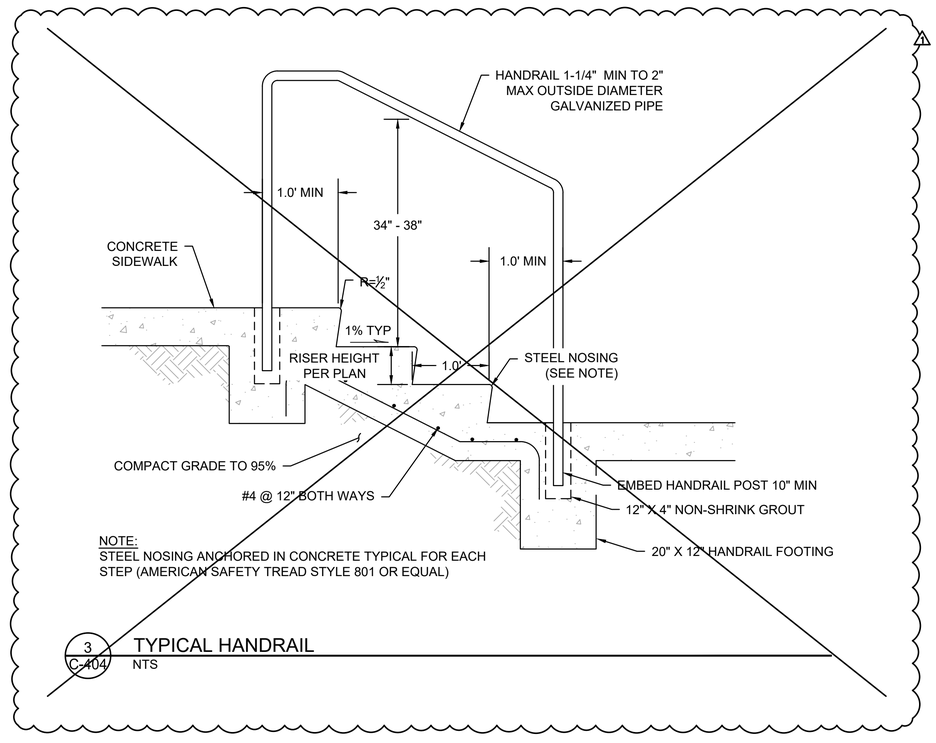
E1 C-404 ASPHALT DRIVEWAY W/OUT SIDEWALK
NTS



E2 C-404 CONCRETE DRIVEWAY W/OUT SIDEWALK
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 TYPICAL HANDRAIL
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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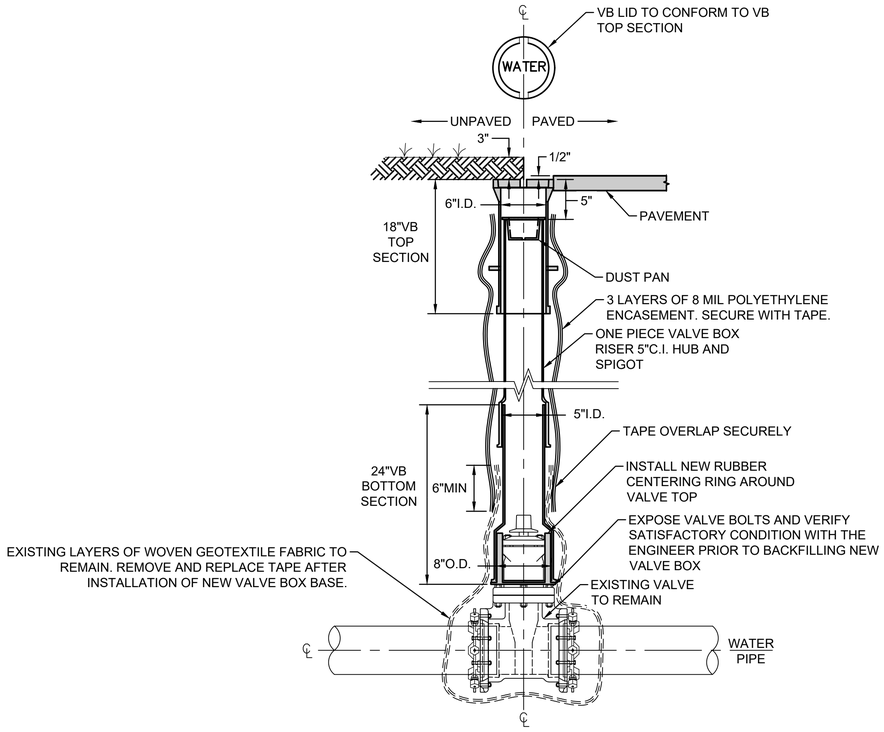
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

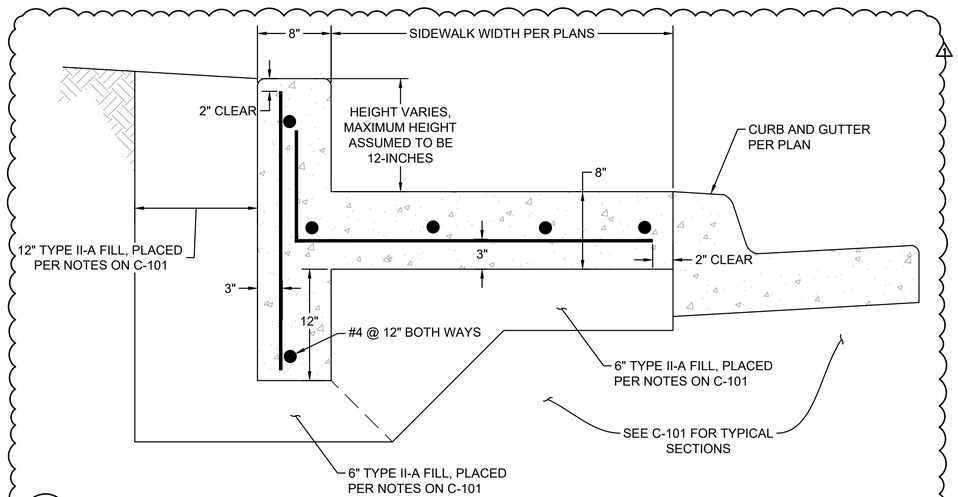
C-404



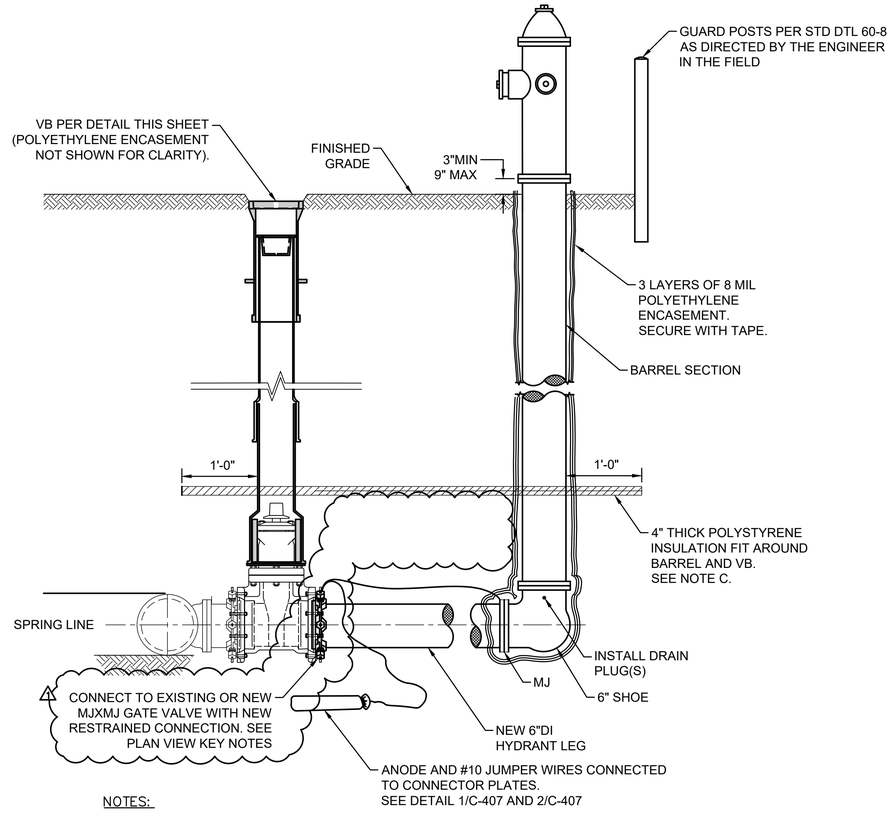
NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. VALVE BOX ASSEMBLY IS TO BE PLUMB.
3. DIMENSIONS ARE NOMINAL.

1 C-406 TYPICAL VALVE BOX (VB) REPLACEMENT
NTS



3 C-406 SIDEWALK BACKING CURB WALL
NTS



NOTES:

A. HYDRANT SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.

B. ALL BACKFILL MATERIALS WITHIN 3 FEET OF HYDRANT BARRELL SHALL BE NFS.

C. RIGID BOARD INSULATION (R-20) SHALL BE 4-FT WIDE AND CENTERED ON THE HYDRANT AND VALVE BOX.

D. ALL HYDRANT LEGS ASSUMED TO BE AT A 10-FT BURY. CONTRACTOR TO FIELD VERIFY DEPTHS VIA THE VALVE BOX PRIOR TO BEGINNING INSTALLATION.

2 C-406 SINGLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY
1	02/18/26	ADDENDUM 3	NMC

STATE OF ALASKA
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FEB. 18, 2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

WATER DETAILS

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-406

CITY OF VALDEZ

PAVEMENT REHABILITATION

SPECIAL PROVISIONS

MODIFICATIONS TO CITY OF VALDEZ STANDARD SPECIFICATIONS

The following listed provisions of the C.V.S.S. are amended as hereinafter stated:

REPLACE

SECTION 10.04 SCOPE OF WORK

Article 4.20 Submittal Schedule

The Contractor, promptly after executing the Contract, shall develop and provide a submittal schedule / log (SS/L) for the Engineer's approval. The Engineer's approval shall not be unreasonably delayed or withheld. The Contractor shall maintain the SS/L during the prosecution of the Work. The SS/L shall be coordinated with the Contractor's construction schedule, and provide the Engineer reasonable time to review submittals. If the Contractor fails to submit a SS/L, or fails to provide submittals in accordance with the approved SS/L, the Contractor shall not be entitled to any increase in Contract Sum or extension in Contract Time based on the time required for submittal reviews.

ADD

SECTION 10.04 SCOPE OF WORK

Article 4.21 Field Engineering

The Work under this section consists of performing all coordination activities, field activities, and field measurements necessary to accommodate changes in the Work, including both Extra and Additional Work.

The Engineer may request additional information – comments, proposed edits, and recommendations – related to designs or design documents (specifications, materials, detailed drawings) concerning potential Owner directed changes. The Contractor shall work collaboratively with the City and Engineer to develop new designs, as necessary, en route to approved Change Orders.

REPLACE

SECTION 20.18 REMOVAL OF EXISTING CURB AND GUTTER

Article 18.4 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section.

Payment shall be made under the following units:

ITEM	UNIT
Remove Existing Curb and Gutter	Linear Foot
Remove Existing Backing Curb	Linear Foot

REPLACE

SECTION 20.30 STORM WATER POLLUTION PREVENTION PLAN

Article 30.1 General

The work in this section shall consist of providing all labor, equipment, materials, and services to prepare, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP). The Contractor shall provide project administration and work relating to control of erosion, sedimentation, and discharge of pollutants, according to this section and applicable local, state and federal requirements, including the Alaska Pollution Discharge Elimination System (ADPES) Construction General Permit (CGP). Section 301(a) of the Clean Water Act (CWA) and 18 AAC 83.015 provide that the discharge of pollutants to water of the U.S. is unlawful except as allowed by the CGP.

Article 30.2 Definitions

These definitions apply only to Section 20.30.

Alaska Certified Erosion and Sediment Control Lead (AK-CESCL). Certification documenting the person has completed training, testing and other requirements recognized by the City to satisfy the APDES Construction General Permit for “qualified personnel”. An AK-CESCL certification must be recertified every three years. CPESC: Certified Professional in Erosion and Sediment Control and CISEC: Certified Inspector in Sediment and Erosion Control are the only other recognized substitution for the AK-CESCL certification.

Alaska Department of Conservation (ADEC). The state agency authorized by EPA to administer the Clean Water Act’s National Pollutant Discharge Elimination System.

Alaska Pollutant Discharge Elimination System (APDES). The Alaska Pollutant Discharge Elimination System, administered by ADEC.

Area of Land Disturbance. The area of land (soil) that will be disturbed by Construction Activity.

Best Management Practices (BMPs). Temporary or permanent structure and non-structural devices, schedules of activities, prohibition of practices, maintenance procedures and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include but are not limited to, treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal.

Clean Water Act (CWA). United States Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.)

Construction Activity. Physical activity by the Contractor or any Subcontractor that may

result in land disturbance, erosion, sedimentation, or a discharge of pollutants in storm water. Construction activity includes, but is not limited to, grubbing, excavation, constructing embankment, grading, stockpiling erodible material, processing material and installation or maintenance of BMP's.

Construction General Permit (CGP). The Alaska Pollutant Discharge Elimination System General Permit for Discharges from Large and Small Construction Activities.

Electronic Notice of Intent (eNOI). The Electronic Notice of Intent submitted to ADEC, to begin Construction Activities under the CGP.

Electronic Notice of Termination (eNOT). The Electronic Notice of Termination submitted to ADEC, to end coverage under the CGP.

Erosion and Sediment Control Plan (ESCP). A project-specific document that illustrates measures to control erosion and sediment problems on a project. The ESCP normally consists of a general narrative and a map or site plan. It is developed by the City and may be included in the project plans and specifications. It serves as a resource for bid estimation and a framework from which the Contractor develops the project SWPPP.

Final Stabilization. Soil disturbing activities at the site have been completed and one of the following methods, as identified in the contract, has been completed:

- Establish a uniform and evenly distributed perennial vegetative cover with a density of 70 percent of the native background vegetative cover, or
- Construct non-erodible permanent stabilization measure such as riprap, gabions, geotextiles, pavement, or crushed aggregate base course where vegetative cover is not required or practical.

Hazardous Material Control Plan (HMCP). The Contractor's detailed project-specific plan for the prevention of pollution from storage, use, transfer, containment, cleanup, and disposal of hazardous material, including but not limited to, petroleum products related to construction activities and equipment. The HMCP is included as an appendix to the SWPPP.

Operator(s). The party or co-parties associated with a regulated activity that has responsibility to obtain storm water permit coverage. "Operator" for the purpose of CGP and in context of stormwater associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
2. The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with permit conditions).

Pollutant. Any substance or item meeting the definition of pollutant contained in 40 CFR 122.2

Project Area. The physical limits of the construction site, City furnished project staging and equipment areas, City furnished haul routes where deposition of sediments or erodible materials may result from material hauling activities and City furnished material and disposal sites directly related to the Contract. Contractor or Commercial Operator furnished material sites material processing sites, disposal sites, haul routes, staging areas and equipment storage are not included in the Project Area.

Storm Water Pollution Prevention Plan (SWPPP). The Contractor's detailed project - specific plan to minimize erosion and contain sediment within the Project site and to prevent discharge of pollutants that exceed applicable water quality standards. The SWPPP includes, but may not be limited to, amendments, records of activities, inspection schedules and reports, qualifications of key personnel and all other documentation required by the CGP and this specification.

Storm Water Pollution Prevention Plan Two (SWPPP2). The Contractor's plan for compliance with both the CGP and MSGP construction activities outside the Project Area.

Temporary Stabilization. The protection of exposed soils (disturbed land) from wind, and water erosion during construction process, until final stabilization is established.

Article 30.3 Plan and Permit Submittals

Partial and incomplete submittals will not be accepted for review. Any submittal that is re-submitted or revised after submission, but before the review is complete, will restart the submittal review timeline. No additional Contract time or additional compensation will be allowed due to delays caused by partial or incomplete submittals, or required re-submittals.

a. Storm Water Pollution Prevention Plan

1. Submit an electronic copy and one hard copy of the SWPPP to the Engineer for approval. Deliver these documents to the Engineer at least 21 days before construction activity. Organize the SWPPP and related documents for submittal according to the requirements of section 30.7.
2. The City will review the SWPPP submittal within 10 days after they are received. Submittals will be returned to the Contractor, and marked as either "rejected" with reasons listed or as "approved" by the City. When the submittal is rejected, the Contractor must revise and resubmit the SWPPP.
3. The approved SWPPP must contain certification, and be signed according to Standard Permit Conditions of the CGP.
4. After the SWPPP is approved by the City, the Contractor shall submit an eNOI for the Project to ADEC with the required fee. Submit a copy of the eNOI to

the Engineer following submission. The City will submit the COV's eNOI to the ADEC and provide a copy to the Contractor for inclusion in the SWPPP.

b. Hazardous Material Control Plan

1. Submit an electronic copy and hard copy of the HMCP, as an appendix to the SWPPP, to the Engineer for approval.

c. CGP Coverage and Ending CGP Coverage

1. The Contractor is responsible for permitting of Contractor and subcontractor construction activities related to the Project. Do not use the SWPPP for construction activities outside the Project Area where the City is not an operator. For construction activities outside the Project Area, the Contractor must use a SWPPP2, if applicable. City approval is not needed for a SWPPP2
2. Do not begin construction activity until the conditions in section 30.11.a are completed.
3. Submit an eNOT to ADEC within 30 days after the Engineer has determined the conditions listed in section 30.11.h

Article 30.4 Personnel Qualifications

The Superintendent and any designated Relief Superintendent must meet the following qualifications:

1. Current certification as AK-CESCL
2. Duly authorized representative, as defined in Appendix F of the CGP.

The following certifications are considered equivalent to AK-CESCL:

1. CPESC, Certified Professional in Erosion and Sediment
2. CISEC, Certified Inspector in Sediment and Erosion Control

Article 30.5 Signature/Certification Requirements and Delegations

a. eNOI and eNOT

1. The eNOI and eNOT must be signed and certified by a responsible corporate officer according to CGP Appendix A, Part 1.12.
2. Signature and certification authority for the eNOI and eNOT cannot be delegated.

b. Delegation of Signature Authority for Other SWPPP Documents and Reports

1. Delegate signature and certification authority to the Superintendent, in accordance with the CGP Appendix A, for SWPPP inspections and other reports required by the CGP. Include a copy of the written delegation in the

SWPPP. Delegation is not required if the Superintendent is a responsible corporate officer for the Contractor.

c. Subcontractor Certification

1. Subcontractors must certify that they have read and will abide by the CGP and conditions of the project SWPPP.

d. Signature and Initials

1. Certify or initial on the CGP documents and SWPPP forms, wherever a signature or initial is required.

Article 30.6 Responsibility for Storm Water Permit Coverage

The Contractor is responsible for permitting and permit compliance for construction support activity in the Project Area and outside the Project Area. The Contractor has sole responsibility compliance with ADEC and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits.

The City is not responsible for permitting or permit compliance, and is not liable for fines resulting from noncompliance with permit conditions:

(1) For areas outside the Project Area;
(2) For construction activity and support activities outside the Project Area; and
(3) For commercial plants, commercial material sources, and commercial disposal sites.

Article 30.7 Storm Water Pollution Prevention Plan (SWPPP) Requirements

a. General

1. The Contractor shall prepare a Storm Water Pollution Prevention Plan.
2. When provided in the plan set use the City's ESCP to develop a SWPPP based on scheduling, equipment, and use of alternate BMPs.
3. The plan must include both erosion control and sediment control measures. The plan must first address preventing erosion, then minimizing erosion and finally trapping sediment before it leaves the project site.
4. The SWPPP must follow the format presented in Appendix A of *Developing Your Storm Water Pollution Prevention Plan: A Guide for Construction Sites* (EPA 833-060-04 May 2007). An electronic copy of the Alaska DEC SWPPP template is available at https://dec.alaska.gov/water/wastewater/stormwater/permits-approvals/construction/
5. The SWPPP must address the site-specific controls and management plan for the construction site as well as for material sites, waste disposal sites, haul roads and other affected areas, public or private. The SWPPP shall include copies of and incorporate the requirements of the project permits.

6. The Contractor is responsible for identifying in the SWPPP any other work that is ongoing or will be undertaken within or adjacent to the project during the contract period and to coordinate erosion and sediment control measures with other operators.

Article 30.8 Hazardous Materials Control Plan (HMCP) Requirements

a. General

1. Prepare a HMCP for handling, storage, cleanup, and disposal of petroleum products and other hazardous substances. See 40 CFR 117 and 302 for a listing of hazardous materials.
2. Compile Material Safety Data Sheets in one location and reference in the HMCP. List and provide location of hazardous materials, including office materials, to be used and/or stored on site, and estimated quantities. Detail a plan for storing these materials as well as disposing of waste petroleum products and other hazardous materials generated on the project. Identify haul routes and final disposal areas. Assure final disposal areas are appropriately permitted.
3. Identify the locations where storage, fueling and maintenance activities will take place, describe the maintenance activities and list controls to prevent the accidental spillage of oil, petroleum products, and other hazardous materials.
4. Detail procedures for containment and cleanup and disposal of soil and water contaminated by accidental spills. Detail a plan for dealing with unexpected contaminated soil and water encountered during construction.
5. Specify the line of authority and designate a field representative for spill response and one representative for each subcontractor. Include their names and contact information in the SWPPP.

Article 30.9 Responsibilities and Authority of the Superintendent

The Superintendent is responsible for the overall operations of the Project and all Contractor-furnished sites and facilities directly related to the project. The Superintendent shall sign and certify the SWPPP, SWPPP inspection reports, and other reports required by the CGP, except the NOI and NOT. If the Superintendent is unavailable, a relief Superintendent may sign and certify reports required by the CGP. If the relief Superintendent is used, document the personnel change including a copy of their AK-CESCL certification with beginning and ending dates in the SWPPP.

Article 30.10 Materials

a. General

1. Comply with material requirements described in the Plans and Specifications.
2. Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments in accordance with the requirements of the CGP.

3. Use the seed mixture specified in the Contract or as directed by the Engineer.
4. Use the soil stabilization material as specified in the BMP details included in the approved project SWPPP.
5. Use straw or straw products certified weed free of prohibited and restricted noxious weed seed and quarantined pests according to Alaska Administrative Code, Title 11, Chapter 34 (11 AAC 34). When straw or straw products according to 11 AAC 34 are not available, use non-certified products manufactured within Alaska before certified products manufactured outside Alaska.
6. Grass, legumes, or any other herbaceous plants produced as hay, shall not be substituted for straw or straw products.

Article 30.11 Construction Requirements

Comply with the SWPPP and the requirements of the CGP Part 5.0.

a. Before Construction

The following actions must be completed before Construction Activity begins:

1. Prepare a project-specific, CGP-compliant SWPPP.
2. Submit SWPPP to City and through the review process obtain City approval.
3. Provide main entrance signage and postings. Do not use retroreflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices.

b. During Construction

1. Delineate the site according to CGP Part 4.2.1.
2. Install required BMPs according to the SWPPP prior to the initiation of ground disturbing activities.
3. Document subcontractors.
4. Provide ongoing training to all employees and subcontractors in accordance with the CGP Part 4.14.
5. Implement good housekeeping measures to comply with the SWPPP and CGP Part 4.8.
6. Control measures. Comply with the SWPPP and CGP Part 5.3.6 including:
    a. Maintain BMPs.
    b. Comply with the requirements of the HMCP an if applicable all local, state and federal regulations that pertain to the handling, storage, containment, cleanup, and disposal of petroleum products or other hazardous materials.
    c. Perform fueling operations in a safe and environmentally responsible manner.
    d. Contain, cleanup, and dispose of discharges of petroleum products or other hazardous materials to the land, air, water and organic life forms.

e. Comply with all requirements of 18 AAC 75 and AS 46, Oil and Hazardous Substance Pollution Control.
f. Keep the SWPPP and the HMCP current.

c. Winter Construction

1. If winter construction activities occur, the project must have appropriate BMPs in place as specified in CGP Part 4.12.2. The Contractor shall stabilize the project prior to freeze-up.
2. Inspections may be reduced to once per month if the project meets the requirements in the CGP Part 6.2.4

d. Storm Water Discharge Pollutant Reporting Requirements

1. Contractor shall immediately report incidents of non-compliance with the CGP that may endanger health or the environment to the ADEC.
2. The incident report shall conform to the CGP, Appendix A, Part 3.0.
3. A permit non-compliance is considered any type of pollutant, such as turbidity or petroleum that enters storm water runoff and flows into a receiving water body, MS4, or wetland that is connected to waters of the U.S.

e. Hazardous Materials Reporting Requirements

1. Any release of hazardous substance must be reported immediately to the Engineer as the person has knowledge of the discharge.
2. Report spills of petroleum products or other hazardous materials to the Engineer and the ADEC according to CGP Part 9.3.

f. Corrective Action and Maintenance of BMPs

1. Implement maintenance as required by the CGP, SWPPP, and manufacturer's specifications, whichever is more restrictive.
2. Implement corrective action to comply with CGP Part 8.0 and the approved project SWPPP. Implement correction actions within the deadlines specified by the CGP Part 8.2.
3. Document corrective actions in the Corrective Action Log according to the SWPPP and the CGP Part 8.3 and Part 5.9.2.

g. Stabilization

1. The Contractor shall stabilize disturbed areas using temporary or permanent BMPs.
2. All soil stabilization requirements must be met in accordance with the CGP Part 4.5 and the SWPPP.
3. The Contractor shall coordinate work to minimize the amount of disturbed soil at any one time. They Contractor shall not disturb more soil than they can stabilize with the resources available.
4. The Contractor shall temporarily stabilize from wind and water erosion those portions of disturbed soils, portions of stockpiles, and portions of disposal sites that are not in active construction.
5. Before applying temporary or permanent seeding, the Contractor shall prepare the surface to be seeded to reduce erosion potential and to facilitate germination and growth of vegetative cover.

h. Ending CGP Coverage

1. The Engineer will determine the date that all the following conditions for ending CGP coverage have been met within the Project Area:
    a. Land disturbing activities have ceased;
    b. Temporary BMPs have been removed, and;
    c. Final stabilization has been achieved on all portions of the Project Area, according to the CGP Part 4.5.2 (including disposal sites, staging areas, and equipment areas, etc.)
2. The Contractor is responsible for BMP maintenance and SWPPP updates until permit coverage has ended.
3. If the Contractor's eNOI acreage includes Support Activities and any other areas where the City is not an Operator, the Contractor may not be able to file an eNOT at the same time as the City.
4. The Contractor must indicate in the SWPPP the areas that have reached Final Stabilization, and the dates land disturbing activities ended and Final Stabilization was achieved.
5. The Contractor shall end permit coverage within the Project Area by submitting an eNOT to ADEC within thirty (30) days of meeting the conditions for ending CGP coverage. The Contractor shall insert copies of their eNOT and the COV's NOT with ADEC's acknowledgment letters in the appendix of the SWPPP.

i. Transmit Final SWPPP

1. The Contractor shall transmit one electronic copy of the final SWPPP, including all SWPPP documents, to the Engineer when both eNOTs are filed, or within thirty (30) days of the City's eNOT being filed, whichever is sooner.

Article 30.12 SWPPP Inspections, Inspection Reports, and Amendments

The Contractor shall perform inspections, prepare reports, and prepare SWPPP Amendments in compliance with the SWPPP and the CGP.

a. SWPPP Inspections

1. The Contractor shall conduct periodic inspections according to the schedule and requirements of the SWPPP and CGP.
2. The Superintendent shall review the project site, material sites, waste sites and the SWPPP for conformance with the CGP at least once per month and after every major change in earth disturbing activities.

b. Inspection Reports

1. Prepare an inspection report within three days of each inspection.
2. Each report shall minimally include:
    a. A summary of the scope of the inspection
    b. Name and title of person conducting the inspection.
    c. The date of the inspection.
    d. Observations relating to implementation of the SWPPP.

e. Any action taken as a result of the inspection.
f. Incidents of non-compliance.

3. The Contractor shall keep the SWPPP current and up-to-date throughout construction. Inspection reports shall be arranged chronologically and located in a SWPPP appendix.

c. Amendments

1. The Contractor shall modify the SWPPP, including site map(s) in response to any of the following:
    a. Whenever changes are made to the plans and specifications, control measures, good housekeeping measures, or other activities at the site that are no longer accurately reflected in the SWPPP.
    b. If inspections by site staff or by local, state, tribal, or federal officials determine that SWPPP modifications are necessary for CGP compliance.
2. The Contractor shall keep a log showing:
    a. Dates of SWPPP amendments.
    b. Name of person authorizing the change.
    c. A brief summary of each specific modification / change to the SWPPP
    d. Observations relating to implementation of the SWPPP.
    e. Any action taken as a result of the inspection.
    f. Incidents of non-compliance.
3. Revisions to the SWPPP shall be completed within seven (7) days of the inspection that identified the need for a SWPPP modification or within seven (7) days of substantial modifications to the plans or changes in site conditions.

Article 30.13 SWPPP Documents, Location On-site, Availability, and Record Retention

a. SWPPP Documents

1. The SWPPP and related documents maintained by the Contractor are the record for demonstrating CGP-compliance.
2. Copies of SWPPP documents transmitted to the Engineer under Section 20.30 are informational and to not relieve the Contractor’s responsibility to maintain complete records.

b. Location On-site and Availability

1. Keep the SWPPP and HMCP at the on-site project office. If there is not an on-site project office, keep the documents at a locally available location that meets CGP requirements and is approved by the Engineer.
2. The SWPPP and related documents must be made available for review and copy by regulatory agencies upon request.

c. Record Retention

1. The Contractor shall retain records and a copy of the SWPPP for at least three years after the date of eNOT according to the CGP Part 9.4.
2. If ADEC inspects the project, issues a Notice of Violation (NOV), or begins investigation for a potential NOV before the retention period expires, retain the SWPPP and all records related to the SWPPP and CGP until at least three years after the ADEC has determined all issues related to the investigation are settled.

Article 30.14 Failure to Perform Work

a. General

1. The Engineer has the authority to suspend work and withhold monies according to Section 10.05 Control of Work, Article 5.1 and Article 5.29 of the Contract General Provisions for an incident of noncompliance with the CGP or SWPPP that may endanger health or the environment or for failure to perform work related to Section 20.30.
2. An incident of noncompliance includes, but is not limited to, the Contractor's failure to:
    a. Obtain appropriate permits before Construction Activity occur;
    b. Perform SWPPP administration;
    c. Perform timely inspections;
    d. Update the SWPPP;
    e. Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements;
    f. Perform duties according to the requirements of Section 20.30;
    g. Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control, or;
    h. Any other requirements established or included in the Contract.
3. No additional Contract time or compensation will be allowed due to delays caused by the Engineer's suspension of work.

Article 30.15 Method of Measurement

Method of measurement for all Work in this section shall be lump sum. The Work shall include: (1) plan preparation, plan amendments and updates, inspections, monitoring, reporting, and recordkeeping, and (2) the installation and maintenance of temporary erosion, sedimentation and pollution control measures required to complete the project according to the Plans and with the current SWPPP and HMCP.

Article 30.16 Liquidated Damages

Liquidated Damages assessed according to Table 20.30-1 are not an adjustment to the Contract amount. These damages are charges related to Contract performance but are billed by the COV to the Contractor, independent of the Contract amount. An amount

equal to the Liquidated Damages may be withheld for unsatisfactory performance, from payment due under the Contract, until the Contractor remits payment for Liquidated Damages.

TABLE 20.30-1
EROSION, SEDIMENT AND POLLUTION CONTROL – LIQUIDATED DAMAGES

Code	Specification Section No. & Description	Deductible Amount in Dollars	Cumulative Deductible Amounts in Dollars
A	30.4 Failure to have a qualified (AK-CESCL or equivalent) Superintendent	$750 per Inspection	
B	30.12 Failure to conduct and record CGP inspections.	$750 per omission	Additional $750 for every add. 7-day period without completing the required inspection
C	30.11.c. Failure to stabilize a Project prior to fall freeze-up.	$5,000 per Project per year	
D	30.11.f. Corrective action, failure to timely accomplish BMP maintenance and/or repairs. In effect until BMP maintenance and/or repairs is completed.	$500 per Project per day	
E	30.11.e.1. Failure to provide to the Engineer and DEC a timely oral noncompliance report of violations or for a deficient oral noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14-day period without the required info.
F	30.11.e.2. Failure to provide to the Engineer and DEC a timely written noncompliance report of violations or for a deficient written noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14-day period without the required info.
G	30.14 Failure to comply with the requirements of the CGP, approved SWPPP, and Section 20.30, except as listed above	$750 per occurrence for the first day of noncompliance	Additional $750 for every day the deficiency remains uncorrected

Article 30.17 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section.

Payment shall be made under the following units:

ITEM	UNIT
Storm Water Pollution Prevention Plan	Lump Sum

ADD

SECTION 20.32 MOBILIZATION AND DEMOBILIZATION

Article 32.1 General

This section consists of all preparatory work and operations, including but not limited to operations necessary to: (1) move personnel, equipment, and supplies to the project site, (2) establish offices, buildings, and other facilities, (3) perform all other work and operations, including costs incurred, before beginning work on the project, (4) complete similar demobilization activities, and (5) provide required submittals such as as-builts, certificates, and payrolls.

Article 32.2 Method of Measurement

Payment for mobilization and demobilization will be made in partial payments as follows:

(a) With the first pay request, 30% of the pay item.

(b) When 25% or more of the original contract is earned, an additional 25%.

(c) When 50% or more of the original contract is earned, an additional 25%.

(d) After Substantial Completion inspection, staging area clean-up and delivery of all Project Closeout materials, the final 20%.

The City reserves the right to require submittal of invoices, receipted bills, payrolls, and other appropriate documents to justify any or all payments under this item.

Article 32.3 Basis of Payment

Payment will be made as the contract lump sum price for mobilization and demobilization. This price and payment shall be full compensation for all costs associated with this item.

Payment shall be made under the following units:

ITEM	UNIT
Mobilization and Demobilization	Lump Sum

REPLACE

SECTION 30.04 STRUCTURES AND RETAINING WALLS

Article 4.3 Measurement

The method of measurement for structures and retaining wall shall be as follows:

A. Backing Curb shall be measured linearly along the front face of the curb. The price shall include full compensation for constructing backing curb as shown in the Drawings and required by these specifications. The Backing Curb pay item includes compensation for the additional four (4) inch depth of PCC beyond the PCC Sidewalk 4” Thick pay item.

Article 4.4 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section. Payment includes all labor, tools, equipment, and incidentals required to complete the Work.

Payment shall be made under the following units:

ITEM	UNIT
Backing Curb	Linear Foot

REPLACE

SECTION 50.19 SEWER CLOSED CIRCUIT TELEVISION INSPECTIONS

Article 19.1 General

The work under this section consists of providing all operations associated with video inspection and recording of sewer assets. The work under this section also includes all associated sewer mainline cleaning.

Sewer mainline Close Circuit Television (CCTV) work is to be completed by a currently certified National Association of Sewer Service Companies (NASSCO) camera operator in the specialty of Pipeline Assessment and Certification Program (PACP). The sewer mainline CCTV video inspection is to code observations and defects as specified in the PACP reference manual (version 6.0.1).

Existing manholes and pipes shall be cleared of any debris per 50.19.4.A. Contractor shall CCTV structures at all angles and full length of pipes to provide inspection footage to the engineer for review and acceptance. Engineer will review footage and provide recommendation regarding additional required maintenance or structure/pipe replacement.

Contractor shall perform CCTV inspections prior to any ground disturbing activities.

Sewer line cleaning, flow control and atmospheric conditioning will be required to obtain access, ease camera travel, remove visual impediments and remove debris. Traffic control may be required to access sanitary sewer manholes, cleanouts, pipes and other sewer assets.

Article 19.2 Submittals

Submittals are to be provided to the Engineer for review and acceptance as stated in Division 10, Section 10.05, Article 5.6 – Product Data. Submittals, at a minimum, are to include applicable items identified below:

- Video
- PACP data
- Sewer flow control, when required
- CCTV Equipment, when requested

Article 19.3 Material

CCTV equipment includes vehicles, computers, software programs, viewing devices, cameras, cables, portable power sources, lights, blowers, winches and all related equipment needed to satisfactorily complete a CCTV inspection.

The camera is to process video in color with a lens having a focal distance between one inch (1”) and infinity (∞), be capable of autofocus, manual focus and have an adjustable iris. The in-pipe target is to be viewable with the camera at a

perpendicular angle to the target and the camera at zero zoom. For cameras with zoom lens capability, calibration and in-pipe measurements are to be taken at zero zoom. Analog Video output and capture is to be a minimum of 400 lines per inch.

The camera is to be transporter mounted for six inch diameter (6”Ø) and larger pipe line inspections, have built in lighting with pan and tilt capabilities of 360º rotation and 270º tilt. Illumination is to be adjustable and capable of providing a clear and well-lit picture. Lighting is to be planned and executed based upon the size and type of pipe being inspected.

Push cameras may be used to video sewer services which are typically less than eight inches (8”) in diameter. Push cameras are to have built in lighting, be self-leveling, be used from the ground surface or transporter mounted for use from within the mainline pipe for lateral inspection. Push cameras are not to be used as the primary image sources for pipes six inch diameter (6”Ø) and larger.

CCTV performed using digital high-resolution camera(s) equipped with wide angled lenses(s) that provide three hundred and sixty degree (360º) spherical and side scanning capabilities that provide “unfolded” views of the pipe, and propelled by a transporter that travels faster than 30 feet per minute, may be used as an alternative to a pan and tilt camera / transporter. This alternative will only be used if the contractor can comply with all other requirements of this specification section.

Pole mounted cameras may be used to video manholes and pipe connections.

All in pipe equipment is to be certified to operate in conditions found in wet/submerged sewer pipes and manholes without adverse effects to the equipment or the sewer system. Typically this will require, but not limit, the camera to operate in grease, sludge, mud, gravel, one hundred percent (100%) humidity, and other adverse environments.

Article 19.4 Construction

Where required, the contractor shall complete a CCTV inspection to assess the condition of the sanitary sewer line between manholes. The inspection shall document the condition of the sewer asset through the use of PACP codes, video, and photographic documentation. This information will assist the City with planning and prioritizing any needed repairs.

The contractor shall notify the Engineer two (2) working days in advance of the anticipated date of televising. Submit Traffic Control Plans to the Engineer 7 days before the scheduled work activity start date. The Engineer shall be provided unobstructed access to CCTV facilities from set up to tear down of the CCTV equipment. During the CCTV inspection the Engineer may require the contractor to backup, adjust the camera and investigate the CCTV equipment any points they may deem of interest.

The Engineer will review the CCTV video and PACP observations and defect codes to determine conformance with the specification. The contractor is to correct deficiencies where the video and coding do not meet the standards stated herein at no additional cost to the owner.

A. Sewer Cleaning

Several sewer lines are scheduled for only cleaning, while other sewer lines are scheduled for a sewer line clearing prior to a sewer line CCTV inspection. The contractor shall clean sewer lines as shown on the Drawings. Sewer line cleaning shall include removal of grit, loose solids, grease, and any debris. All debris is to be trapped at the end of the CCTV inspection run and properly hauled offsite or disposed. Sewer line cleaning is be accomplished using a high velocity jet or mechanically powered equipment. Selection of the equipment used is to be based on the condition of the sewer line at the time the work commences. The contractor is to take due care to avoid damaging the pipe or impact connected sewer customers.

B. Sewer Main CCTV Inspection

The camera is to be centered in the pipe and move in a downstream direction at a uniform rate stopping and recording all joints and points of coding. At no time is the rate to exceed a rate of thirty feet per minute (30 ft/min). When the camera is not able to complete the inspection, after several attempts and cleaning of the sewer pipe, then the inspection of the current segment is to be abandoned and started from a reverse setup going against the sewer flow.

The camera lens is to be kept clear of condensation, oils, grease and debris during the CCTV inspection. Lighting intensity is to be adjusted to minimize glare. Picture quality must be adjusted to provide a clear in-focus picture of the entire periphery of the pipeline.

The contractor is to record and code the sewer mainline inspection using PACP codes in a NASSCO certified software. The engineer will provide the sewer main names to the contractor. The contractor is to request a list of the NASSCO PACP non-mandatory fields that are required to successfully complete the CCTV inspection from the Engineer. If an unknown/new access point is found or created to CCTV the sewer pipe, then the contractor is to obtain the name from the engineer.

The contractor is to complete a thorough examination of stopping points prior to continuing the inspection. The following partial list of required stopping points are provided below and a more complete list is provided in the NASSCO PACP requirements.

- Manholes – Pipe penetrations, flow channel, bench, and barrel sections are to be videoed.
- Joints – camera shall rotate 360º to provide a potential view of all portions of the joint. The rotation is to occur at a metered rate over no less than twenty seconds.
- Cracks and fractures – provide a close up view of the point of interest (POI) and a perspective view indicating the extent and/or length of the POI and how close the nearest pipe joint is.
- Holes, breaks, lining failures and/or deformations – provide a close up and perspective view of the POI. Adjust the view to make apparent any voids behind the POI.
- Service connects – inspect the hole cut into the pipe and associated repairs at all service connections.
- Changes in alignment, sags or crests – The view should be long enough and lit such that the change can be estimated.

Video and photographs are to be captured but not coded for sewer assets that are not sewer mainlines.

C. Flow Control

CCTV video will not be accepted when the water depth is greater than twenty percent (20%) of the pipe diameter for pipes twelve inch in diameter (12”Ø) and smaller. Larger pipes will have an additional five percent (5%) allowance.
Flow control is required for the successful completion of the CCT inspection. The contractor is to work with property owners, schedule inspections at low usage times, assist with a high velocity hydraulic jet, provide sewer flow control or any combination of the above to meet the water depth requirement.

D. Distance Measurement

The distance is to be measured between the exit of the start manhole and the entrance of the finish manhole for a true measurement of the length of the pipe segment, as required by PACP. It shall be recorded in standard units and the video display readout shall display units to one-tenth of a foot. The camera cable shall be retracted to remove slack to ensure an accurate footage reading. The cable footage counter is to be accurate to the nearest third of a foot (1/3’) except where a higher accuracy is required to reinstate services. Accuracy to reinstate services is to be to the nearest inch.

E. Deliverables

A minimum of two digital photos are to be taken of each defect, one showing a perspective view and one showing a close up view. The photo is to have on-screen information such as the distance into the inspection, the starting asset number and the ending asset number.

The contractor is to submit to the Engineer within five days of completing the CCTV inspection video files, photographs, and the sewer main inspection database. The database will be in an unmodified NASSCO-PACP certified database with a MS access format. Photographs, video, folders, and other data will be properly referenced within the contractor's database.

Recorded images showing steam, inadequate lighting, or poor image quality will be cause for rejection. Rejected recordings will be rerecorded by the contractor at no additional cost to the owner.

If the Engineer determines that corrections are needed, the documentation is to be resubmitted after corrective action has taken place.

Article 19.5 Measurement

The method of measurement for this Work shall be as follows:

B. Sewer Line Cleaning

When cleaning occurs from manhole to manhole, measurement shall be based on length, measured in place, from center of structure to center of structure.

C. Sewer Line CCTV Inspection

When inspection occurs from manhole to manhole, measurement shall be based on length, measured in place, from center of structure to center of structure.

Article 19.6 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section. Payment includes all labor, tools, equipment, apparatus and incidentals required to complete the Work. No additional payment will be made for setups, tear downs, relocation, overlapping video footage per bid item, lost or damaged equipment, property owner coordination, and jetting during CCTV activities. Sewer flow control is considered incidental to this Work.

Payment shall be made under the following units:

ITEM	UNIT
Sewer Line Cleaning	Linear Foot
Sewer Line CCTV Inspection	Linear Foot

REPLACE

SECTION 55.16 STORM DRAIN CLOSED CIRCUIT TELEVISION INSPECTIONS

Article 16.1 General

The work under this section consists of providing all operations associated with video inspection and recording of storm drain assets. The work under this section also includes all associated storm drain mainline cleaning. Existing storm drains shall be inspected by closed circuit television (CCTV) as identified in the Drawings, to determine the existence and extent of any obstructions, structural deficient, or sags. Traffic control may be required to access storm drain manholes, catch basins, catch basin manholes, and other assets.

Article 16.2 Submittals

Submittals are to be provided to the Engineer for review and acceptance as stated in Division 10, Section 10.05, Article 5.6 – Product Data. Submittals, at a minimum, are to include applicable items identified below:

- Video
- CCTV equipment product data, when requested

Article 16.3 Material

CCTV equipment includes vehicles, computers, software programs, viewing devices, cameras, cables, portable power sources, lights, blowers, winches and all related equipment needed to satisfactorily complete a CCTV inspection.

The camera is to process video in color with a lens having a focal distance between one inch (1”) and infinity (∞), be capable of autofocus, manual focus and have an adjustable iris. The in-pipe target is to be viewable with the camera at a perpendicular angle to the target and the camera at zero zoom. For cameras with zoom lens capability, calibration and in-pipe measurements are to be taken at zero zoom. Analog Video output and capture is to be a minimum of 400 lines per inch.

The camera is to be transporter mounted for six inch diameter (6”Ø) and larger pipe line inspections, have built in lighting with pan and tilt capabilities of 360º rotation and 270º tilt. Illumination is to be adjustable and capable of providing a clear and well-lit picture. Lighting is to be planned and executed based upon the size and type of pipe being inspected.

CCTV performed using digital high-resolution camera(s) equipped with wide angled lenses(s) that provide three hundred and sixty degree (360º) spherical and side scanning capabilities that provide “unfolded” views of the pipe, and propelled by a transporter that travels faster than 30 feet per minute, may be used as an alternative to a pan and tilt camera / transporter. This alternative will only be used if the contractor can comply with all other requirements of this specification section.

Pole mounted cameras may be used to video storm structures and pipe connections.

All in-pipe equipment is to be certified to operate in conditions found in wet/submerged storm drain pipes and manholes without adverse effects to the equipment or the storm drain system. Typically this will require, but not limit, the camera to operate in grease, sludge, mud, gravel, one hundred percent (100%) humidity, and other adverse environments.

Article 16.4 Construction

Where required, the contractor shall complete a CCTV inspection to assess the condition of the storm drain line between storm drain structures. The inspection shall document the condition of the storm drain asset through the use of PACP codes, video, and photographic documentation. This information will assist the City with planning and prioritizing any needed repairs.

The contractor shall notify the Engineer two (2) working days in advance of the anticipated date of televising. Submit Traffic Control Plans to the Engineer 7 days before the scheduled work activity start date.

The Engineer or their designee is to be provided unobstructed access to CCTV facilities from set up to tear down of the CCTV equipment. During the CCTV inspection the Engineer may require the contractor to backup, adjust the camera and investigate with the CCTV equipment any points they may deem of interest. The Engineer will review the CCTV video to determine conformance with the specification. The contractor is to correct deficiencies where the video does not meet the standards stated herein at no additional cost to the owner.

A. Storm Drain Cleaning

Several storm drain lines are scheduled for only cleaning, while other storm drain lines are scheduled for a storm drain line cleaning prior to a storm drain line CCTV inspection. The contractor shall clean storm drain lines as shown on the Drawings. Storm drain line cleaning shall include removal of grit, loose solids, grease, and any debris. All debris is to be trapped at the end of the CCTV inspection run and properly hauled off and disposed. Storm drain line cleaning is to be accomplished using a high velocity jet or mechanically powered equipment. Selection of the equipment used is to be based on the condition of the storm drain line at the time the work commences. The contractor is to take due care to avoid damaging the pipe or impact lateral connections.

B. Storm Drain Main CCTV Inspection

The camera is to be centered in the pipe and move in a downstream direction at a uniform rate stopping and recording all joints and points of coding. At no time is the rate to exceed a rate of thirty feet per minute (30 ft/min). When the camera is not able to complete the inspection, after several attempts and cleaning of the storm

drain pipe, then the inspection of the current segment is to be abandoned and started from a reverse setup going against the storm drain flow.

The camera lens is to be kept clear of condensation, oils, grease and debris during the CCTV inspection. Lighting intensity is to be adjusted to minimize glare. Picture quality must be adjusted to provide a clear in-focus picture of the entire periphery of the pipeline.

The contractor is to complete a thorough examination of stopping points prior to continuing the inspection. The following partial list of required stopping points are provided below and a more complete list of required stopping points are provided below:

- Manholes – Pipe penetrations and barrel sections are to be videoed.
- Joints – camera shall rotate 360º to provide a potential view of all portions of the joint. The rotation is to occur at a metered rate over no less than twenty seconds.
- Cracks and fractures – provide a close up view of the point of interest (POI) and a perspective view indicating the extent and/or length of the POI and how close the nearest pipe joint is.
- Holes, breaks, lining failures and/or deformations – provide a close up and perspective view of the POI. Adjust the view to make apparent any voids behind the POI.
- Lateral connects – inspect the hole cut into the pipe and associated repairs at any and all lateral connections.
- Changes in alignment, sags or crests – The view should be long enough and lit such that the change can be estimated.

C. Flow Control

CCTV video will not be accepted when the water depth is greater than twenty percent (25%) of the pipe diameter. Flow control is required for the successful completion of the CCTV inspection. The contractor is to schedule inspections at low flow times, assist with a high velocity hydraulic jet, provide storm drain flow control or any combination of the above to meet the water depth requirement.

D. Distance Measurement

The distance is to be measured between the exit of the start structure and the entrance of the finish structure for a true measurement of the length of the pipe segment. It shall be recorded in standard units and the video display readout shall display units to one-tenth of a foot. The camera cable shall be retracted to remove slack to ensure an accurate footage reading. The cable footage counter is to be accurate to the nearest third of a foot (1/3’).

E. Deliverables

A minimum of two digital photos are to be taken of each defect, one showing a perspective view and one showing a close up view. The photo is to have on-screen information such as the distance into the inspection, the starting asset number and the ending asset number. The contractor is to submit to the Engineer within five days of completing the CCTV inspection video files, photographs, and the storm drain inspection database. Photographs, video, folders, and other data will be properly referenced within the contractor's database. Recorded images showing steam, inadequate lighting, or poor image quality will be cause for rejection. Rejected recordings will be rerecorded by the contractor at no additional cost to the owner. If the Engineer determines that corrections are needed, the documentation is to be resubmitted after corrective action has taken place.

Article 16.5 Measurement

The method of measurement for this Work shall be as follows:

D. Storm Drain Line Cleaning

When cleaning occurs from manhole to manhole, measurement shall be based on length, measured in place, from center of structure to center of structure.

E. Storm Drain Line CCTV Inspection

When inspection occurs from manhole to manhole, measurement shall be based on length, measured in place, from center of structure to center of structure.

Article 16.6 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section. Payment includes all labor, tools, equipment, apparatus and incidentals required to complete the Work. No additional payment will be made for setups, tear downs, relocation, overlapping video footage per bid item, lost or damaged equipment, property owner coordination, and jetting during CCTV activities. Storm drain flow control is considered incidental to this Work.

Payment shall be made under the following units:

ITEM	UNIT
Storm Drain Line Cleaning	Linear Foot
Storm Drain Line CCTV Inspection	Linear Foot

REPLACE

SECTION 60.04 FURNISH AND INSTALL FIRE HYDRANTS

Article 4.4 Measurement

The method of measurement to furnish and install fire hydrants shall be as follows:

F. Single Pumper Fire Hydrants

Single Pumper Fire Hydrants are to be measured as complete assemblies furnished, constructed, installed, and accepted in place for each installation. Each installation shall include a fire hydrant assembly (single pumper hydrant/head, barrel, and shoe), a six inch (6”) DIP hydrant leg, a six inch (6”) auxiliary gate valve and valve box, guard post installation, coatings, coverings, and galvanic anodes, including but not limited to anodes, pipe connection lead wires, and anode flat bars. The price shall include full compensation for furnishing and installing hydrants as shown in the Drawings and required by these specifications.

G. Single Pumper Fire Hydrants Without Gate Valves

Single Pumper Fire Hydrants Without Gate Valves are to be measured as complete assemblies furnished, constructed, installed, and accepted in place for each installation. Each installation shall include a fire hydrant assembly (single pumper hydrant/head, barrel, and shoe), a six inch (6”) DIP hydrant leg, guard post installation, coatings, coverings, and galvanic anodes, including but not limited to anodes, pipe connection lead wires, and anode flat bars. The price shall include full compensation for furnishing and installing hydrants as shown in the Drawings and required by these specifications.

Article 4.5 Basis of Payment

Payment for this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07, Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section.

This Work should include constructing fire hydrant pads at the locations shown on the Drawings, or as directed by the Engineer. Type II-A Classified Fill and Backfill, if required, shall be paid for under the appropriate bid item.

Payment shall be made under the following units:

ITEM	UNIT
Furnish and Install Fire Hydrant Assembly (Single Pumper)	Each
Furnish and Install Fire Hydrant Assembly (Single Pumper) Without Gate Valve	Each

REPLACE

SECTION 65.02 CONSTRUCTION SURVEYING

Article 2.1 General

Perform surveying and staking essential for the completion of the project and perform the necessary calculations required to accomplish the work in conformance with the Plans and specifications and standard survey and engineering practices.

Article 2.2 Definitions

Monument: A fixed physical object marking a point on the surface of the earth; used to commence or control a survey; mark the boundaries of a parcel of land; or the centerline of a right-of-way corridor. Monuments will be Primary or Secondary, as shown on the Plans.

Point: An identified spot located on the surface of the earth. For purposes of this definition, a point can be a PK nail, wooden hub, rebar, large nail or other structure capable of being utilized as a marker.

Witness Corner: A material mark or point usually placed on a property or survey line, at a known distance from a property corner or other survey point. A witness corner is employed to witness the location of a corner/point that cannot be monumented at its true location.

Reference Monument: A material mark or point placed at a known distance and direction from a property corner or other survey point, usually not on a property or survey line. A reference monument is employed to perpetuate a corner/point that cannot be monumented at its true location or where the corner monument is subject to destruction.

Surveyor: The Contractor's Professional Land Surveyor, currently registered in the State of Alaska.

Article 2.3 Materials

Monument Cases. Castings shall conform to AASHTO M 105, Class 30A. Castings shall be coated with a bituminous damp-proof coating. Bolting tops shall be used.

Primary Monument. A minimum 2-inch diameter nonferrous pipe at least 30 inches long, with a minimum 4-inch flange at the bottom and having magnets attached at the top and bottom. A minimum 2-1/4-inch diameter nonferrous metal cap must be permanently attached to the top. Mark the cap around the outside edge with the words "CITY OF VALDEZ". Permanently stamp every monument with the Surveyor's registration number, the year set, and the point/corner identification. Orient cap so that the data may be read facing up-station.

Secondary Monument. A minimum 5/8-inch by 30-inch rebar with a 2-inch aluminum cap attached to the top. Permanently stamp every secondary monument with the Surveyor's registration number and the year set.

Article 2.4 Construction Requirements

1. General

Use competent, qualified personnel and suitable equipment for the layout work required and furnish traffic control, stakes, templates, straight-edges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

Furnish computer services to accomplish the work. Check data received from the computer for completeness and accuracy. As soon as practical after completion of the work, and in no case later than acceptance of the project, deliver field books, computer forms and computer output data to the Engineer. This data becomes the property of the Owner.

Supervise construction surveying personnel. Correct errors resulting from the operations of said personnel at Contractor expense. The Contractor is responsible for the accuracy of the work.

Work classified as Land Surveying under AS 08.48, and work involving the location, control, and monumentation of construction centerline and right-of-way, shall be performed by or under the responsible charge of a Professional Land Surveyor.

Follow DOT&PF's *Construction Surveying Requirements*.

Contractor and their Surveyor shall contact the Engineer prior to performing survey work under this item.

The City will provide sufficient centerline or reference thereto, and at least one benchmark to enable the establishment of planned elevations and centerline.

Keep field notes in standard hardbound notebooks in a clear, orderly, and neat manner consistent with Owner's procedures, including titles, numbering, and indexing. Make field books available for inspection by the Engineer's project personnel at any time. Legible copies of the reduced field notes shall be made daily. Store the field books in a secure area during periods of non-use. Copies of the field books shall be kept in a separate secure location.

Perform the following:

a. Verification of existing control points prior to beginning any construction surveying.

b. Staking necessary to delineate clearing and/or grubbing limits.

c. Cross sections necessary for determination of excavation and embankment quantities, including intermediate and/or remeasure cross sections as needed. Take cross sections after clearing and grubbing has been completed.

d. Slope staking.

e. Staking of signs, culverts, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.

f. Setting finishing stakes.

g. Measurement of pay quantities that require measurement.

h. Staking of right-of-way and material source limits.

i. Staking, referencing and other actions required to preserve or restore land monuments and property corners.

j. As-built surveying. Tie as-built measurements and locations to project horizontal and vertical survey control.

k. Asphalt pavement surveying as necessary to comply with acceptance criteria for smoothness and grade of finished asphalt pavement surfaces.

l. Staking of bottom of excavation and hubbing the top of each layer in the pavement structure.

m. Provide interim calculations for measured items to the Engineer prior to progress payments for each specific item. Ensure that the calculations are completed, checked, and signed by the person in responsible charge of the work.

n. Other surveying and staking necessary to complete the project.

Notify the Engineer immediately if a COV-established reference point is discovered to be in error or a reset point is not in relationship to the adjacent centerline points.

Record field survey notes, including documentation for quantity computations for payment.

The Engineer may randomly spot check the Contractor's surveys, staking, and computations. After the survey or staking has been completed, provide the Engineer with a minimum of 72 hour notice before performing work, and furnish the appropriate data, to allow for random spot checking. The City assumes no responsibility for the accuracy of the work.

Measure, compute, and plot all field-measured pay item quantities, including but not limited to excavation and disposal of asphalt cement concrete (AC), Portland cement concrete (PCC) pavement, and classified/unclassified excavation volumes. Stake for measurement and calculation of excavation quantities after AC and PCC pavement removal. Submit a proposed method of measuring and computing volumes to the Engineer in writing for approval before performing any field work under this item.

Provide item quantities, including computations and plots to the Engineer prior to payment for each specific item. The Owner will review and accept or modify the quantities provided.

Digital terrain modeling (DTM) may be used in determining earthwork quantities as an alternative to before and after cross sections by average end area if the Engineer has agreed in writing to the DTM method prior to commencement of any field work. If DTM is approved and used, provide plotted cross-sections on 50-foot stations with elevations, offsets and computed end areas in square feet for each section prior to earthwork payments for each item. Provide these cross-sections and associated data for the entire area of earthwork computations along with the terrain model.

Accomplish staking in accordance with the following:

a. Perform the topographic survey by grid or cross section method of surveying 25 feet beyond the project match lines. Take elevation shots at 25-foot intervals, at all terrain breaks, and at topographic features.

b. Record and locate all baselines and connect them to the project's centerline, both horizontally and vertically.

c. Upon completion of the before and after survey, provide the Engineer a grid layout sheet showing the baseline, stations and all spot elevations.

d. Provide the Engineer a contour map of the original ground and an identical size map showing the final elevations with 0.5 foot contour intervals. Provide the Engineer with plotted cross-sections for each station grid with elevations and offsets shown.

At the end of each day's work, the surveyor shall email a copy of the downloaded raw data from the data collector, in its original format, to the Engineer. If editing is deemed necessary, send a separate email with the amended electronic data and a change log annotating the changes.

Contractor shall provide work products described in this subsection to the Engineer before payment will be made for surveying pay items. Provide as-builts and electronic data to the Engineer prior to final inspection.

2. Cross-section Surveys

When required, obtain right-angle cross sections to the construction centerline at the interval detailed in the DOT&PF's *Construction Surveying Requirements*.

The following will be supplied by the City:

a. Construction Plans and specifications.
b. Design Cross Sections, if any.
c. Design centerline grades.

The following shall be required of the Contractor:

a. Field Books (Level, Cross-Section, Slope Stake, etc.). Use "Rite-in-the-Rain" or similar weather resistant hardbound field books. Field books become the property of the Owner upon completion of the work.

b. Label the books and number the pages. Make a heading in the appropriate book (date, weather, names and duties of crew members) at the beginning of each day's work.

c. Update the index of the appropriate book at the end of each day's work.

d. Reduce, check, and adjust level notes.

e. The notekeeper shall compute the cross-section level notes and slope stake catches and a different crew member shall check the computation on a continual basis in the field.

f. Enter the grade data, shoulder width and/or ditch distance, stationing, slope, etc., in the slope stake books.

g. Maintain the position and identifying marks of slope stakes and reference points until used for their intended purpose.

h. Correct errors by drawing a line through them and writing the correct entry directly above. Erasures will not be allowed.

i. Return field books and copies of the field books to the Project office at the end of each work day or as directed.

j. Provide copies of grade sheets and temporary bench mark elevations to the Engineer 48 hours before beginning work on unclassified excavation or embankment.

k. The Contractor’s survey crews shall comply with approved traffic control plans. Coordinate crew activities with the Worksite Traffic Supervisor.

l. Keep a survey Party Chief diary, and give a copy of the diary to the Engineer each day. The diary shall contain the following information:

(1) Date.
(2) Weather.
(3) Crew members’ names and duties.
(4) Type and location of work performed.
(5) Hours worked.
(6) Type of equipment used (brand) and date equipment was double centered or “peg” test was performed.
(7) Signature of person in responsible charge.

m. Submit the survey field notes, for the specific area, relating to monument referencing, before beginning clearing, grubbing or excavation.

n. Draw cross-sections and complete quantity calculations for all earthwork quantities.

3. Office Engineering

Calculate finish grades for Work as specified according to Plans and/or specifications. Use information available in the field, on as-builts, or as provided by the Engineer. This work shall be performed by or under the responsible charge of a Professional Land Surveyor or a Professional Engineer currently registered in the State of Alaska.

Article 2.5 Method of Measurement

Method of measurement for all Work in this section shall be lump sum.

Construction Surveying includes all field and office work required to accomplish Contract Work, including providing all necessary personnel, equipment, transportation, and supplies.

Article 2.6 Basis of Payment

Payment will be made at the contract lump sum price for Construction Surveying. This price and payment shall be full compensation for all costs associate with this item.

Payment shall be made under the following units:

ITEM	UNIT
Construction Surveying	Lump Sum

REPLACE

SECTION 70.15 TRAFFIC MAINTENANCE

Article 15.11 Payment

Pay items include all necessary personnel, equipment, transportation, and supplies to accomplish the work described in the Contract, or as directed by the Engineer.

1. Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, and the maintenance of all roadways, approaches, crossings, intersections, and pedestrian & bicycle facilities, as required.
2. Traffic Control. The contract price encompasses all Contractor traffic control work described in the Contract, including the preparation and implementation of all temporary traffic control plans, detours, and permits within the project limits. This work also includes all necessary permanent construction signs.
3. Flagging. The contract price includes all required labor, vehicles, radios, flagger paddles, and transportation to and from the worksite. The Engineer will pay this item on a contingent sum basis at the rate of $82.00/hour.
4. Temporary Access Road. The contract price includes all resources required to construct, maintain, and remove the temporary access road as shown on the Drawings and required by these Specifications. This Work include any material doubling handing or stockpiling.

Payment will be made under:

ITEM	UNITS
Traffic Maintenance	Lump Sum
Traffic Control	Lump Sum
Flagging	Contingent Sum
Temporary Access Road	Lump Sum

ADD

SECTION 80.01 OWNER'S CONTINGENCY

Article 32.1 General

This section consists of: (1) directives needed or proposals requested to continue work flow on extra work within the original scope of work negotiated between the Engineer and the Contractor, (2) additions to quantities listed in the current bid schedule with the agreed unit prices, and (3) value engineering brought forth to the owner that is in the benefit to the City.

Activities under this section include Extra or Additional Contract Work.

Article 32.2 Method of Measurement

Method of measurement shall be as follows:

(a) Contingent Sum. Authorized additions of existing unit price items agreed lump sum amounts, and possible additions of items not on the current bid schedule with agreed fair unit prices.

Article 32.3 Basis of Payment

Payment shall be made under the following units:

ITEM	UNIT
Owner's Contingency	Contingent Sum

CITY OF VALDEZ
Project Title: Pavement Management Phase IV Meals Avenue
Project No.: 25-310-1118
Contract No.: 2450

TO: All Recipients **Date: February 25, 2026**

SUBJECT: Addendum No. 4

This two (2) page Addendum forms a part of the project scope documents and modifies the project scope for the above-referenced project. **Acknowledge receipt of this Addendum in the space provided on the Bid Form**. Failure to do so may subject the Bidder to disqualification.

This Addendum makes the following changes and/or clarifications:

RESPONSES TO QUESTIONS:

1. I just realized that the bid sheet calls for 11 poles and 11 bases. You actually need 12 bases. There are 11 light poles plus the one you already have so the project will be installing a total of 12 light poles. I was putting my numbers together for 11 poles bases and realized that we need 12. Also the drawing doesn't say anything about pole L16 at the corner of Pioneer not being installed. If I didn't know better and was just looking at the drawings, I would think L16 was already there. I just noticed that L16 is marked as existing on the drawing.

   RESPONSE - Bidder's shall follow the quantities listed in the bid schedule. Any adjustments needed will be handled after award.

2. Item 55.03 CBMH #'s 116,120,125,130,133,146, and 151 are called out as Type A MH they are being shown as replacing an existing SD structure but in a different location to match the new curb line. The new structure installed in the locations shown will not be able to connect to the existing storm drain lines that are running East to West. Would you consider changing the structure type to a larger diameter structure with an offset lid opening? Another option would be to change the Inlet Type to a sidewalk inlet like what is currently in the field and locate the structure in the same location as the existing structure.

   RESPONSE - A 4-ft diameter catch basin (COV 55-13) may be used in place of a Type A Inlet Box, as detailed in the plans, if the contractor chooses. The inlet castings submitted by the contractor must match what is called for in the plans. If the existing pipe

will not reach the proposed structure, a pipe extension could also be fitted to the existing pipe.

3. Please confirm on Base bid. Bid Item 21 has a quantity of 0 is this bid item N/A. Are we to assume that the Sewer line in the base bid does not need to be cleaned. Bid Item 26 and 27. Please confirm we are only cleaning the storm lines and that we are not CCTV the lines afterwards or before. It is not recommended to clean a storm pipe without CCTV lines as this could create more damage to the line if it is partially deteriorating and you end up high pressure jetting the lines. I would recommend cameraing as best as possible while cleaning and producing a CCTV of the line afterwards to confirm that the lines are cleaned. For bidding purposes are we to assume the storm pipe is 25%/50%/75%/100% full of debri? Bid item 27 has a quantiy of 0 please confirm this should be an N/A bid item. For bid items AA4-21/AA4-22 Please confirm we are only CCTV one of the lines and only cleaning the other line. We do not recommend cleaning the line without CCTV as previously questioned.

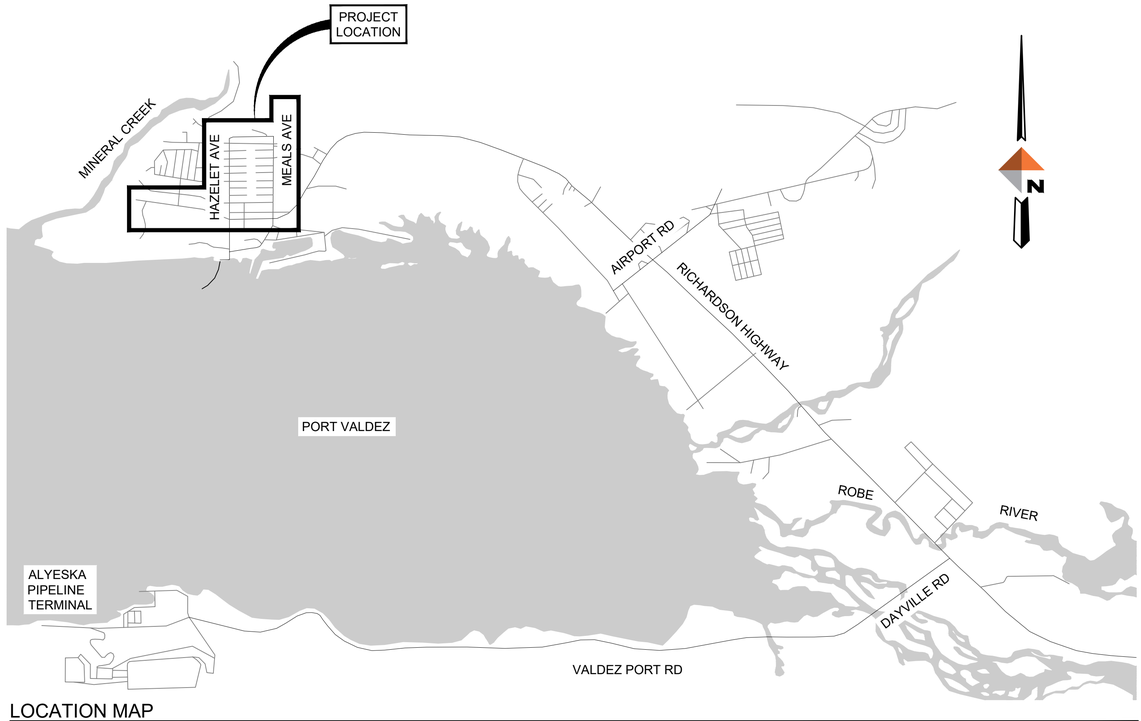
   RESPONSE - Pay items with quantities listed as "0" are N/A. In the base bid, a portion of sewer as identified on C-111, will need to be CCTV'd. Cleaning of the sewer for the purpose of CCTV'ing is included in the cost of the CCTV inspection (under base bid pay item 22). Base bid storm pipes to be cleaned are identified on C-111. It is assumed the pipes identified for cleaning only will not need to be replaced and the inspectors will make a determination in the field if a CCTV inspection should be included. Contractors should assume pipes are 25% full of debris. AA4-21 and AA4-22 accurately capture the work as described in the plans and on C-111 in Alternative 4 plan set. One section of sewer line is scheduled to be cleaned, and one section of pipe is scheduled to be CCTV inspected, which will require a cleaning for the inspection to be performed.

End of Addendum

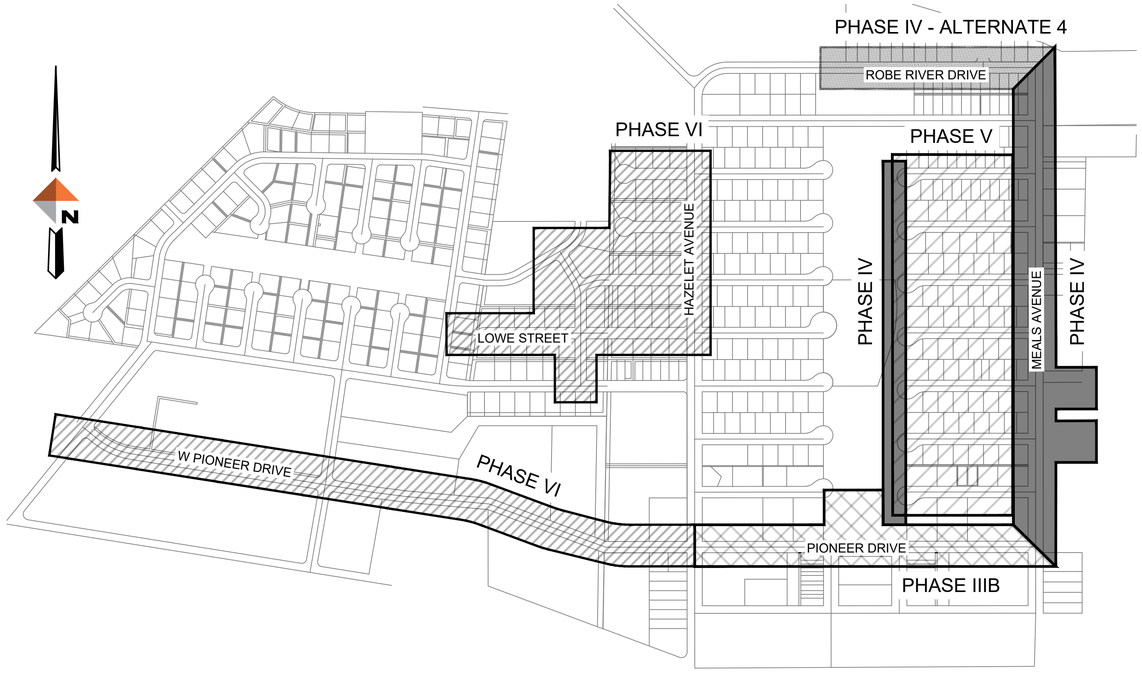
VALDEZ PAVEMENT REHABILITATION

PHASE IV-MEALS AVENUE

PROJECT NUMBER 22-310-1115



LOCATION MAP
VALDEZ, AK



VICINITY MAP

SHEET INDEX

SHEET NO.	SHEET
G-001	COVER SHEET
G-002	NOTES, LEGEND, AND ABBREVIATIONS
G-003	SITE PLAN AND KEY MAP
G-004	SURVEY CONTROL
C-101	TYPICAL SECTIONS
C-110	SUMMARY TABLES
C-111	SUMMARY TABLES
C-201 TO C-206	PLAN AND PROFILE
C-210 TO C-211	TEMPORARY GRAVEL ACCESS
C-301 TO C-306	INTERSECTION GRADING
C-307	INTERSECTION GRADING AND ADD ALT #1
C-308	INTERSECTION GRADING AND ADD ALT #2
C-309	INTERSECTION GRADING
C-401 TO C-405	DETAILS
C-501 TO C-504	SIGNING AND STRIPING
C-601 TO C-603	EROSION AND SEDIMENT CONTROL PLAN
C-604	EROSION AND SEDIMENT CONTROL PLAN - ADD ALT #1 & #2
E-001	ELECTRICAL LEGEND, SCHEDULES, AND CALCULATIONS
E-002	ELECTRICAL SPECIFICATIONS
E-003	ELECTRICAL DETAILS
E-004	ELECTRICAL SITE PLAN AND OVERALL MAP
E-101 TO E-104	ELECTRICAL DEMOLITION PLANS
E-201 TO E-204	ELECTRICAL PLANS

PREPARED FOR:

CITY OF VALDEZ, ALASKA
GATEWAY TO THE INTERIOR

PREPARED BY:

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

COVER SHEET

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

G-001

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	
TYPE III STORM MANHOLE		
SEWER MANHOLE	S	
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
VALDEZ, ALASKA

NOTES, LEGEND, AND ABBREVIATIONS

PROJECT 63461.01
DATE 01/16/2026

G-002

TRAFFIC CONTROL AND PHASING

GENERAL

A. ALL STAGING AREAS USED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE COMPLETION OF THE PROJECT PHASE.
B. ALL TRAFFIC CONTROL OPERATIONS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LATEST EDITION OF THE ALASKA TRAFFIC MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ALASKA SIGN SPECIFICATIONS AND THE MUTCD.
C. TEMPORARY TRAFFIC CONTROL (TTC) PLANS FOR EACH PHASE AND FOR SPECIFIC CONSTRUCTION ACTIVITIES THAT CANNOT BE EXECUTED WITHIN A PARTICULAR PHASE TTC, SHALL BE PREPARED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AT LEAST 7 DAYS IN ADVANCE OF THE WORK UNLESS OTHERWISE APPROVED BY THE ENGINEER.
D. TEMPORARY TRAFFIC LANES SHALL BE A MINIMUM OF 10-FT WIDE.
E. WHEN CONSTRUCTION ACTIVITIES REQUIRE THE CLOSURE OF THE EXISTING OR NEW SIDEWALKS, ALTERNATIVE PEDESTRIAN ROUTES THROUGH OR AROUND THE ACTIVE CONSTRUCTION ZONE SHALL BE ESTABLISHED.
F. WITH THE EXCEPTION OF CONCRETE POURS AND DRIVEWAY WORK VEHICULAR ACCESS SHALL BE MAINTAINED TO EACH LOT WITHIN THE PROJECT LIMITS AT ALL TIMES.

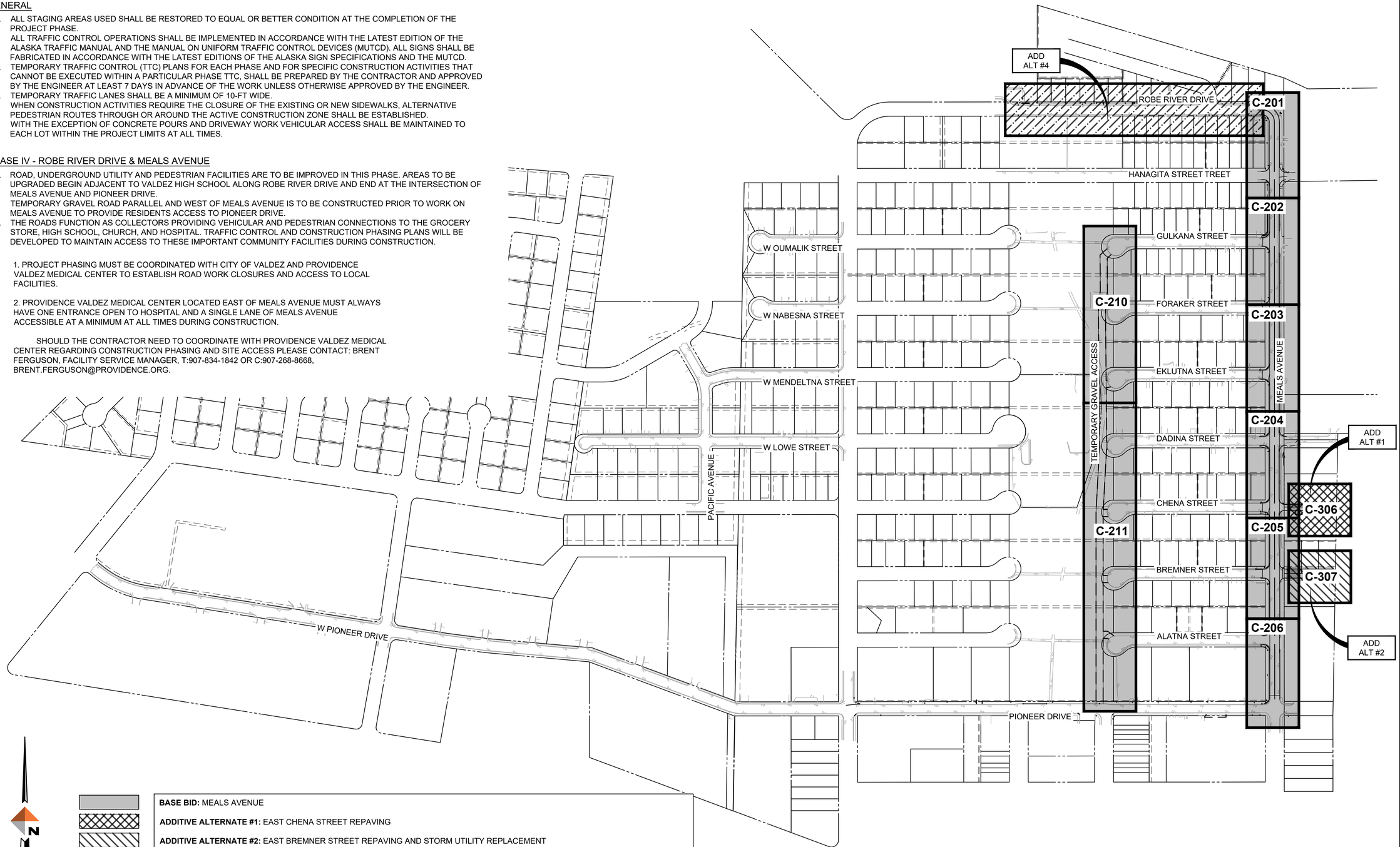
PHASE IV - ROBE RIVER DRIVE & MEALS AVENUE

A. ROAD, UNDERGROUND UTILITY AND PEDESTRIAN FACILITIES ARE TO BE IMPROVED IN THIS PHASE. AREAS TO BE UPGRADED BEGIN ADJACENT TO VALDEZ HIGH SCHOOL ALONG ROBE RIVER DRIVE AND END AT THE INTERSECTION OF MEALS AVENUE AND PIONEER DRIVE.
B. TEMPORARY GRAVEL ROAD PARALLEL AND WEST OF MEALS AVENUE IS TO BE CONSTRUCTED PRIOR TO WORK ON MEALS AVENUE TO PROVIDE RESIDENTS ACCESS TO PIONEER DRIVE.
C. THE ROADS FUNCTION AS COLLECTORS PROVIDING VEHICULAR AND PEDESTRIAN CONNECTIONS TO THE GROCERY STORE, HIGH SCHOOL, CHURCH, AND HOSPITAL. TRAFFIC CONTROL AND CONSTRUCTION PHASING PLANS WILL BE DEVELOPED TO MAINTAIN ACCESS TO THESE IMPORTANT COMMUNITY FACILITIES DURING CONSTRUCTION.

1. PROJECT PHASING MUST BE COORDINATED WITH CITY OF VALDEZ AND PROVIDENCE VALDEZ MEDICAL CENTER TO ESTABLISH ROAD WORK CLOSURES AND ACCESS TO LOCAL FACILITIES.

2. PROVIDENCE VALDEZ MEDICAL CENTER LOCATED EAST OF MEALS AVENUE MUST ALWAYS HAVE ONE ENTRANCE OPEN TO HOSPITAL AND A SINGLE LANE OF MEALS AVENUE ACCESSIBLE AT A MINIMUM AT ALL TIMES DURING CONSTRUCTION.

SHOULD THE CONTRACTOR NEED TO COORDINATE WITH PROVIDENCE VALDEZ MEDICAL CENTER REGARDING CONSTRUCTION PHASING AND SITE ACCESS PLEASE CONTACT: BRENT FERGUSON, FACILITY SERVICE MANAGER, T:907-834-1842 OR C:907-268-8668, BRENT.FERGUSON@PROVIDENCE.ORG.



BASE BID: MEALS AVENUE

ADDITIVE ALTERNATE #1: EAST CHENA STREET REPAVING

ADDITIVE ALTERNATE #2: EAST BREMNER STREET REPAVING AND STORM UTILITY REPLACEMENT

ALTERNATE #3: HDPE CONDUIT REPLACES RIGID CONDUIT IN BASE PLANS

ADDITIVE ALTERNATE #4: ROBE RIVER DRIVE (UNDER SEPARATE COVER)

ADDITIVE ALTERNATE #5: FIBER OPTIC CONDUIT MEALS AVENUE

ADDITIVE ALTERNATE #6: FIBER OPTIC CONDUIT ROBE RIVER DRIVE (UNDER SEPARATE COVER)

REVISIONS

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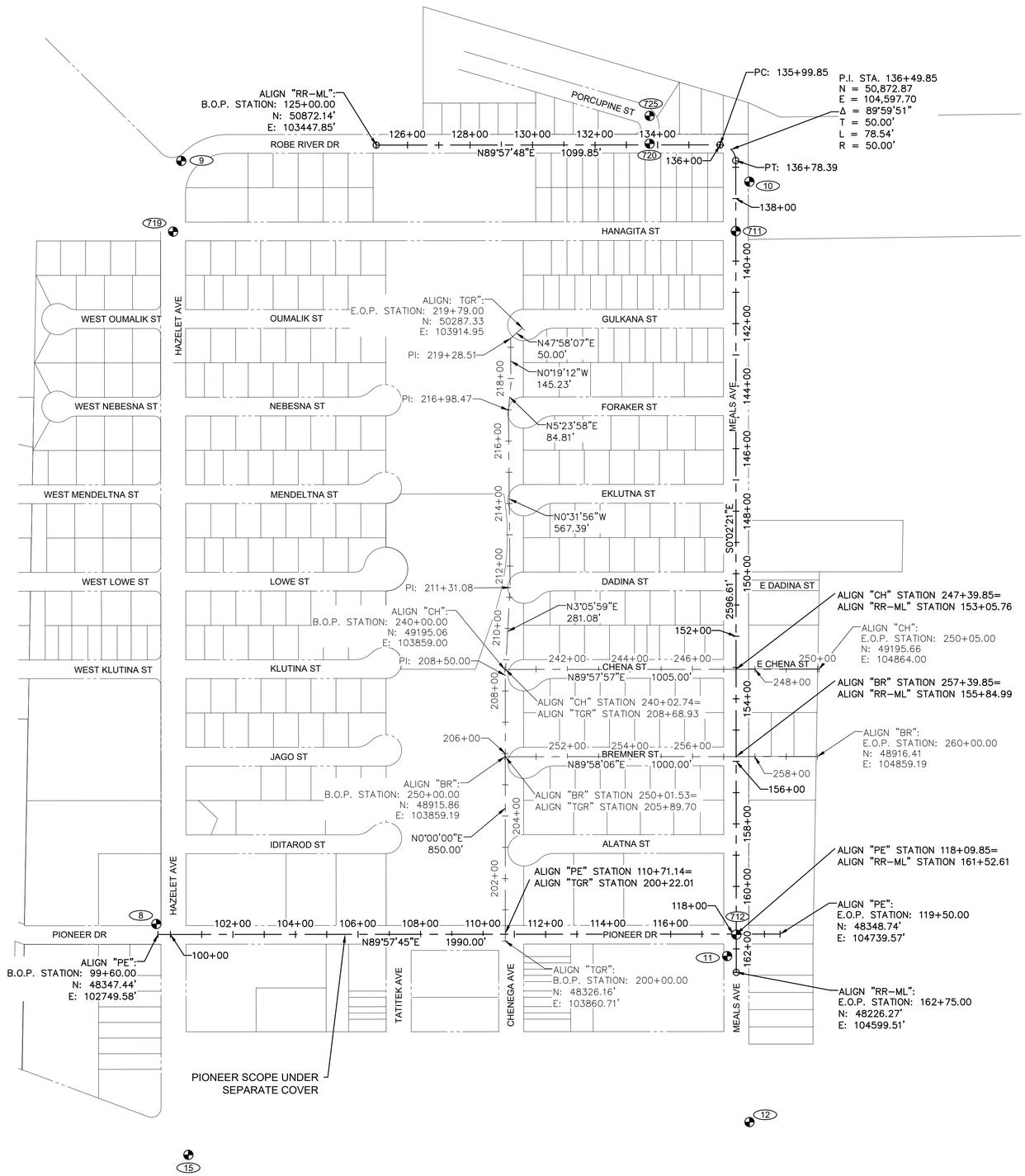
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

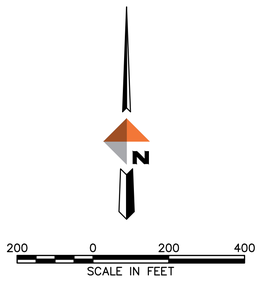
SITE PLAN AND KEY MAP

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-003





REVISIONS

REV	DATE	DESCRIPTION	BY

SURVEY CONTROL NOTES

HORIZONTAL CONTROL:
COORDINATES ARE BASED ON AN ASSUMED DATUM IN U.S. FEET. BEARINGS ARE BASED ON THE FINAL PLAT BLACK GOLD NO 1 DIVISION 1 FILED AS PLAT NO. 78-3 IN THE VALDEZ RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA.

VERTICAL CONTROL:
ELEVATIONS ARE NAVD88(GEOID 12A) IN US SURVEY FEET. THE BASIS OF ELEVATIONS IS POINT 601, AN NGS BRASS CAP (PID: BBBB44) STAMPED "4240 T 2000", HAVING AN OPUS DERIVED VALUE OF 49.89 FEET.

SURVEY MONUMENTS

STATIC GPS TIED:

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
*1	49393.66	99959.88	54.37	ALCAP
*2	49755.79	101505.00	58.69	ALCAP
*3	49832.19	101025.73	63.02	ALCAP
*4	50417.76	101106.85	65.97	ALCAP
*5	49996.66	100078.42	59.70	ALCAP
*6	48929.31	99530.75	45.65	ALCAP
*7	48558.80	101468.28	45.80	ALCAP
8	48380.91	102744.58	35.71	BRASS CAP
*9	50821.46	102824.23	58.09	BRASS CAP
10	50755.02	104641.48	37.08	ALCAP
11	48278.43	104570.40	21.72	BRASS CAP
12	47747.39	104641.87	19.63	BRASS CAP
*13	49171.98	102254.73	44.61	ALCAP
*14	49927.19	102115.85	55.80	ALCAP
15	47642.49	102847.16	31.29	ALCAP
*601	47016.69	102889.07	49.89	BRASS CAP

* = MONUMENT NOT SHOWN

"RR-ML" ALIGNMENT CONTROL MONUMENTS

POINT	STATION	OFFSET	LOCAL NORTHING	LOCAL EASTING	NAVD88 ELEVATION	DESCRIPTION
720	133+74.59	4.01' LT	50876.7074	104322.4415	--	CTRL/FOUN.GPSS.BC
725	133+74.72	92.82' LT	50965.5231	104322.5181	--	CTRL/FOUN.GPSS.BC
10	137+46.27	43.70' LT	50755.0225	104641.4774	37.08	CTRL/SETN.GPSS.ALCAP
711	139+04.32	0.17' LT	50596.9436	104598.0610	--	CTRL/FOUN.GPSS.BC
719	139+04.51	1799.69' RT	50595.5252	102798.2043	--	CTRL/FOUN.GPSS.ALMON
712	161+54.27	0.15' LT	48346.9967	104599.5715	--	CTRL/FOUN.GPSS.ALCAP
11	162+22.82	29.07' RT	48278.4281	104570.3967	21.72	CTRL/SETN.GPSS.BC

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SURVEY CONTROL SHEET

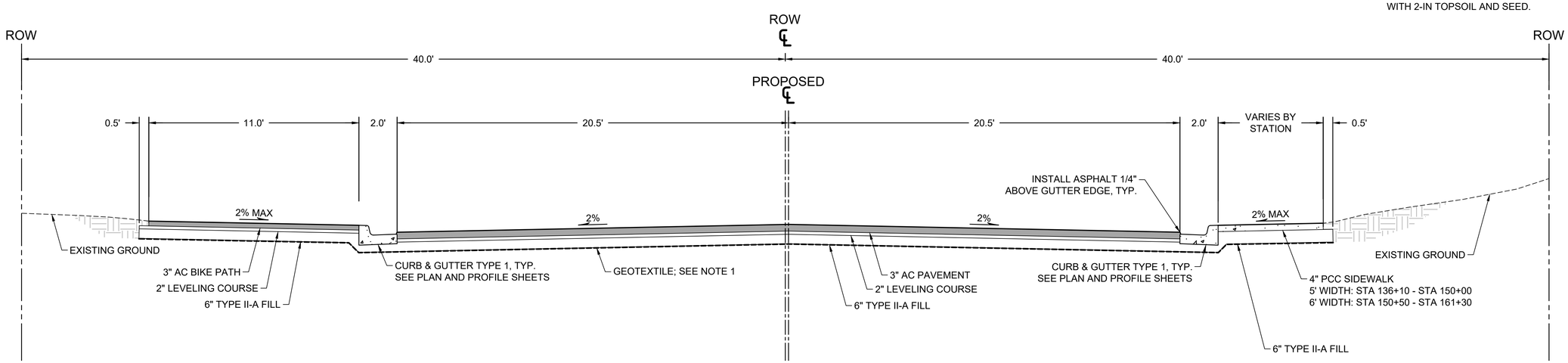
VALDEZ, ALASKA

PROJECT 63461.01
DATE 11/25/2025

G-004

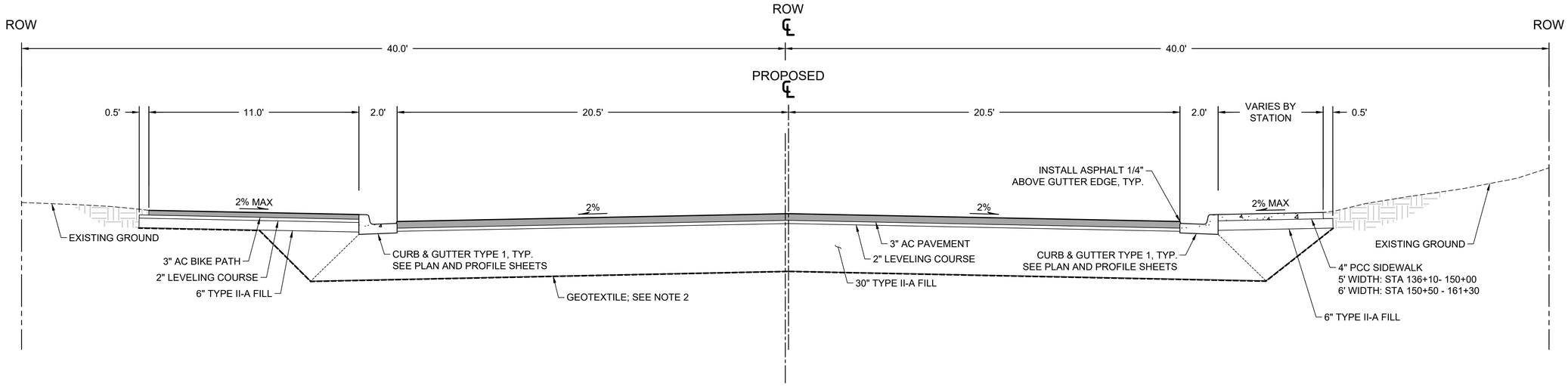
NOTES

1. GEOTEXTILE FOR RE-SURFACING SECTION TO BE A SEPARATION AND STABILIZATION GEOTEXTILE. GEOTEXTILE TO BE WOVEN MEETING CLASS 3 STRENGTH PER AASHTO M288 WHICH ALSO MEETS CRITERIA FOR TYPE A SEPARATION GEOTEXTILE PER CITY OF VALDEZ.
2. GEOTEXTILES USED UNDER REDUCED SUBGRADE SECTION SHALL BE WOVEN AND MEET CRITERIA FOR CITY OF VALDEZ (20.22) TYPE A, SEPARATION GEOTEXTILE.
3. LEVELING COURSE AND TYPE II-A FILL SHALL MEET REQUIREMENTS OF CITY OF VALDEZ GRADATION. SEE GEOTECHNICAL REPORT. CLASSIFIED FILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS IF A LARGE VIBRATORY COMPACTOR IS USED. EACH LIFT SHOULD BE COMPACTED THROUGHOUT ITS ENTIRE DEPTH TO A DENSITY OF AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR AASHTO T180.
4. EXCAVATIONS SHOULD BE COMPLETELY DEWATERED BEFORE PLACEMENT OF CLASSIFIED FILL. DO NOT PLACE FILL OR ASPHALT PAVEMENT OVER FROZEN SOILS. DO NOT FILL OR BACKFILL WITH FROZEN SOILS.
5. GRASS AREAS WITHIN WORK LIMITS SHALL BE REPLACED WITH 2-IN TOPSOIL AND SEED.



MEALS AVENUE - TYPICAL SECTION

STA: 135+92.81 TO 141+40.00
STA: 142+60.00 TO 151+15.00
STA: 152+35.00 TO 153+15.00
STA: 154+35.00 TO 155+90.00
STA: 157+10.00 TO EOP STA: 161+12.46



MEALS AVENUE - REDUCED SUBGRADE STRENGTH (RSS) SECTION

STA: 141+40.00 TO 142+60.00
STA: 151+15.00 TO 152+35.00
STA: 153+15.00 TO 154+35.00
STA: 155+90.00 TO 157+10.00

REV	DATE	DESCRIPTION	BY
		REVISIONS	

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

TYPICAL SECTIONS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-101

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
23	RR-ML	136+13.82	20.50 L	24'
24	RR-ML	158+55.39	20.50 L	48'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
344	RR-ML	138+76.78	37.50 R	
331	RR-ML	144+37.55	41.00 R	
322	RR-ML	149+97.40	41.50 R	
315	RR-ML	155+56.19	42.00 R	REPLACE VALVE AND ASSOCIATED PIPE
303	RR-ML	161+28.54	38.00 R	REPLACE VALVE AND ASSOCIATED PIPE

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1004	RR-ML	136+45.93	22.50 R	PARALLEL
1005	RR-ML	138+64.06	22.50 R	TYPE II PARALLEL
1006	RR-ML	139+32.07	28.00 R	PARALLEL
1007	RR-ML	141+57.27	28.00 R	PARALLEL (MODIFIED SEE GRADING)
1008	RR-ML	142+28.35	22.50 R	TYPE II PARALLEL
1009	RR-ML	144+22.27	22.50 R	TYPE II PARALLEL
1010	RR-ML	144+93.32	28.00 R	PARALLEL
1011	RR-ML	147+17.14	28.00 R	PARALLEL
1012	RR-ML	147+88.21	22.50 R	TYPE II PARALLEL
1013	RR-ML	149+97.27	28.00 R	PARALLEL
1014	RR-ML	150+68.34	22.50 R	TYPE II PARALLEL
1015	RR-ML	152+79.29	29.54 R	PARALLEL
1016	RR-ML	153+48.73	22.50 R	TYPE II PARALLEL
1017	RR-ML	155+56.89	28.00 R	PARALLEL
1018	RR-ML	156+27.97	22.50 R	TYPE II PARALLEL
1019	RR-ML	158+22.11	22.50 R	TYPE II PARALLEL
1020	RR-ML	158+93.17	28.00 R	PARALLEL
1021	RR-ML	161+24.54	28.00 R	PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C6	43.20	27.50	90.00	S45° 02' 16"E	38.89
C7	95.80	72.50	75.71	N37° 53' 33"W	88.98
C8	36.14	23.00	90.03	S44° 56' 20"W	32.54
C9	36.14	23.00	90.04	S45° 01' 09"E	32.54
C10	40.80	28.00	83.49	S41° 44' 42"W	37.29
C11	55.56	33.00	96.47	S48° 16' 28"E	49.23
C12	36.13	23.00	90.00	S44° 57' 40"W	32.53
C13	36.13	23.00	90.00	S45° 02' 20"E	32.53
C14	29.05	30.00	55.48	S27° 42' 05"W	27.93
C15	18.30	30.00	34.95	S72° 59' 41"E	18.02
C16	36.13	23.00	90.00	S44° 57' 40"W	32.53
C17	36.13	23.00	90.00	S45° 02' 20"E	32.53
C18	36.13	23.00	90.00	S44° 57' 40"W	32.53
C19	36.13	23.00	90.00	S45° 02' 20"E	32.53
C20	36.13	23.00	90.00	S44° 57' 44"W	32.53
C21	36.13	23.00	90.00	S45° 02' 16"E	32.53
C22	36.13	23.00	90.00	S44° 57' 44"W	32.53
C23	36.13	23.00	90.00	S45° 02' 16"E	32.53
C24	36.13	23.00	90.00	S44° 57' 44"W	32.53
C25	36.13	23.00	90.00	S45° 02' 16"E	32.53
C26	28.28	18.00	90.00	S44° 57' 47"W	25.46
C27	28.27	18.00	90.00	S45° 02' 13"E	25.45
C28	36.13	23.00	90.01	S44° 57' 49"W	32.53
C29	36.13	23.00	89.99	S45° 02' 11"E	32.53
C30	36.13	23.00	90.01	S44° 57' 49"W	32.53
C31	36.13	23.00	89.99	S45° 02' 08"E	32.52
C32	36.13	23.00	90.00	S44° 57' 40"W	32.53
C33	36.13	23.00	90.00	S45° 02' 20"E	32.53
C34	36.13	23.00	90.00	S44° 57' 42"W	32.53

PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	28.87 LF	1.00%	108-CBMH	109-SDMH	RR-ML
CPEP	12"	17.17 LF	1.00%	110-CBMH	111-SDMH	RR-ML
CPEP	12"	33.72 LF	1.00%	112-CBMH	113-SDMH	RR-ML
CPEP	12"	33.04 LF	1.50%	118-CBMH	119-SDMH	RR-ML
CPEP	12"	49.91 LF	0.50%	122-CBMH	123-CBMH	RR-ML
CPEP	12"	10.62 LF	0.50%	123-CBMH	124-SDMH	RR-ML
CPEP	12"	25.76 LF	0.75%	129-CBMH	128-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	131-CBMH	130-CBMH	RR-ML
CPEP	12"	32.00 LF	0.50%	132-CBMH	135-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	134-CBMH	133-CBMH	RR-ML
CPEP	18"	51.15 LF	0.50%	136-SDMH	135-SDMH	RR-ML
CPEP	12"	45.27 LF	0.95%	137-CBMH	136-SDMH	RR-ML
CPEP	12"	46.45 LF	0.50%	138-CBMH	139-CBMH	RR-ML
CPEP	12"	20.59 LF	0.50%	139-CBMH	141-SDMH	RR-ML
CPEP	12"	38.24 LF	1.00%	140-CBMH	141-SDMH	RR-ML
CPEP	12"	33.28 LF	1.00%	144-CBMH	145-SDMH	RR-ML
CPEP	18"	76.45 LF	0.99%	146-CBMH	145-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	152-CBMH	151-CBMH	RR-ML
CPEP	12"	14.00 LF	1.00%	156-CBMH	155-SDMH	RR-ML
CPEP	18"	191.02 LF	0.64%	160-CBMH	136-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	1001-CBMH	1002-CBMH	RR-ML
CPEP	18"	202.85 LF	0.50%	1002-CBMH	145-SDMH	RR-ML

C-201
C-202
C-203
C-204
C-205
C-206
C-306
C-308

REVISIONS

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-110

PROPOSED STRUCTURES

NAME	DESCRIPTION
108-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH	NEW; HORSESHOE MANHOLE
110-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
112-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
116-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
118-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
120-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES
121-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
122-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
123-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
125-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES
126-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
129-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
132-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
136-SDMH	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)
138-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

C-201 C-202 C-203 C-204

PROPOSED STRUCTURES

NAME	DESCRIPTION
141-SDMH	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
144-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
146-CBMH	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
148-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
151-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
154-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
156-CBMH	NEW; CATCH BASIN (COV 55-13)

C-204 C-205 C-206

PROPOSED STRUCTURES (ADD ALT 2)

NAME	DESCRIPTION
1001-CBMH	NEW; CATCH BASIN & TYPE II CURB INLET (COV 55-15) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)
1002-CBMH	NEW; TYPE I MH (55-3) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)

C-308

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
111-SDMH	EXISTING	RR-ML 136+44.80	40.65 L
113-SDMH	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 138+85.08	26.81 L
114-SDMH	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE	RR-ML 139+04.53	26.87 L
115-CBMH	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE	RR-ML 138+89.31	40.23 L
119-SDMH	EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 141+64.99	27.61 L
124-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 144+45.17	27.27 L
127-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 145+90.04	25.57 L
128-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 147+25.04	27.10 L
135-SDMH	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 150+04.71	26.98 L
145-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 155+64.61	27.55 L
149-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.53	27.25 L
150-CBMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.28	40.16 L
155-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 161+06.03	27.01 L

C-201 C-202 C-203 C-204 C-205 C-206

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
254-SSMH	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE	RR-ML 136+50.51	22.47 L
255-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 139+32.98	38.53 L
256-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 142+12.10	38.31 L
257-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 144+92.28	38.02 L
258-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 147+71.78	38.00 L
259-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 150+52.20	38.36 L
260-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 153+31.22	37.72 L
261-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 156+10.90	37.45 L
262-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 158+91.35	36.23 L

C-201 C-202 C-203 C-204 C-205 C-206

EXISTING WATER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
WV-124	REPLACE COVER	RR-ML 155+76.51	31.45 R

C-205

*EXISTING STRUCTURES TABLES HIGHLIGHT STRUCTURES LOCATED WITHIN DISTURBED AREAS AS WELL AS STRUCTURES REQUIRING MAINTENANCE. SEE SHEETS C-201 THROUGH C-206 FOR ADDITIONAL INFORMATION. OTHER STRUCTURES WITHIN WORK LIMITS MAY STILL REQUIRE ADJUSTMENTS, SEE GENERAL NOTE 7 ON SHEET G-002.

REMOVED STRUCTURES

STATION	OFFSET
BR 259+72.14	18.58 L
BR 259+72.31	17.79 R
RR-ML 136+45.39	20.61 L
RR-ML 138+60.40	21.40 L
RR-ML 138+84.52	49.32 R
RR-ML 139+27.00	49.17 R
RR-ML 141+55.31	16.42 L
RR-ML 141+64.40	49.27 R
RR-ML 142+07.01	49.33 R
RR-ML 144+14.98	19.32 R
RR-ML 144+33.93	16.63 L
RR-ML 144+44.08	49.92 R
RR-ML 144+86.73	50.04 R
RR-ML 146+99.92	16.42 L
RR-ML 147+24.17	49.86 R
RR-ML 147+67.04	50.25 R
RR-ML 149+85.20	16.42 L
RR-ML 149+99.88	77.94 L
RR-ML 150+04.13	50.41 R
RR-ML 150+45.83	50.72 R
RR-ML 152+54.36	19.63 R
RR-ML 152+65.76	16.26 L
RR-ML 152+83.95	50.67 R
RR-ML 152+84.96	26.91 L
RR-ML 153+25.96	50.55 R

C-308 C-201 C-202 C-203 C-204

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 155+48.64	21.35 L
RR-ML 155+63.82	50.83 R
RR-ML 156+06.10	51.03 R
RR-ML 158+43.76	50.49 R
RR-ML 158+44.68	21.21 L
RR-ML 158+85.59	50.71 R
RR-ML 160+96.85	20.13 R
RR-ML 161+06.23	32.30 L
RR-ML 161+06.45	24.07 R
RR-ML 161+06.47	21.12 L

C-205 C-206

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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NICHOLAS M. CONWAY
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01/16/2026
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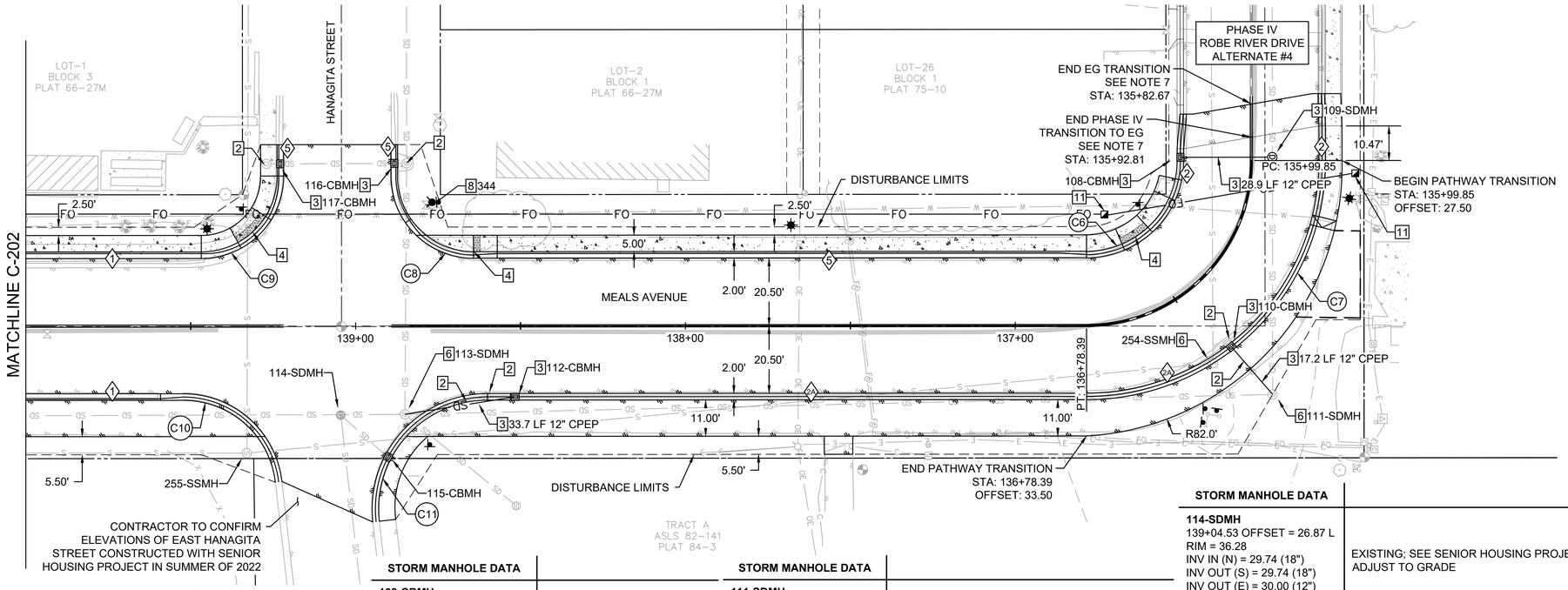
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-111



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. IF ALTERNATE #4 IS SELECTED, SEE "PHASE IV-ROBE RIVER DRIVE-ALTERNATE 4" PLANSET UNDER SEPARATE COVER. TRANSITION TO EG NOT REQUIRED IF ALTERNATE IS SELECTED.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

SANITARY MANHOLE DATA	
254-SSMH 136+50.51 OFFSET = 22.47 L RIM = 37.54 INV IN (W) = 29.56 (10") INV OUT (S) = 29.45 (10")	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE
255-SSMH 139+32.98 OFFSET = 38.53 L RIM = 36.51 INV IN (N) = 27.35 (10") INV OUT (S) = 27.24 (12") INV IN (W) = 27.44 (10")	EXISTING; ADJUST TO GRADE

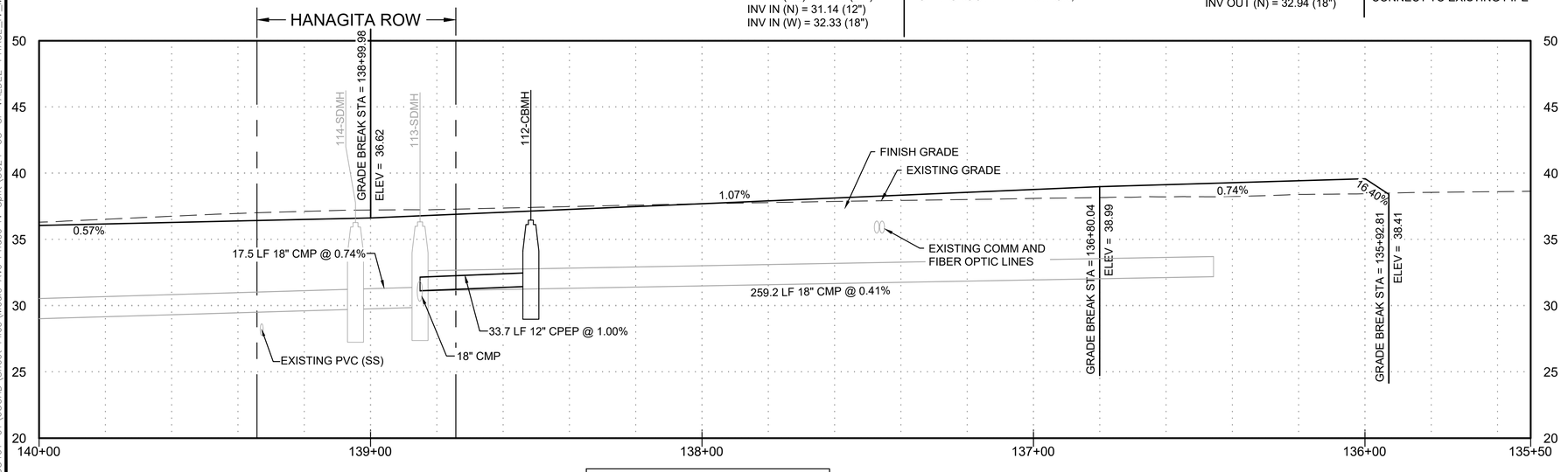
STORM MANHOLE DATA	
108-CBMH 135+98.85 OFFSET = 22.50 R RIM = 38.10 INV OUT (N) = 32.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH 135+98.83 OFFSET = 6.37 L RIM = 38.22 INV IN (S) = 32.53 (12") INV IN (W) = 32.45 (18") INV OUT (E) = 32.43 (18")	NEW; HORSESHOE MANHOLE
110-CBMH 136+45.36 OFFSET = 21.50 L RIM = 37.58 INV OUT (NE) = 33.01 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
111-SDMH 136+44.80 OFFSET = 40.65 L RIM = 37.63 INV IN (W) = 32.12 (18") INV OUT (S) = 32.20 (18") INV IN (SW) = 32.84 (12")	EXISTING
112-CBMH 138+51.64 OFFSET = 22.50 L RIM = 36.46 INV OUT (S) = 31.48 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
113-SDMH 138+85.08 OFFSET = 26.81 L RIM = 36.33 INV IN (N) = 31.13 (18") INV OUT (S) = 29.87 (18") INV IN (NE) = 31.26 (24") INV IN (N) = 31.14 (12") INV IN (W) = 32.33 (18")	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
114-SDMH 139+04.53 OFFSET = 26.87 L RIM = 36.28 INV IN (N) = 29.74 (18") INV OUT (S) = 29.74 (18") INV OUT (E) = 30.00 (12") INV IN (NE) = 30.00 (12")	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE
115-CBMH 138+89.31 OFFSET = 40.23 L RIM = 36.52 INV OUT (SW) = 30.20 (12")	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE
116-CBMH 138+87.27 OFFSET = 49.31 R RIM = 36.74 INV IN (S) = 32.60 (18") INV IN (W) = 32.83 (18") INV OUT (E) = 32.34 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH 139+23.77 OFFSET = 49.18 R RIM = 36.88 INV OUT (N) = 32.94 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER



STATIONING RIGHT TO LEFT

SCALE IN FEET
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HORIZONTAL

SCALE IN FEET
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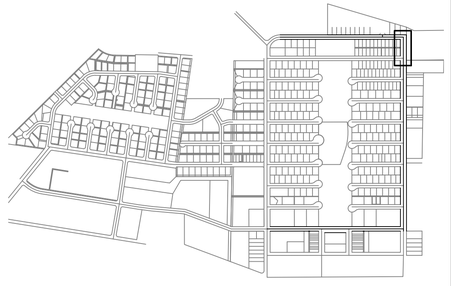
VERTICAL



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 133293
04/14/2026
REGISTERED PROFESSIONAL ENGINEER

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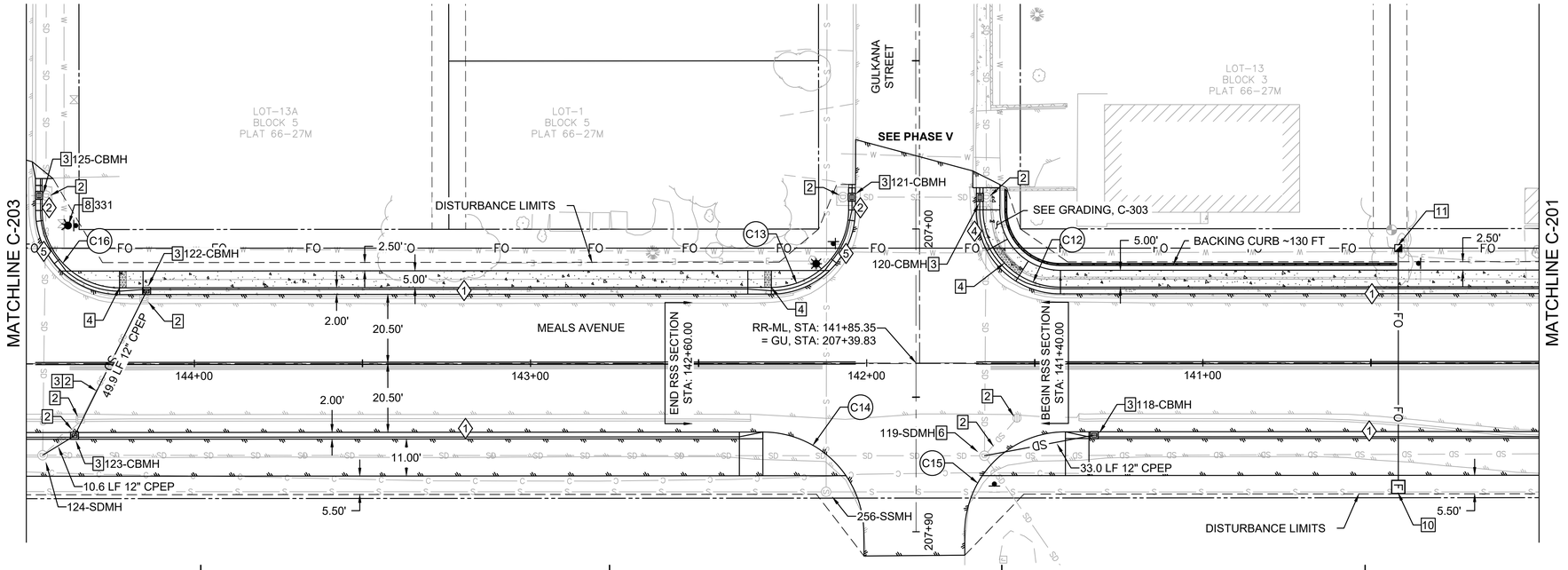
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-201



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
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11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SANITARY MANHOLE DATA

256-SSMH
142+12.10 OFFSET = 38.31 L
RIM = 34.34
INV IN (N) = 25.24 (12")
INV OUT (S) = 25.15 (12")
INV IN (W) = 25.31 (10")
EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA

118-CBMH
141+32.34 OFFSET = 22.50 L
RIM = 35.23
INV OUT (S) = 30.06 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402

119-SDMH
141+64.99 OFFSET = 27.61 L
RIM = 33.57
INV IN (N) = 27.82 (18")
INV OUT (S) = 27.64 (24")
INV IN (W) = 29.35 (12")
INV IN (NE) = 28.36 (24")
INV IN (NW) = 29.56 (12")
EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

120-CBMH
141+65.35 OFFSET = 49.20 R
RIM = 33.86
INV IN (W) = 30.19 (12")
INV OUT (E) = 29.93 (12")
INV IN (S) = 30.24 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES

STORM MANHOLE DATA

121-CBMH
142+05.35 OFFSET = 49.30 R
RIM = 34.06
INV OUT (N) = 30.59 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

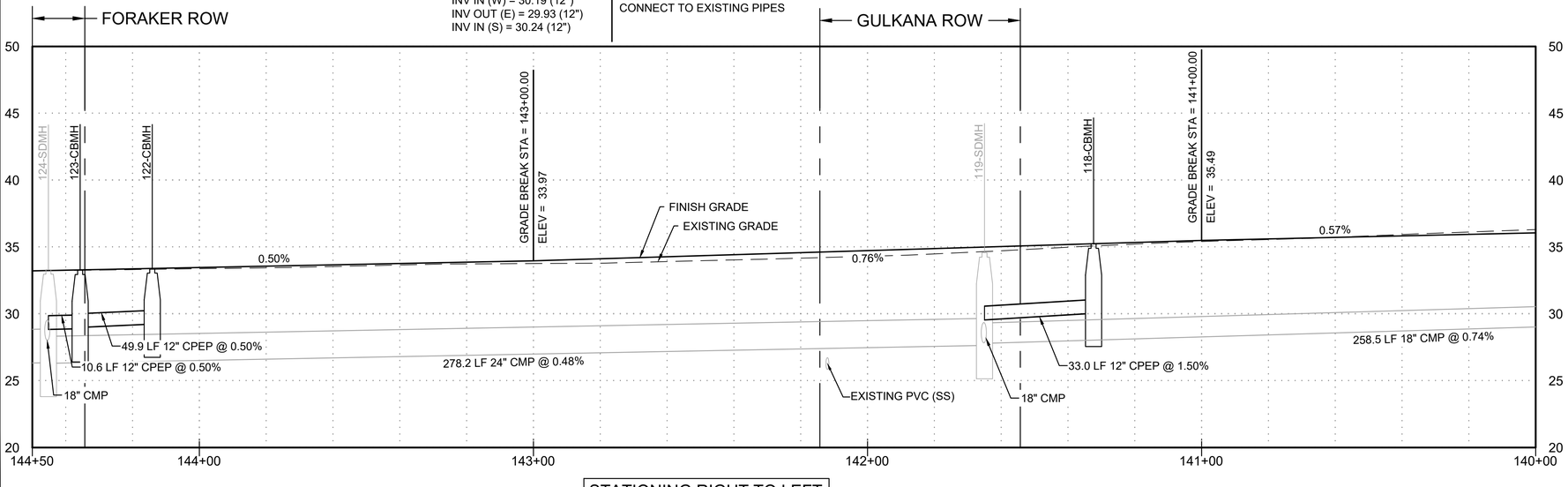
122-CBMH
144+14.09 OFFSET = 22.50 R
RIM = 33.38
INV OUT (SE) = 29.25 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402

123-CBMH
144+35.68 OFFSET = 22.50 L
RIM = 33.28
INV OUT (SE) = 28.90 (12")
INV IN (NW) = 29.00 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402

STORM MANHOLE DATA

124-SDMH
144+45.17 OFFSET = 27.27 L
RIM = 33.30
INV IN (W) = 27.99 (18")
INV IN (NW) = 28.85 (12")
INV IN (N) = 26.31 (24")
INV OUT (S) = 26.35 (30")
EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

125-CBMH
144+45.25 OFFSET = 50.00 R
RIM = 32.61
INV IN (W) = 28.84 (12")
INV OUT (E) = 28.69 (18")
INV IN (S) = 28.83 (12")
NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES



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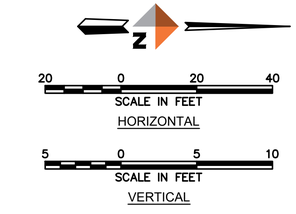

KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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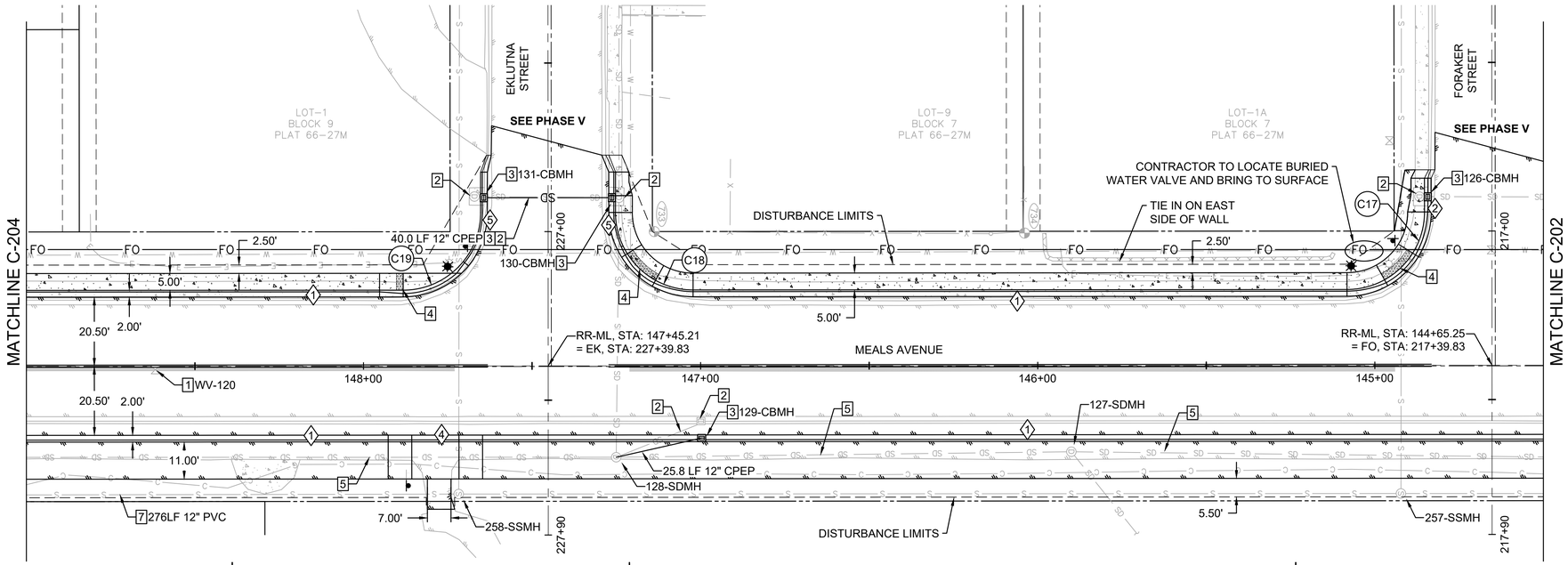
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

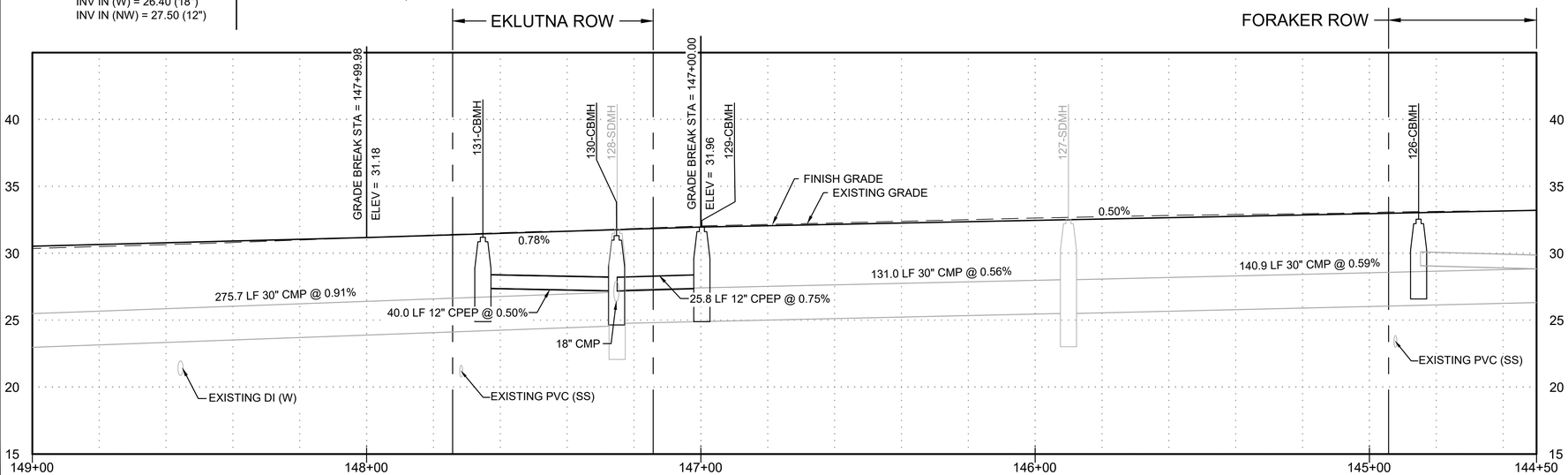
C-202



STORM MANHOLE DATA	
126-CBMH 144+85.28 OFFSET = 50.00 R RIM = 32.55 INV OUT (N) = 29.09 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
127-SDMH 145+90.04 OFFSET = 25.57 L RIM = 32.55 INV IN (N) = 25.52 (30") INV OUT (S) = 25.52 (30") INV IN (NE) = 26.02 (24")	EXISTING; ADJUST TO GRADE
128-SDMH 147+25.04 OFFSET = 27.10 L RIM = 31.83 INV IN (N) = 24.78 (30") INV OUT (S) = 24.57 (30") INV IN (W) = 26.40 (18") INV IN (NW) = 27.50 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
129-CBMH 146+99.70 OFFSET = 22.50 L RIM = 31.96 INV OUT (S) = 27.39 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH 147+25.21 OFFSET = 49.90 R RIM = 31.32 INV IN (S) = 27.20 (12") INV OUT (E) = 27.15 (18") INV IN (W) = 27.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH 147+65.21 OFFSET = 49.90 R RIM = 31.20 INV OUT (N) = 27.40 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
257-SSMH 144+92.28 OFFSET = 38.02 L RIM = 32.82 INV IN (N) = 22.97 (12") INV OUT (S) = 22.97 (12") INV IN (W) = 22.23 (10")	EXISTING; ADJUST TO GRADE
258-SSMH 147+71.78 OFFSET = 38.00 L RIM = 31.70 INV IN (N) = 19.67 (12") INV OUT (S) = 19.61 (12") INV IN (W) = 19.91 (10")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

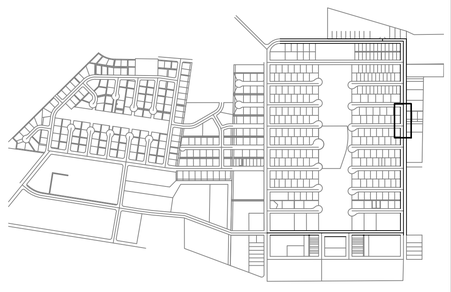
1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
HORIZONTAL
20 0 20 40

SCALE IN FEET
VERTICAL
5 0 5 10



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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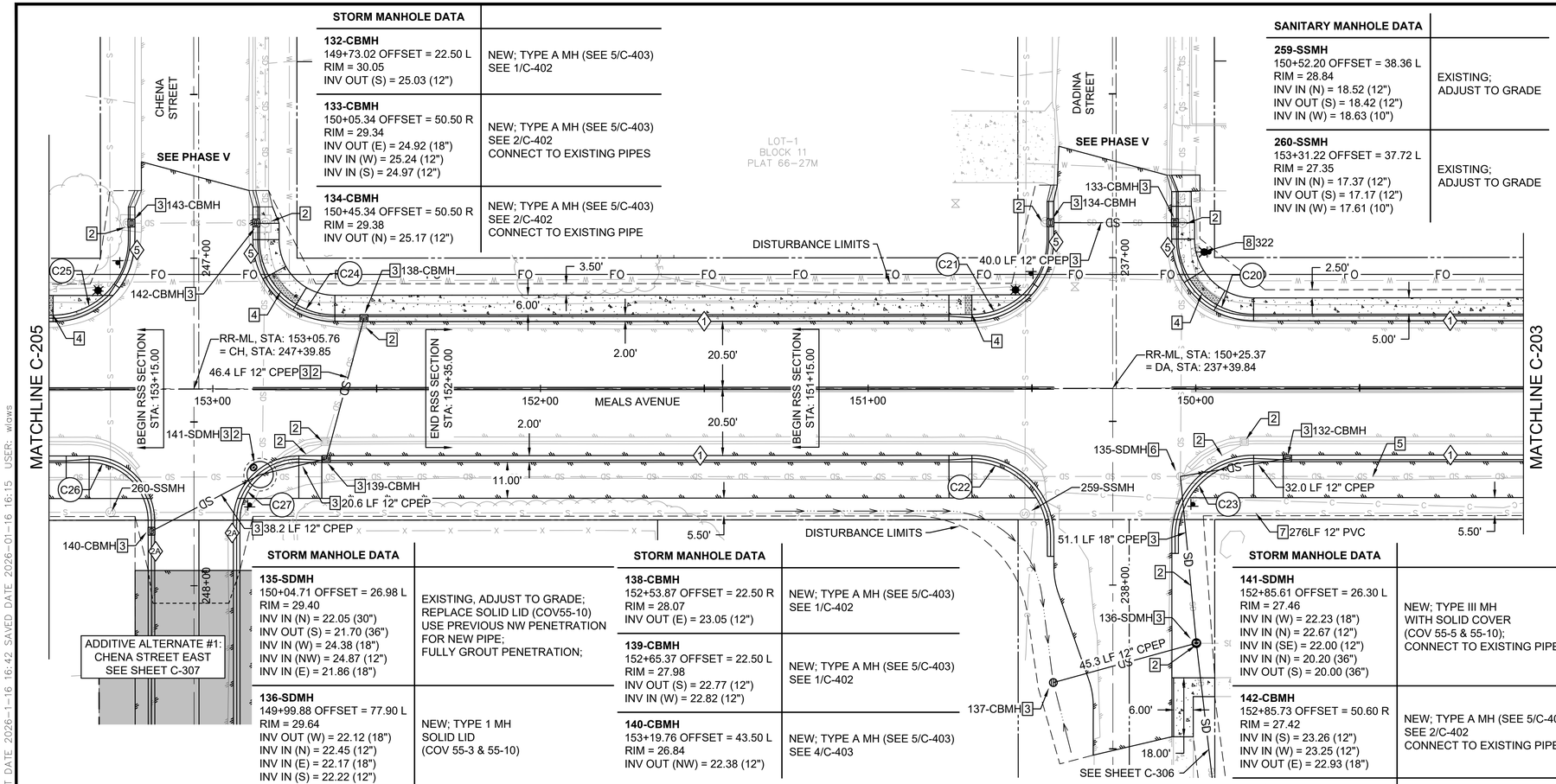
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-203



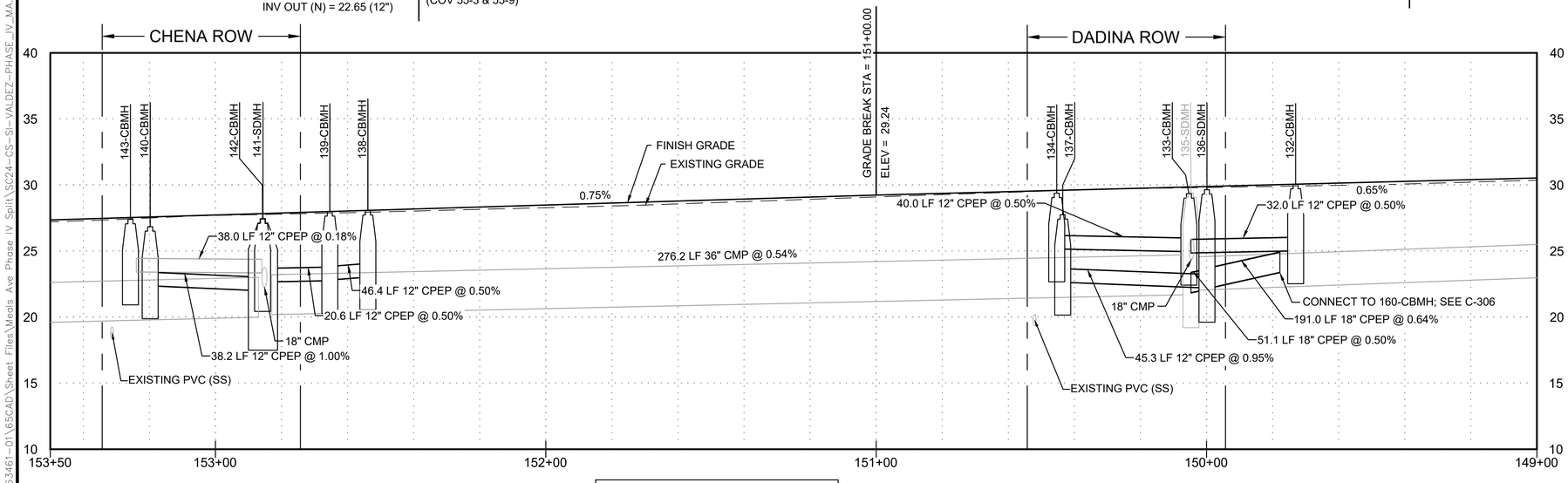
STORM MANHOLE DATA	
132-CBMH 149+73.02 OFFSET = 22.50 L RIM = 30.05 INV OUT (S) = 25.03 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH 150+05.34 OFFSET = 50.50 R RIM = 29.34 INV OUT (E) = 24.92 (18") INV IN (W) = 25.24 (12") INV IN (S) = 24.97 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH 150+45.34 OFFSET = 50.50 R RIM = 29.38 INV OUT (N) = 25.17 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
259-SSMH 150+52.20 OFFSET = 38.36 L RIM = 28.84 INV IN (N) = 18.52 (12") INV OUT (S) = 18.42 (12") INV IN (W) = 18.63 (10")	EXISTING; ADJUST TO GRADE
260-SSMH 153+31.22 OFFSET = 37.72 L RIM = 27.35 INV IN (N) = 17.37 (12") INV OUT (S) = 17.17 (12") INV IN (W) = 17.61 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
135-SDMH 150+04.71 OFFSET = 26.98 L RIM = 29.40 INV IN (N) = 22.05 (30") INV OUT (S) = 21.70 (36") INV IN (W) = 24.38 (18") INV IN (NW) = 24.87 (12") INV IN (E) = 21.86 (18")	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
136-SDMH 149+99.88 OFFSET = 77.90 L RIM = 29.64 INV OUT (W) = 22.12 (18") INV IN (N) = 22.45 (12") INV IN (E) = 22.17 (18") INV IN (S) = 22.22 (12")	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH 150+43.53 OFFSET = 89.90 L RIM = 27.75 INV OUT (N) = 22.65 (12")	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)

STORM MANHOLE DATA	
138-CBMH 152+53.87 OFFSET = 22.50 R RIM = 28.07 INV OUT (E) = 23.05 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH 152+65.37 OFFSET = 22.50 L RIM = 27.98 INV OUT (S) = 22.77 (12") INV IN (W) = 22.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH 153+19.76 OFFSET = 43.50 L RIM = 26.84 INV OUT (NW) = 22.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
141-SDMH 152+85.61 OFFSET = 26.30 L RIM = 27.46 INV IN (W) = 22.23 (18") INV IN (N) = 22.67 (12") INV IN (SE) = 22.00 (12") INV IN (N) = 20.20 (36") INV OUT (S) = 20.00 (36")	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH 152+85.73 OFFSET = 50.60 R RIM = 27.42 INV IN (S) = 23.26 (12") INV IN (W) = 23.25 (12") INV OUT (E) = 22.93 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH 153+25.73 OFFSET = 50.60 R RIM = 27.40 INV OUT (N) = 23.43 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
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9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
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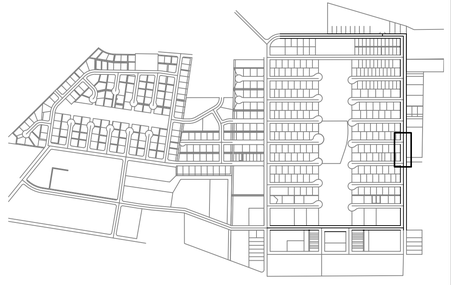
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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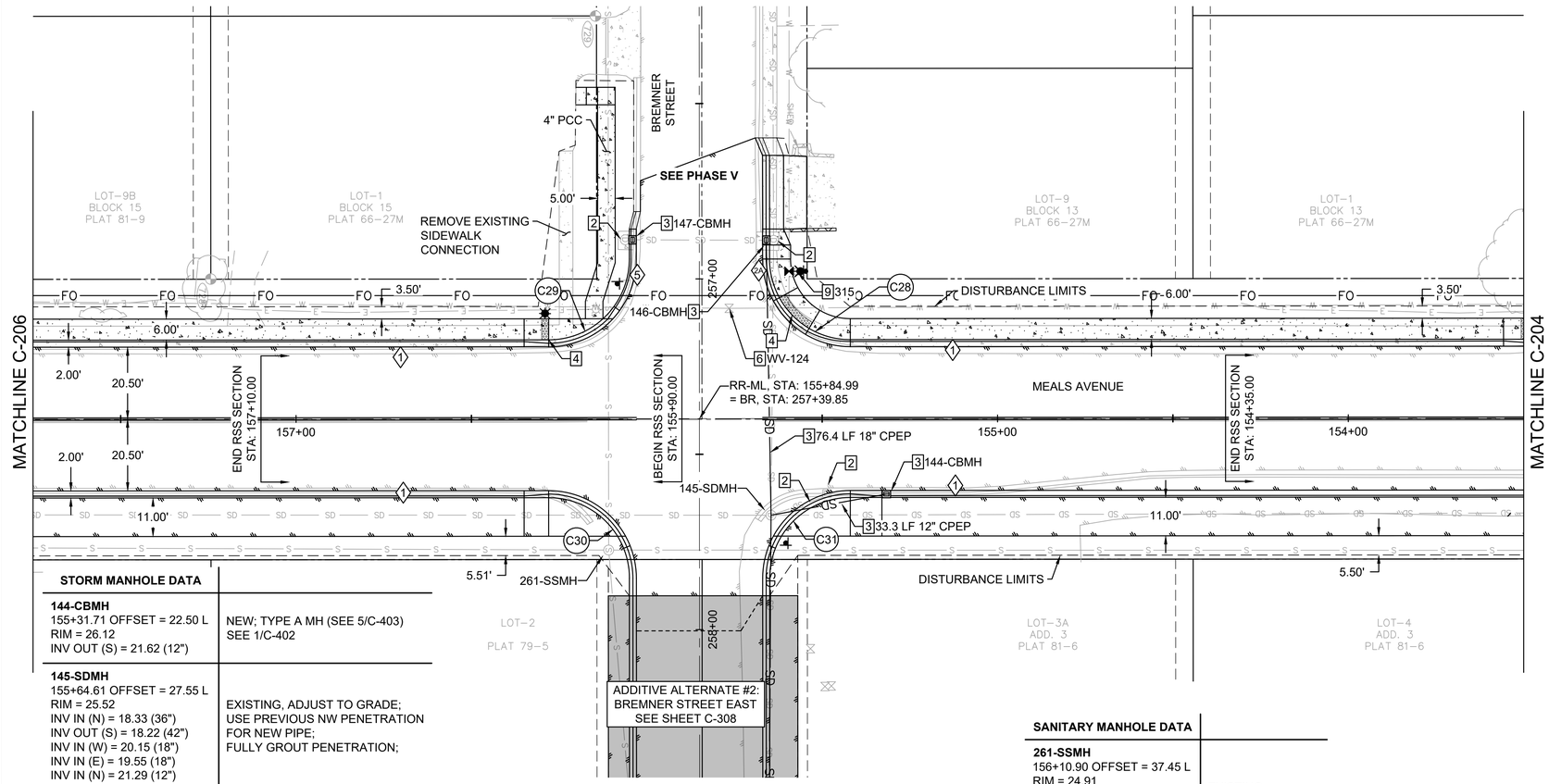
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

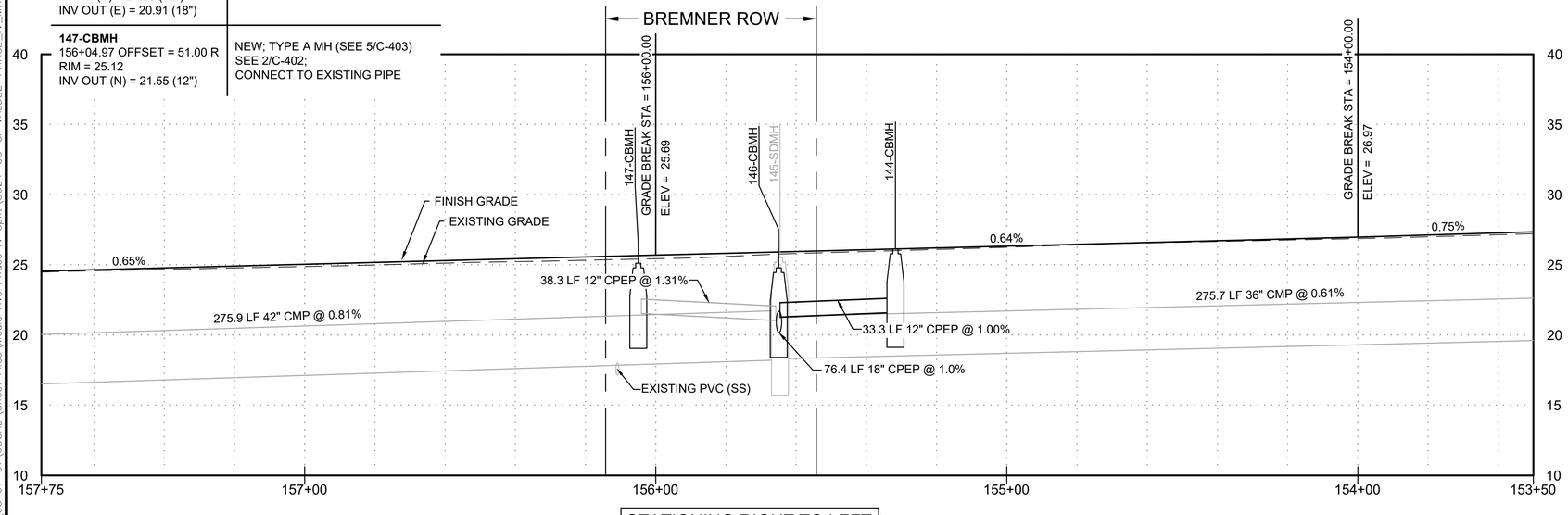
PROJECT	63461.01
DATE	01/16/2026

C-204



STORM MANHOLE DATA	
144-CBMH 155+31.71 OFFSET = 22.50 L RIM = 26.12 INV OUT (S) = 21.62 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
145-SDMH 155+64.61 OFFSET = 27.55 L RIM = 25.52 INV IN (N) = 18.33 (36") INV OUT (S) = 18.22 (42") INV IN (W) = 20.15 (18") INV IN (E) = 19.55 (18") INV IN (N) = 21.29 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
146-CBMH 155+64.97 OFFSET = 50.90 R RIM = 24.79 INV IN (W) = 21.05 (12") INV IN (S) = 21.05 (12") INV OUT (E) = 20.91 (18")	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH 156+04.97 OFFSET = 51.00 R RIM = 25.12 INV OUT (N) = 21.55 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
261-SSMH 156+10.90 OFFSET = 37.45 L RIM = 24.91 INV IN (N) = 16.10 (12") INV OUT (S) = 15.98 (12") INV IN (W) = 16.62 (10") INV IN (E) = 16.61 (6")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

GENERAL NOTES

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CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
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5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

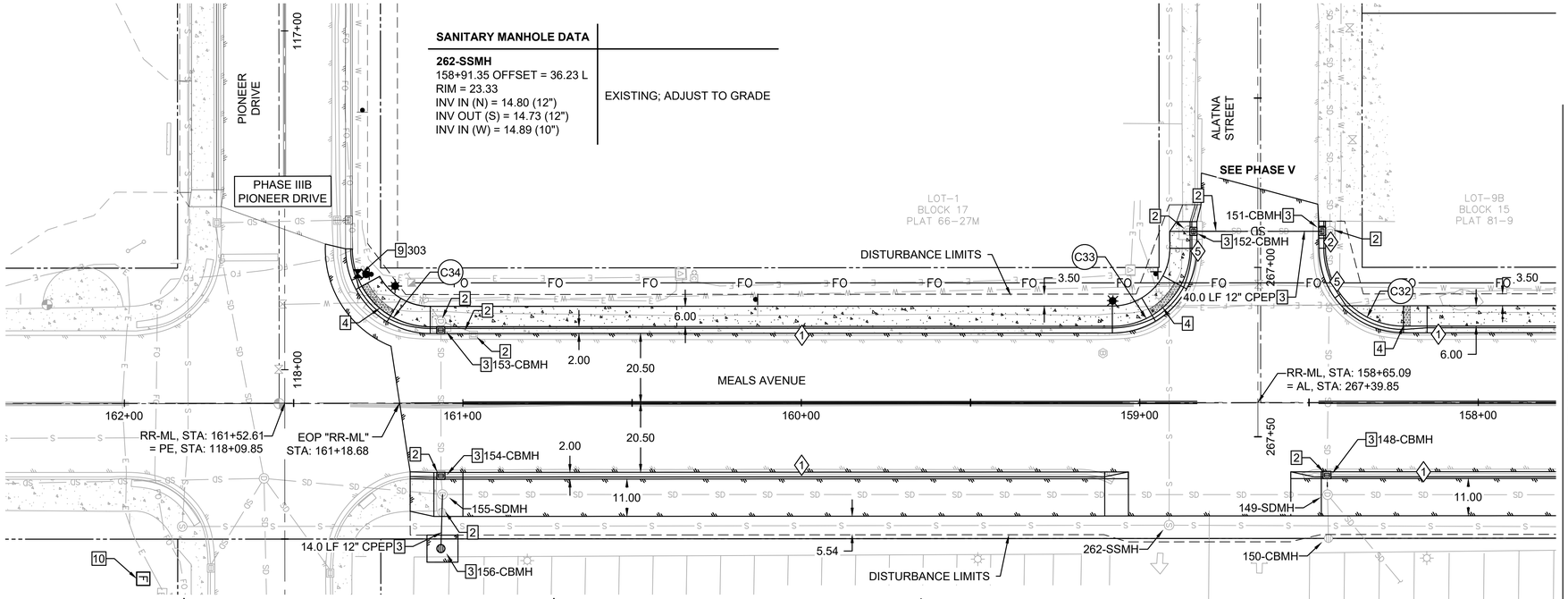
STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

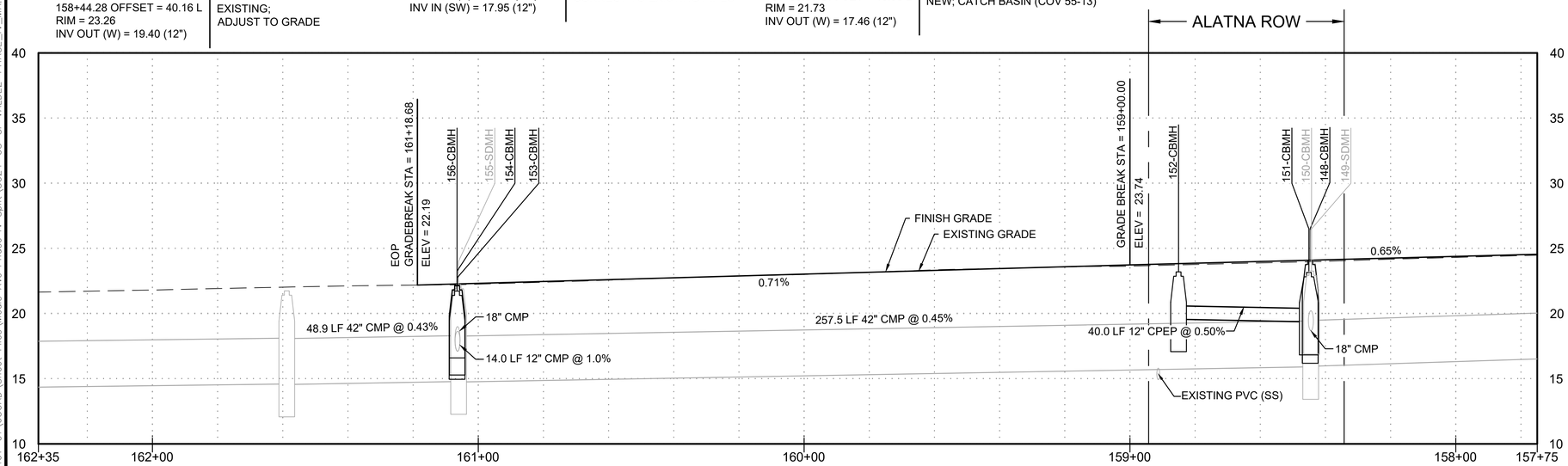
C-205



STORM MANHOLE DATA	
148-CBMH 158+44.69 OFFSET = 22.50 L RIM = 24.09 INV IN (W) = 18.75 (18") INV OUT (E) = 18.69 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
149-SDMH 158+44.53 OFFSET = 27.25 L RIM = 24.15 INV IN (N) = 15.98 (42") INV OUT (S) = 15.92 (42") INV IN (W) = 18.60 (18") INV IN (NE) = 17.09 (12") INV IN (E) = 19.24 (12")	EXISTING; ADJUST TO GRADE
150-CBMH 158+44.28 OFFSET = 40.16 L RIM = 23.26 INV OUT (W) = 19.40 (12")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
151-CBMH 158+45.09 OFFSET = 50.50 R RIM = 23.16 INV IN (W) = 19.55 (18") INV OUT (E) = 19.33 (18") INV IN (S) = 19.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH 158+85.09 OFFSET = 50.50 R RIM = 23.20 INV OUT (N) = 19.58 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH 161+06.45 OFFSET = 22.50 R RIM = 22.13 INV OUT (E) = 17.79 (18") INV IN (SW) = 17.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES

STORM MANHOLE DATA	
154-CBMH 161+06.51 OFFSET = 22.50 L RIM = 22.17 INV IN (W) = 17.20 (18") INV OUT (E) = 17.10 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
155-SDMH 161+06.03 OFFSET = 27.01 L RIM = 22.24 INV IN (N) = 14.77 (42") INV OUT (S) = 14.79 (42") INV IN (E) = 17.32 (12") INV IN (W) = 16.94 (18")	EXISTING; ADJUST TO GRADE
156-CBMH 161+06.51 OFFSET = 43.00 L RIM = 21.73 INV OUT (W) = 17.46 (12")	NEW; CATCH BASIN (COV 55-13)



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
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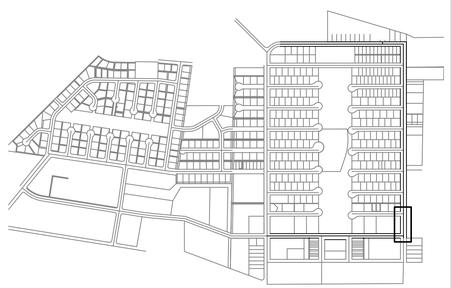
CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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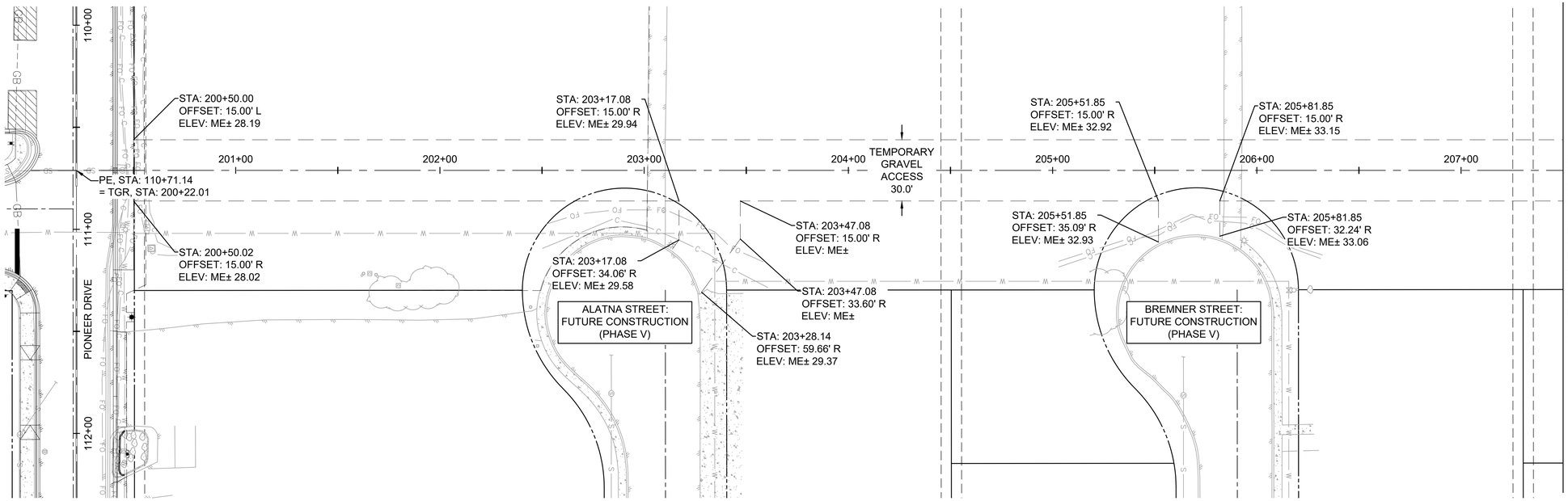
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

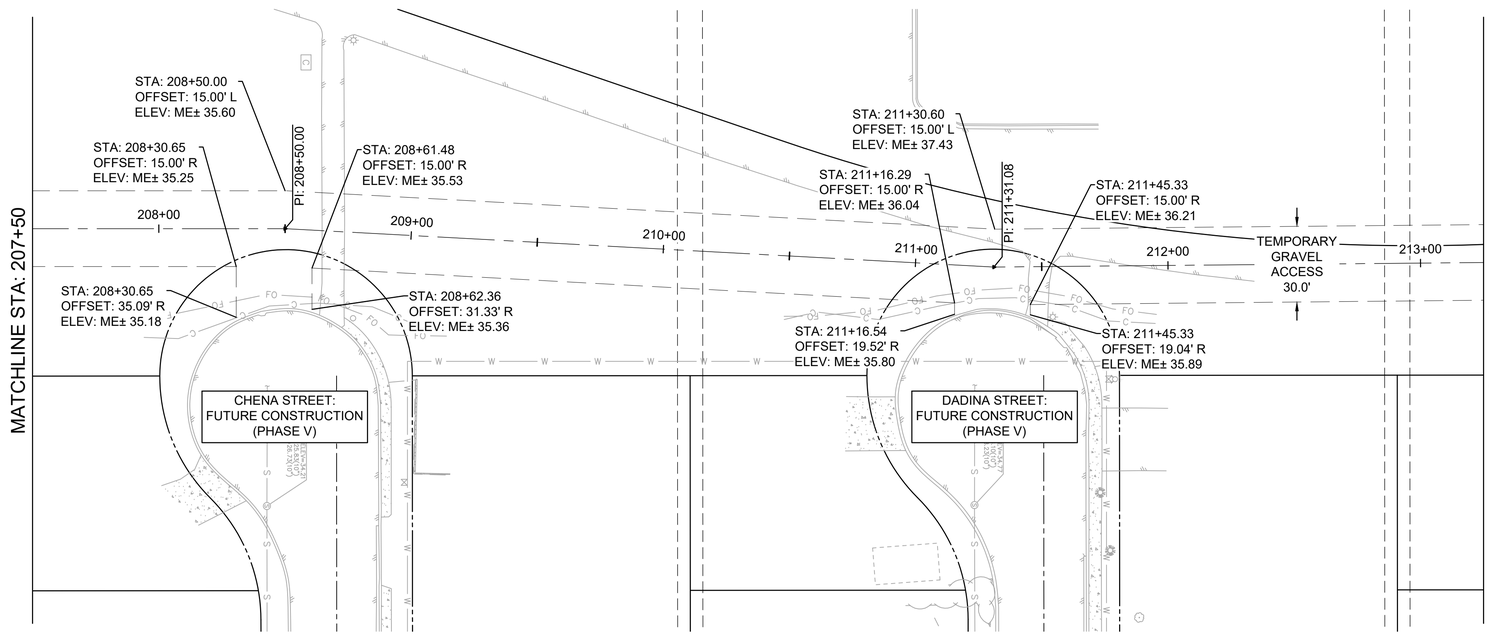
PLAN AND PROFILE

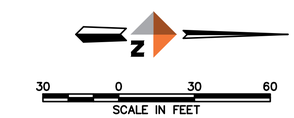
VALDEZ, ALASKA

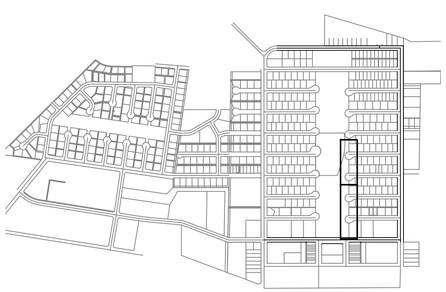
PROJECT	63461.01
DATE	01/16/2026

C-206









KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13293
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

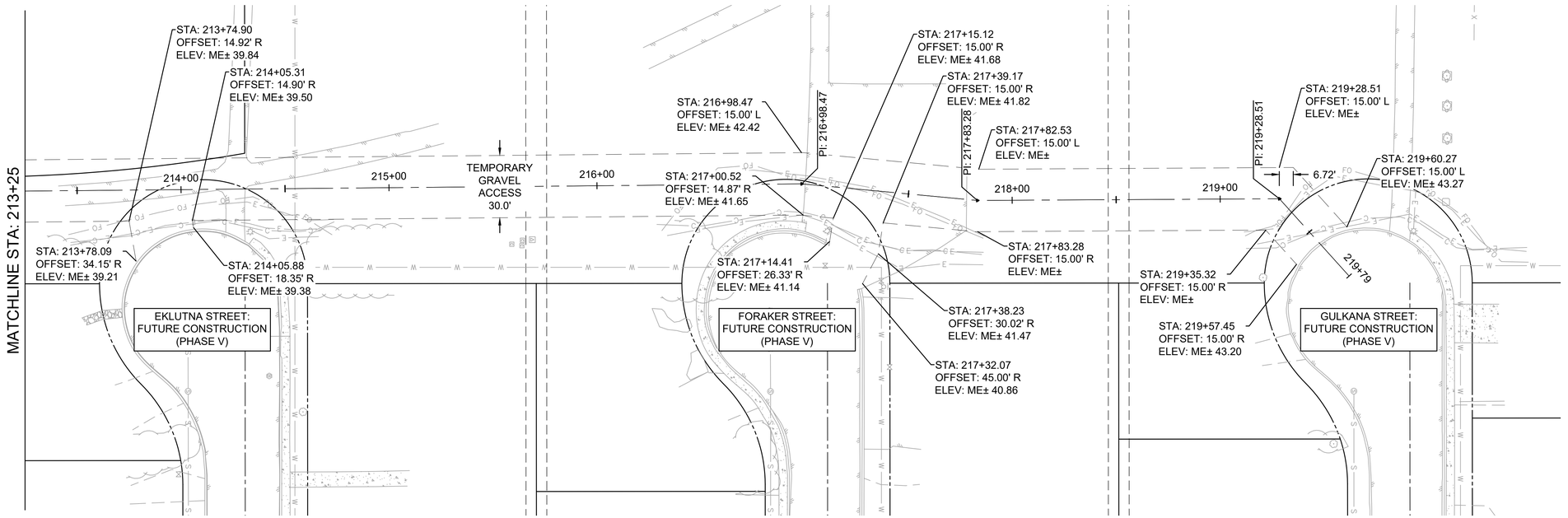
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

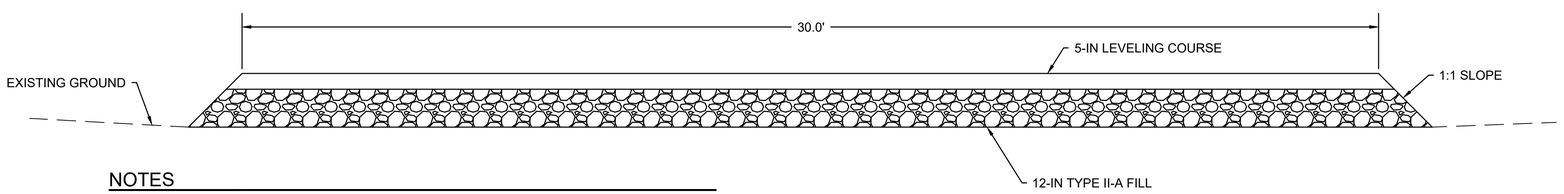
TEMPORARY GRAVEL ACCESS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-210

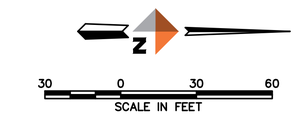


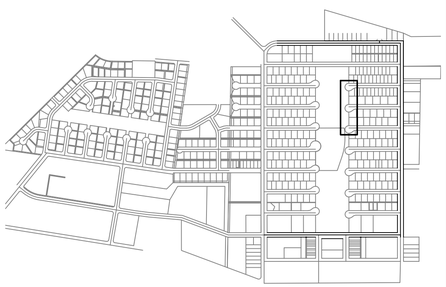


NOTES

1. ALL LAYERS ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR.
2. TEMPORARY ACCESS WILL BE REMOVED UPON COMPLETION OF VALDEZ PAVEMENT REHABILITATION PHASE IV MEALS AVENUE.
3. AFTER REMOVAL OF TEMPORARY ACCESS, DISTURBED AREAS SHALL BE FILLED WITH UNCLASSIFIED SOIL AND REGRADED. AREA TO BE STABILIZED WITH 2" TOPSOIL AND SEED.

TEMPORARY ACCESS ROAD SECTION





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

TEMPORARY GRAVEL ACCESS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-211

STA "RR-ML" 135+99.85
OFFSET: 22.50' L
TBC EL 38.11

STA "RR-ML" 135+89.38
OFFSET: 22.50' L
TBC EL 38.21

STA "RR-ML" 135+79.57
OFFSET: 22.18' L
ME EL ±38.19

TRANSITION TO EG IF ALTERNATE #4 IS NOT SELECTED.

PHASE IV
ROBE RIVER DRIVE
ALTERNATE #4

ROBE RIVER DRIVE

STA "RR-ML" 135+82.74
OFFSET: 0.00'
ME EL ±38.55

STA "RR-ML" 135+85.77
OFFSET: 21.65' R
ME EL ±38.21

STA "RR-ML" 135+99.85
OFFSET: 22.50' R
TBC EL 38.09

STA "RR-ML" 136+09.92
OFFSET: 22.50' R
TBC EL 38.02

STA "RR-ML" 136+21.05
OFFSET: 22.50' R
TBC EL 37.93

STA "RR-ML" 136+21.05
OFFSET: 27.50' R
SW EL 38.00

STA "RR-ML" 136+41.19
OFFSET: 27.50' R
SW EL 37.69

STA "RR-ML" 136+58.25
OFFSET: 27.50' R
SW EL 37.57

STA "RR-ML" 136+78.39
OFFSET: 27.50' R
SW EL 37.90

STA "RR-ML" 136+13.64
OFFSET: 28.08' L
SW EL 37.94

STA "RR-ML" 136+13.77
OFFSET: 22.50' L
TBC EL 37.81

STA "RR-ML" 136+41.19
OFFSET: 22.50' R
TBC EL 37.63

STA "RR-ML" 136+58.25
OFFSET: 22.50' R
TBC EL 37.51

STA "RR-ML" 136+78.39
OFFSET: 22.50' R
TBC EL 37.84

STA "RR-ML" 136+78.39
OFFSET: 33.50' L
SW EL 37.54

STA "RR-ML" 136+78.39
OFFSET: 22.50' L
TBC EL 37.34

PC: 135+99.85

136+00

PT: 136+78.39

137+00

MEALS AVENUE

2.00%

0.50%

1.15%

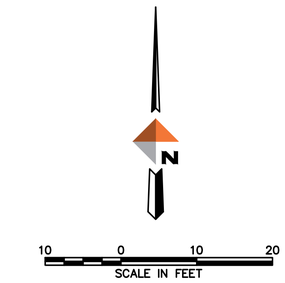
38

GB

769

1004

10



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-301

MEALS AVENUE

HANAGITA STREET

STA "RR-ML" 138+57.05
OFFSET: 27.50' R
SW EL 36.91

STA "RR-ML" 138+57.05
OFFSET: 22.50' R
TBC EL 36.83

STA "RR-ML" 138+64.05
OFFSET: 27.50' R
SW EL 36.50

STA "RR-ML" 138+64.05
OFFSET: 22.50' R
TBC EL 36.41

STA "RR-ML" 138+78.59
OFFSET: 27.50' R
TBC EL 36.41

STA "RR-ML" 138+83.21
OFFSET: 32.45' R
TBC EL 36.74

STA "RR-ML" 138+89.27
OFFSET: 55.00' R
ME EL ±36.37

STA "RR-ML" 138+87.27
OFFSET: 45.50' R
TBC EL 36.80

STA "RR-ML" 139+04.27
OFFSET: 20.50' R
TP EL 36.18

STA "RR-ML" 139+04.27
OFFSET: 55.00' R
ME EL ±36.74

STA "RR-ML" 139+23.77
OFFSET: 45.50' R
TBC EL 36.84

STA "RR-ML" 139+21.77
OFFSET: 55.00' R
ME EL ±36.56

STA "RR-ML" 139+28.77
OFFSET: 45.50' R
SW EL 36.90

STA "RR-ML" 139+27.29
OFFSET: 33.27' R
TBC EL 36.29

STA "RR-ML" 139+31.52
OFFSET: 35.93' R
SW EL 36.35

STA "RR-ML" 139+38.06
OFFSET: 29.74' R
SW EL 36.20

STA "RR-ML" 139+35.65
OFFSET: 25.37' R
TBC EL 36.14

STA "RR-ML" 139+46.78
OFFSET: 27.50' R
SW EL 36.42

STA "RR-ML" 139+12.32
OFFSET: 20.50' L
TP EL 36.14

STA "RR-ML" 139+47.00
OFFSET: 22.50' R
TBC EL 36.36

STA "RR-ML" 139+52.17
OFFSET: 22.50' L
TBC EL 35.95

STA "RR-ML" 138+53.04
OFFSET: 22.50' L
TBC EL 36.45

STA "RR-ML" 138+53.04
OFFSET: 33.50' L
TP EL 36.64

STA "RR-ML" 138+60.04
OFFSET: 33.50' L
TP EL 36.60

STA "RR-ML" 138+60.04
OFFSET: 22.50' L
TBC EL 36.42

STA "RR-ML" 138+84.65
OFFSET: 33.50' L
TBC EL 36.34

STA "RR-ML" 138+94.82
OFFSET: 59.44' L
ME EL ±36.96

STA "RR-ML" 139+08.60
OFFSET: 53.29' L
TP EL 36.94

STA "RR-ML" 139+22.38
OFFSET: 47.13' L
ME EL ±36.72

STA "RR-ML" 139+29.95
OFFSET: 33.50' L
TBC EL 36.22

STA "RR-ML" 139+52.17
OFFSET: 33.50' L
TP EL 36.06

STA "RR-ML" 139+59.17
OFFSET: 33.50' L
TP EL 36.46

STA "RR-ML" 139+59.17
OFFSET: 22.50' L
TBC EL 36.27

CONTRACTOR TO CONFIRM ELEVATIONS OF EAST HANAGITA STREET CONSTRUCTED WITH SENIOR HOUSING PROJECT IN SUMMER OF 2022

2.00% 2.00% 2.00% 2.00% 2.04% 1.01% 1.32% 1.75% 1.26% 1.33% 0.53% 0.53% 0.56% 1.05% 3.24% 2.43% 0.72% 0.71% 2.30%

1005 1006 711 712 1000 1100 1200 1300 1400 139+00 140+00

N

10 0 10 20
SCALE IN FEET

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
REGISTERED PROFESSIONAL ENGINEER

DOWL
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Anchorage, Alaska 99503
907-562-2000

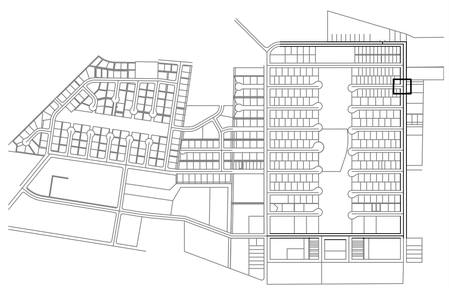
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-302

STA "RR-ML" 141+42.35
OFFSET: 27.50' R
TBC EL 35.24
STA "RR-ML" 141+54.56
OFFSET: 26.01' R
TBC EL 34.55
STA "RR-ML" 141+51.91
OFFSET: 30.25' R
TBC EL 34.61
STA "RR-ML" 141+62.47
OFFSET: 34.37' R
TBC EL 34.42
STA "RR-ML" 141+58.10
OFFSET: 36.79' R
TBC EL 34.47
STA "RR-ML" 141+60.35
OFFSET: 45.50' R
TBC EL 34.06
STA "RR-ML" 141+65.35
OFFSET: 52.07' R
TBC EL 33.88
STA "RR-ML" 141+68.39
OFFSET: 57.07' R
ME EL ±33.88
STA "RR-ML" 141+65.35
OFFSET: 45.50' R
TBC EL 33.98
STA "RR-ML" 141+42.35
OFFSET: 22.50' R
TBC EL 35.16
SEE GRADING, DOES NOT RAMP UP PER TYPICAL DETAIL
STA "RR-ML" 141+33.90
OFFSET: 22.50' L
TBC EL 35.22
STA "RR-ML" 141+33.90
OFFSET: 33.50' L
TP EL 35.39
STA "RR-ML" 141+40.90
OFFSET: 33.50' L
TP EL 34.95
STA "RR-ML" 141+40.90
OFFSET: 20.50' L
TP EL 34.77
STA "RR-ML" 141+65.62
OFFSET: 33.50' L
TP EL 34.55
STA "RR-ML" 141+70.90
OFFSET: 50.72' L
TP EL 34.66
STA "RR-ML" 141+70.85
OFFSET: 57.15' L
ME EL ±34.70
STA "RR-ML" 141+85.35
OFFSET: 57.26' L
ME EL ±34.68
STA "RR-ML" 141+85.35
OFFSET: 20.50' R
TP EL 34.43
STA "RR-ML" 142+00.85
OFFSET: 57.37' L
ME EL ±34.57
STA "RR-ML" 142+00.91
OFFSET: 50.28' L
TP EL 34.52
STA "RR-ML" 142+06.19
OFFSET: 33.50' L
TP EL 34.36
STA "RR-ML" 142+30.91
OFFSET: 33.50' L
TP EL 34.25
STA "RR-ML" 142+37.91
OFFSET: 33.50' L
TP EL 34.59
STA "RR-ML" 142+37.91
OFFSET: 22.50' L
TBC EL 34.43
STA "RR-ML" 142+30.91
OFFSET: 20.50' L
TP EL 34.07
STA "RR-ML" 142+28.35
OFFSET: 22.50' R
TBC EL 34.12
STA "RR-ML" 142+35.35
OFFSET: 22.50' R
TBC EL 34.45
STA "RR-ML" 142+03.24
OFFSET: 66.40' R
ME EL ±34.12
STA "RR-ML" 142+03.29
OFFSET: 57.07' R
ME EL ±34.01
STA "RR-ML" 142+05.35
OFFSET: 52.07' R
TBC EL 34.10
STA "RR-ML" 142+05.35
OFFSET: 49.35' R
TBC EL 34.06
STA "RR-ML" 142+05.35
OFFSET: 45.50' R
TBC EL 34.08
STA "RR-ML" 142+10.52
OFFSET: 30.97' R
TBC EL 34.50
STA "RR-ML" 142+14.03
OFFSET: 27.50' R
TBC EL 34.03
STA "RR-ML" 142+28.35
OFFSET: 27.50' R
SW EL 34.17
STA "RR-ML" 142+35.35
OFFSET: 27.50' R
SW EL 34.53
STA "RR-ML" 141+85.35
OFFSET: 61.61' R
ME EL ±34.17

GULKANA STREET
MEALS AVENUE
141+00
142+00
1007
1008
2.00%
0.65%
1.75%
2.01%
1.76%
3.53%
1.64%
0.75%
0.55%
0.65%
0.90%
1.00%
0.52%
0.50%



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
JANUARY 16, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-303

STA "RR-ML" 144+15.25
OFFSET: 27.50' R
SW EL 33.46

STA "RR-ML" 144+22.25
OFFSET: 27.50' R
SW EL 33.05

STA "RR-ML" 144+36.57
OFFSET: 27.50' R
TBC EL 32.83

STA "RR-ML" 144+40.08
OFFSET: 30.97' R
TBC EL 33.17

STA "RR-ML" 144+45.05
OFFSET: 42.51' R
TBC EL 32.96

STA "RR-ML" 144+45.25
OFFSET: 45.50' R
TBC EL 32.68

STA "RR-ML" 144+45.25
OFFSET: 50.00' R
TBC EL 32.61

STA "RR-ML" 144+47.25
OFFSET: 55.00' R
TP EL 32.55

STA "RR-ML" 144+48.18
OFFSET: 60.00' R
ME EL ±32.67

STA "RR-ML" 144+65.25
OFFSET: 64.58' R
ME EL ±32.93

STA "RR-ML" 144+82.16
OFFSET: 58.00' R
TP EL 32.50

STA "RR-ML" 144+82.12
OFFSET: 69.09' R
ME EL ±32.66

STA "RR-ML" 144+83.25
OFFSET: 55.50' R
TP EL 32.45

STA "RR-ML" 144+85.25
OFFSET: 50.00' R
TBC EL 32.55

STA "RR-ML" 144+85.25
OFFSET: 45.50' R
TBC EL 32.61

STA "RR-ML" 144+90.25
OFFSET: 45.50' R
SW EL 32.70

STA "RR-ML" 144+93.00
OFFSET: 35.94' R
SW EL 32.68

STA "RR-ML" 144+88.76
OFFSET: 33.28' R
TBC EL 32.62

STA "RR-ML" 144+99.54
OFFSET: 29.75' R
SW EL 32.66

STA "RR-ML" 144+97.11
OFFSET: 25.37' R
TBC EL 32.60

STA "RR-ML" 145+08.25
OFFSET: 27.50' R
SW EL 33.00

STA "RR-ML" 144+15.25
OFFSET: 22.50' R
TBC EL 33.38

1009

STA "RR-ML" 144+22.27
OFFSET: 22.50' R
TBC EL 32.97

STA "RR-ML" 144+65.25
OFFSET: 50.00' R
TP EL 32.55

STA "RR-ML" 144+65.25
OFFSET: 20.50' R
TP EL 32.73

1010

STA "RR-ML" 145+08.25
OFFSET: 22.50' R
TBC EL 32.92

FORAKER STREET

MEALS AVENUE

144+00

145+00

2.00%

0.75%

1.50%

0.52%

0.55%

0.94%

0.63%

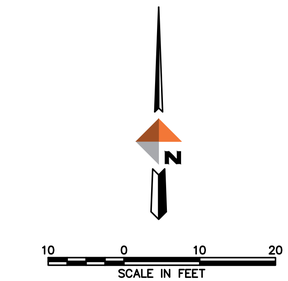
1.10%

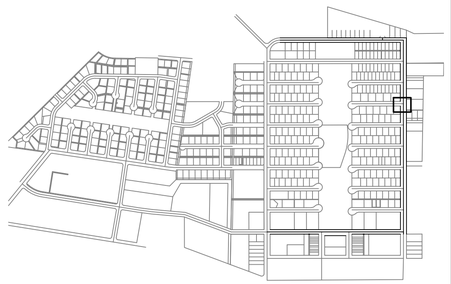
0.71%

33

GB

CB





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
REGISTERED PROFESSIONAL ENGINEER

DOWL
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Anchorage, Alaska 99503
907-562-2000

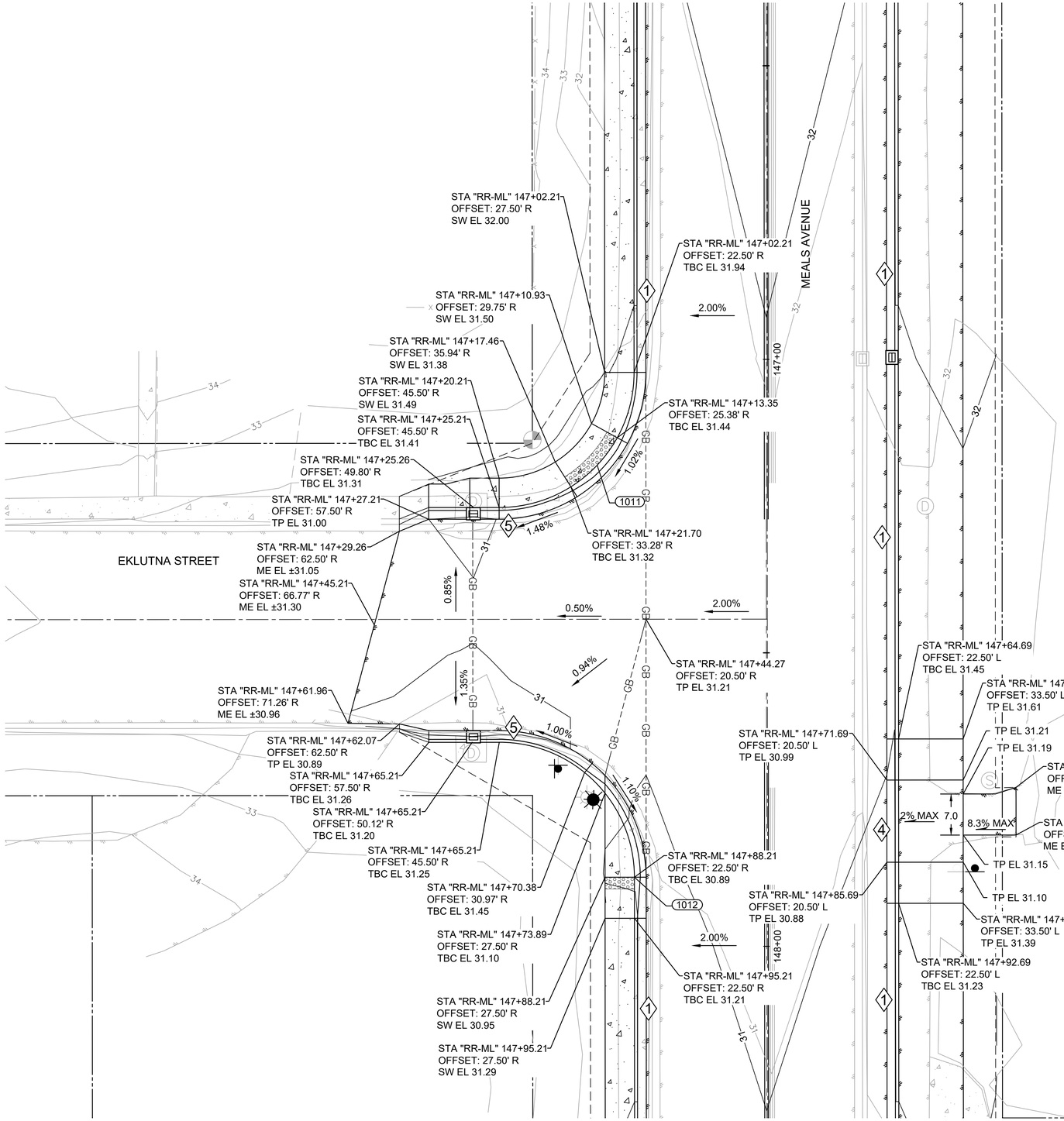
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

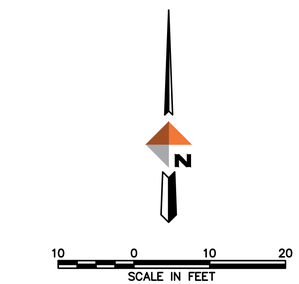
INTERSECTION GRADING

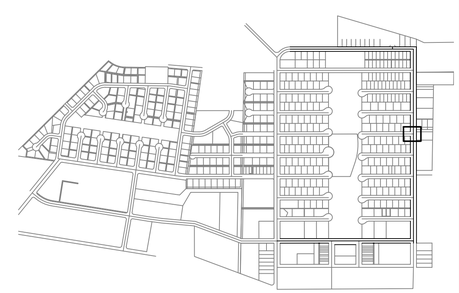
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-304







KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-305

STA "RR-ML" 149+82.34
OFFSET: 27.50' R
SW EL 30.10

STA "RR-ML" 149+91.05
OFFSET: 29.75' R
SW EL 29.52

STA "RR-ML" 149+97.59
OFFSET: 35.94' R
SW EL 29.39

STA "RR-ML" 150+00.34
OFFSET: 45.50' R
SW EL 29.51

STA "RR-ML" 150+01.34
OFFSET: 55.50' R
SW EL 29.42

STA "RR-ML" 150+05.34
OFFSET: 55.50' R
SW EL 29.36

ME ELEV ≈ 29.62

SW ELEV = 29.07

STA "RR-ML" 150+08.76
OFFSET: 65.00' R
ME EL ±29.01

STA "RR-ML" 150+05.34
OFFSET: 60.00' R
TBC EL 29.00

STA "RR-ML" 150+01.83
OFFSET: 33.28' R
TBC EL 29.33

STA "RR-ML" 149+82.34
OFFSET: 22.50' R
TBC EL 29.98

STA "RR-ML" 149+93.48
OFFSET: 25.38' R
TBC EL 29.45

STA "RR-ML" 149+82.34
OFFSET: 22.50' L
TBC EL 29.60

STA "RR-ML" 150+25.37
OFFSET: 20.50' L
TP EL 29.31

STA "RR-ML" 150+25.34
OFFSET: 20.50' R
TP EL 29.31

STA "RR-ML" 149+73.34
OFFSET: 22.50' L
TBC EL 30.05

STA "RR-ML" 149+73.34
OFFSET: 33.50' L
TP EL 30.23

STA "RR-ML" 149+82.34
OFFSET: 33.50' L
TP EL 29.74

STA "RR-ML" 150+01.97
OFFSET: 33.50' L
TBC EL 29.39

STA "RR-ML" 149+94.27
OFFSET: 88.49' L
ME EL ±30.03

STA "RR-ML" 149+94.27
OFFSET: 94.21' L
ME EL ±30.01

STA "RR-ML" 150+00.85
OFFSET: 94.21' L
SW EL 29.84

STA "RR-ML" 150+00.85
OFFSET: 106.48' L
ME EL ±29.87

STA "RR-ML" 150+07.34
OFFSET: 45.50' L
TP EL 29.15

STA "RR-ML" 150+07.35
OFFSET: 50.49' L
TP EL 29.07

STA "RR-ML" 150+06.85
OFFSET: 88.46' L
TBC EL 29.75

STA "RR-ML" 150+07.35
OFFSET: 106.46' L
ME EL ±29.34

STA "RR-ML" 150+20.37
OFFSET: 109.13' L
ME EL ±29.46

STA "RR-ML" 150+31.36
OFFSET: 97.08' L
TP EL 29.10

STA "RR-ML" 150+31.39
OFFSET: 112.08' L
ME EL ±29.31

STA "RR-ML" 150+41.99
OFFSET: 62.65' L
TP EL 28.75

STA "RR-ML" 150+32.71
OFFSET: 89.07' L
TP EL 28.98

STA "RR-ML" 150+43.35
OFFSET: 54.70' L
TP EL 28.79

STA "RR-ML": 150+38.12
OFFSET: 111.26' L
FL ELEV 28.27

STA "RR-ML": 150+43.53
OFFSET: 89.93' L
FL ELEV 27.75

STA "RR-ML": 150+46.96
OFFSET: 63.65' L
FL ELEV 28.28

STA "RR-ML" 150+48.72
OFFSET: 33.50' L
TBC EL 28.93

STA "RR-ML" 150+68.34
OFFSET: 33.50' L
TP EL 29.24

STA "RR-ML": 150+76.71
OFFSET: 37.50' L
FL ELEV 29.15

STA "RR-ML" 150+75.34
OFFSET: 33.50' L
TP EL 29.58

STA "RR-ML" 150+05.34
OFFSET: 45.50' R
TBC EL 29.43

STA "RR-ML" 150+25.36
OFFSET: 69.45' R
ME EL ±29.43

STA "RR-ML" 150+41.76
OFFSET: 73.84' R
ME EL ±29.19

STA "RR-ML" 150+45.34
OFFSET: 57.00' R
TBC EL 29.44

STA "RR-ML" 150+45.34
OFFSET: 45.50' R
TBC EL 29.44

STA "RR-ML" 150+49.72
OFFSET: 31.99' R
TBC EL 29.62

STA "RR-ML" 150+52.85
OFFSET: 28.50' R
TBC EL 29.28

STA "RR-ML" 150+68.34
OFFSET: 28.50' R
SW EL 29.12

STA "RR-ML" 150+75.34
OFFSET: 28.50' R
SW EL 29.47

STA "RR-ML" 150+68.34
OFFSET: 22.50' R
TBC EL 29.07

STA "RR-ML" 150+68.33
OFFSET: 22.50' L
TBC EL 29.06

STA "RR-ML" 150+75.34
OFFSET: 22.50' L
TBC EL 29.40

STA "RR-ML" 150+75.34
OFFSET: 22.50' R
TBC EL 29.40

DADINA STREET

MEALS AVENUE

2.00%

1.06%

1.78%

0.51%

1.25%

0.80%

1.75%

1.30%

1.05%

1.10%

1.18%

11.30%

0.88%

0.75%

0.90%

1.15%

0.50%

1.57%

136-SDMH
SEE C-204

191.0 LF 18" CPEP @ 0.64%

30.5

10.0

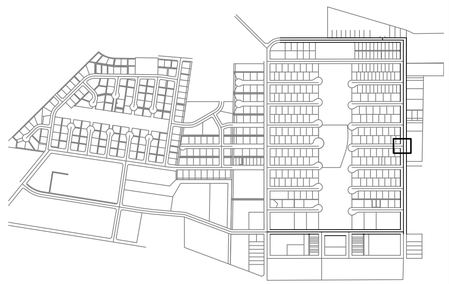
160-CBMH
STA "RR-ML": 149+77.80
OFFSET = 267.64 L
RIM = 28.23
INV OUT (W)= 23.40 (18")

EXISTING INVERT IS APPROXIMATE, COORDINATE WITH ENGINEER IF EXISTING OUTLET CAN NOT BE REUSED

STORM PIPE MH134-MH160
SCALE: 1"=20'

N

10 0 10 20
SCALE IN FEET



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
JAN 14, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000
WWW.DOWL.COM

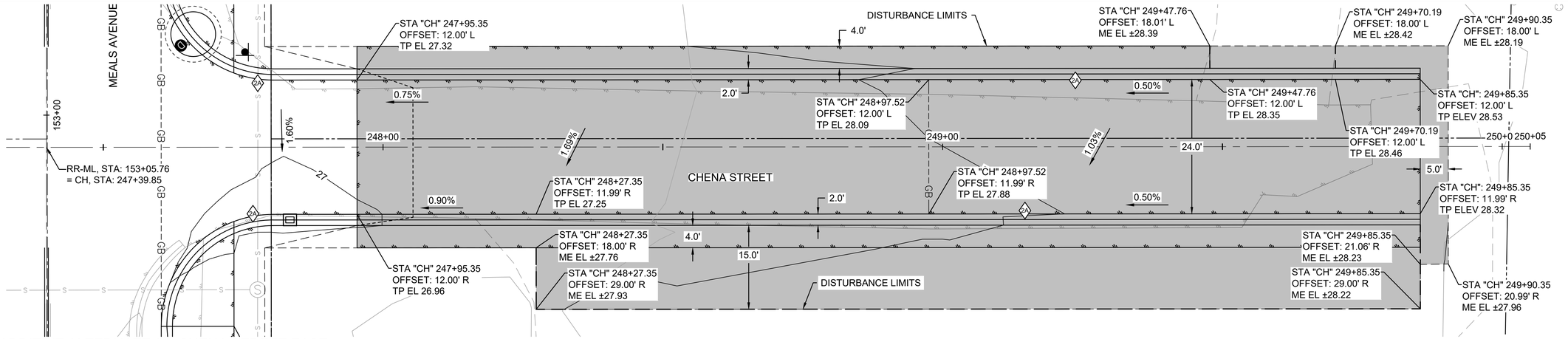
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING

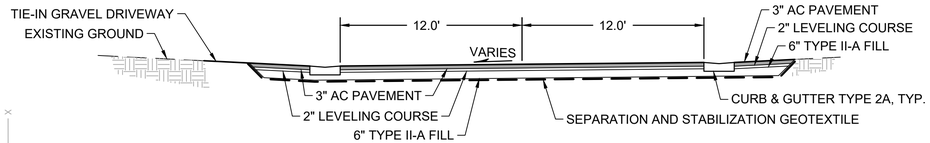
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

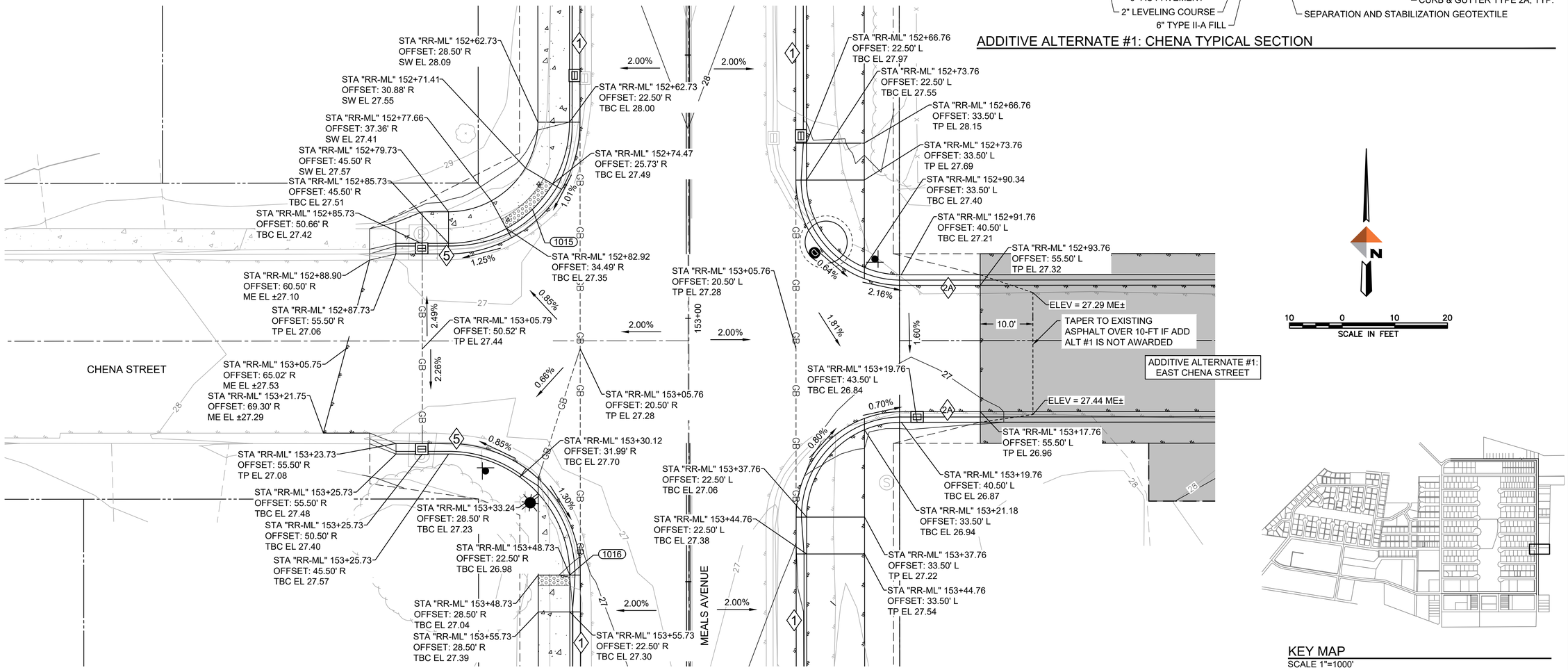
C-306



ADDITIVE ALTERNATE #1: CHENA STREET EAST



ADDITIVE ALTERNATE #1: CHENA TYPICAL SECTION



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13293
04.14.2026
REGISTERED PROFESSIONAL ENGINEER

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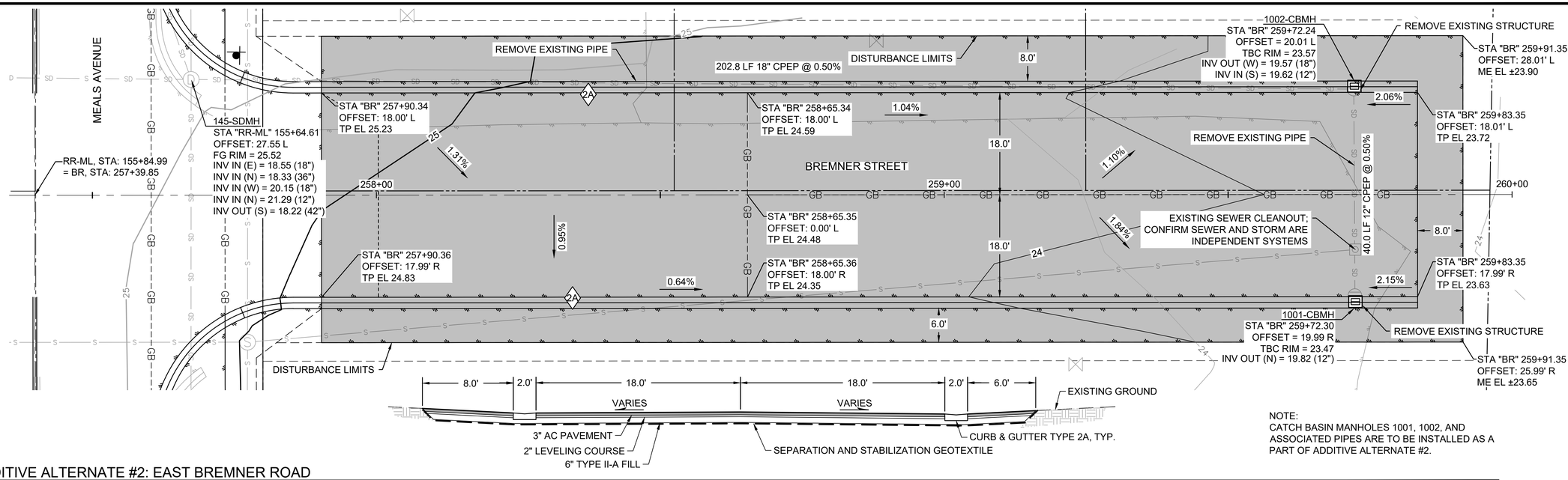
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING AND ADD ALT #1

VALDEZ, ALASKA

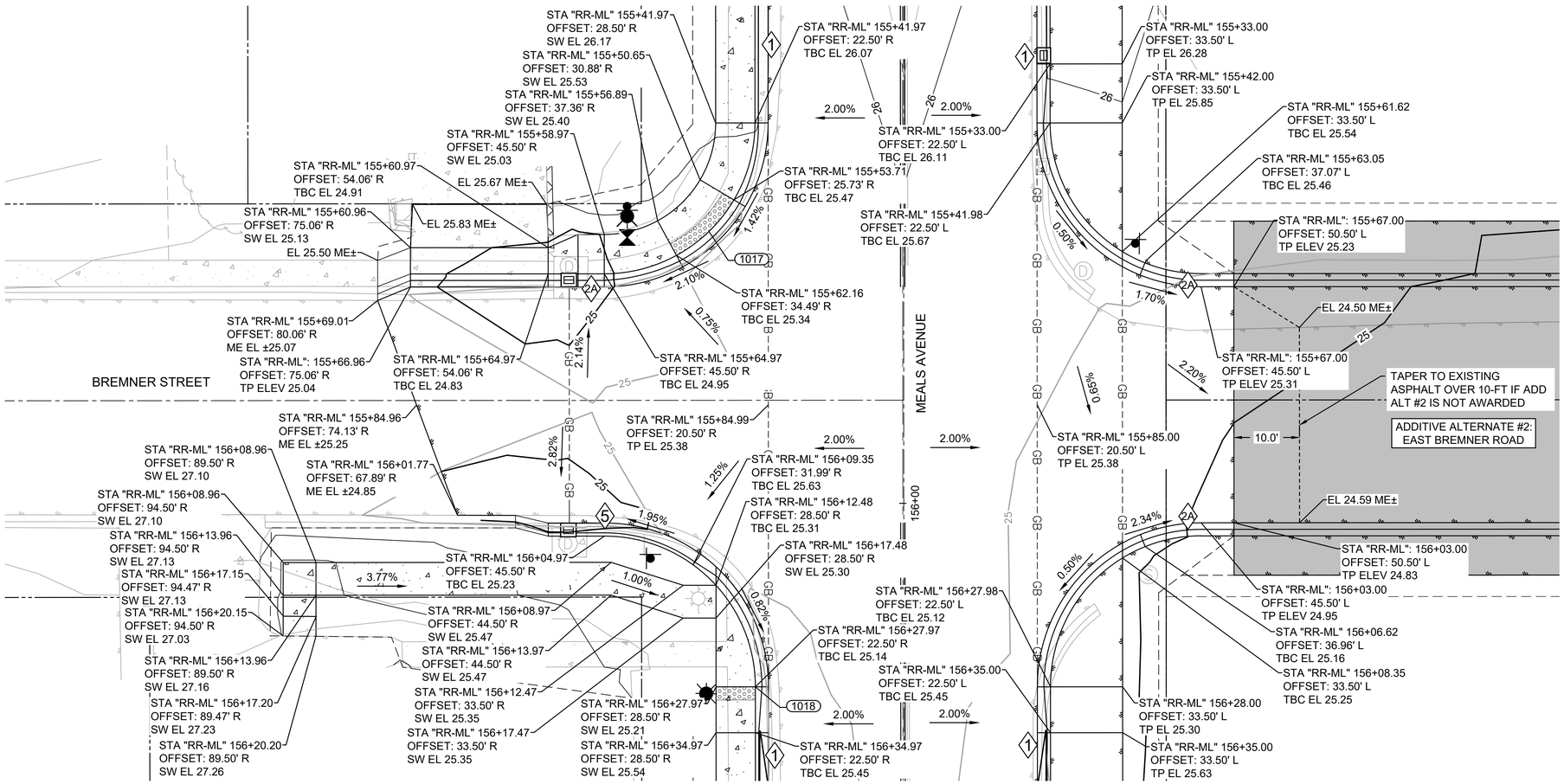
PROJECT	63461.01
DATE	01/16/2026

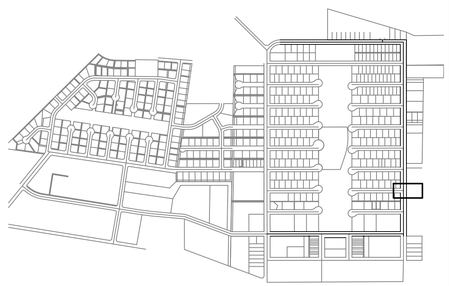
C-307



NOTE:
CATCH BASIN MANHOLES 1001, 1002, AND ASSOCIATED PIPES ARE TO BE INSTALLED AS A PART OF ADDITIVE ALTERNATE #2.

ADDITIVE ALTERNATE #2: EAST BREMNER ROAD





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01-16-2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING AND ADD ALT #2

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-308

STA "RR-ML" 158+15.09
OFFSET: 28.50' R
SW EL 24.37

STA "RR-ML" 158+15.09
OFFSET: 22.50' R
TBC EL 24.28

STA "RR-ML" 158+22.09
OFFSET: 28.50' R
SW EL 23.92

STA "RR-ML" 158+22.11
OFFSET: 22.50' R
TBC EL 23.86

STA "RR-ML" 158+37.58
OFFSET: 28.50' R
TBC EL 23.63

STA "RR-ML" 158+45.09
OFFSET: 45.50' R
TBC EL 23.51

STA "RR-ML" 158+45.10
OFFSET: 52.01' R
TBC EL 23.16

STA "RR-ML" 158+45.09
OFFSET: 53.51' R
TBC EL 23.36

STA "RR-ML" 158+40.71
OFFSET: 31.99' R
TBC EL 23.93

STA "RR-ML" 158+47.36
OFFSET: 58.50' R
ME EL ±23.03

STA "RR-ML" 158+65.09
OFFSET: 63.25' R
ME EL ±23.27

STA "RR-ML" 158+65.09
OFFSET: 20.50' R
TP EL 23.55

ALATNA STREET

STA "RR-ML" 158+81.75
OFFSET: 67.71' R
ME EL ±22.95

STA "RR-ML" 158+85.09
OFFSET: 45.50' R
TBC EL 23.38

STA "RR-ML" 158+87.90
OFFSET: 34.49' R
TBC EL 23.42

EL 23.46 ME±

EL 23.54 ME±

STA "RR-ML" 158+85.09
OFFSET: 53.38' R
TBC EL 23.23

STA "RR-ML" 158+91.09
OFFSET: 45.50' R
SW EL 23.44

STA "RR-ML" 158+93.17
OFFSET: 37.36' R
SW EL 23.48

STA "RR-ML" 159+08.09
OFFSET: 22.50' R
TBC EL 23.67

STA "RR-ML" 158+99.41
OFFSET: 30.88' R
SW EL 23.42

STA "RR-ML" 158+96.35
OFFSET: 25.72' R
TBC EL 23.36

STA "RR-ML" 159+08.09
OFFSET: 28.50' R
SW EL 23.74

2.00%
2.52%
1.17%
1.36%
1.35%
2.05%
1.22%
3.44%
0.50%

158+00
159+00

STA "RR-ML" 158+46.39
OFFSET: 22.50' L
TBC EL 24.09

STA "RR-ML" 158+46.39
OFFSET: 33.50' L
TP EL 24.22

STA "RR-ML" 158+46.43
OFFSET: 39.00' L
ME EL ±22.84

STA "RR-ML" 158+55.55
OFFSET: 41.15' L
ME EL ±23.14

STA "RR-ML" 158+55.49
OFFSET: 33.50' L
TP EL 23.68

STA "RR-ML" 158+55.37
OFFSET: 20.50' L
TP EL 23.62

4.52%
0.82%

STA "RR-ML" 159+03.37
OFFSET: 20.50' L
TP EL 23.30

STA "RR-ML" 159+03.37
OFFSET: 33.50' L
TP EL 23.38

STA "RR-ML" 159+03.55
OFFSET: 41.15' L
ME EL ±22.98

STA "RR-ML" 159+10.63
OFFSET: 39.01' L
ME EL ±22.86

STA "RR-ML" 159+10.37
OFFSET: 33.50' L
TP EL 23.84

STA "RR-ML" 159+10.37
OFFSET: 22.50' L
TBC EL 23.67

MEALS AVENUE

STA "RR-ML" 161+09.61
OFFSET: 22.50' R
TBC EL 22.16

STA "RR-ML" 161+09.61
OFFSET: 28.51' R
SW EL 22.26

STA "RR-ML" 161+21.36
OFFSET: 25.73' R
TBC EL 21.90

STA "RR-ML" 161+18.29
OFFSET: 30.89' R
SW EL 21.96

STA "RR-ML" 161+24.54
OFFSET: 37.37' R
SW EL 21.89

STA "RR-ML" 161+32.61
OFFSET: 45.50' R
TBC EL 22.16

STA "RR-ML" 161+29.81
OFFSET: 34.50' R
TBC EL 21.83

STA "RR-ML" 161+40.58
OFFSET: 46.94' R
ME EL ±21.91

PIONEER DRIVE

MEALS AVENUE

STA "RR-ML" 161+00.00
OFFSET: 33.50' L
TBC EL 22.45

STA "RR-ML" 161+00.00
OFFSET: 22.50' L
TBC EL 22.29

STA "RR-ML" 161+08.58
OFFSET: 22.50' L
TBC EL 22.13

STA "RR-ML" 161+08.58
OFFSET: 33.50' L
TP EL 22.29

STA "RR-ML" 161+15.58
OFFSET: 20.33' L
ME EL ±21.53

STA "RR-ML" 161+15.58
OFFSET: 31.97' L
ME EL ±21.92

RR-ML, STA: 161+52.61
= PE, STA: 118+09.85

118+00
161+00

2.00%
0.55%

1019
1020
1021

GB

N

10 0 10 20
SCALE IN FEET

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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01/16/2026
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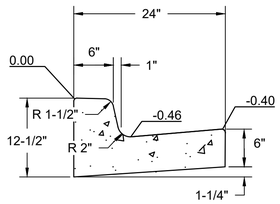
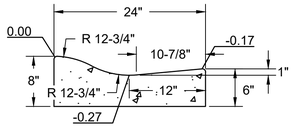
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

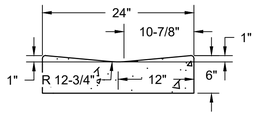
C-309



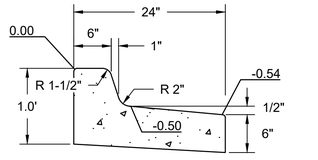
STANDING CURB AND GUTTER
TYPE 1



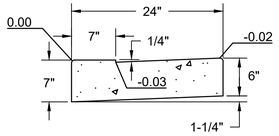
ROLLED CURB AND GUTTER
TYPE 2



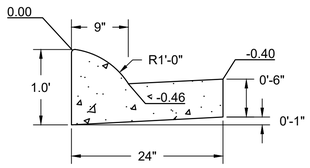
DEPRESSED ROLLED CURB
TYPE 2A



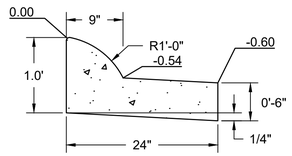
SHEDDING CURB AND GUTTER
TYPE 3



DEPRESSED CURB AND GUTTER
(USED AT CURB CUTS)
TYPE 4

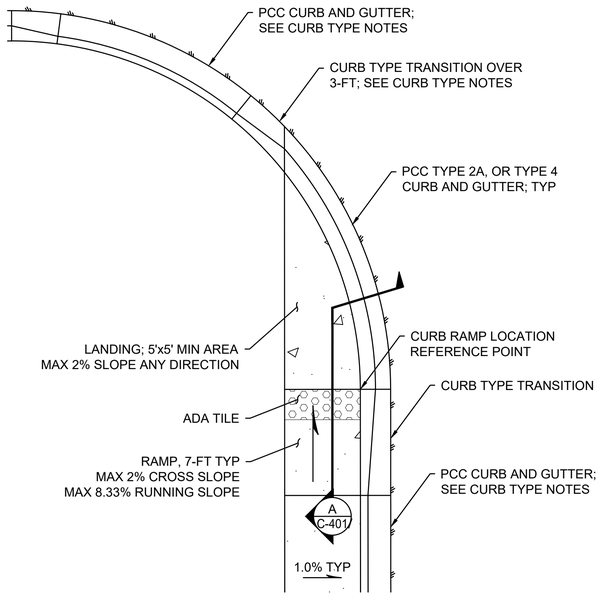


FULL HEIGHT ROLLED
CURB AND GUTTER
TYPE 5

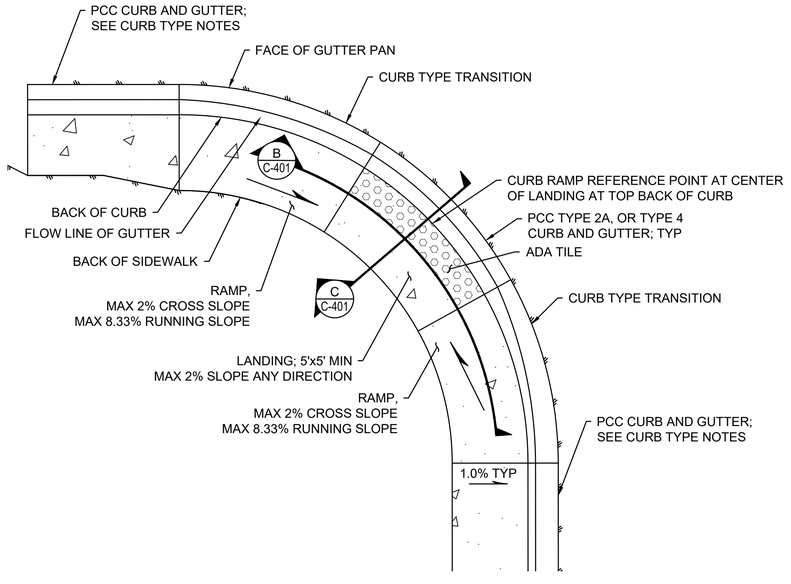


FULL HEIGHT ROLLED SHEDDING
CURB AND GUTTER
TYPE 6

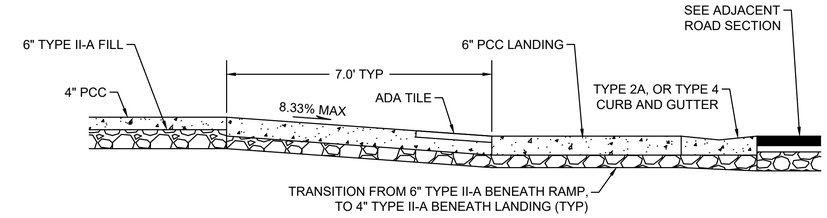
1 C-401 CURB AND GUTTER CROSS SECTIONS (SEE COV 30-1)
NTS



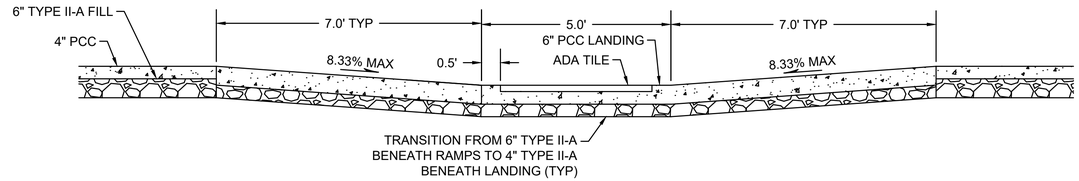
2 C-401 TYPE II PARALLEL CURB RAMP - PLAN, TYP
NTS



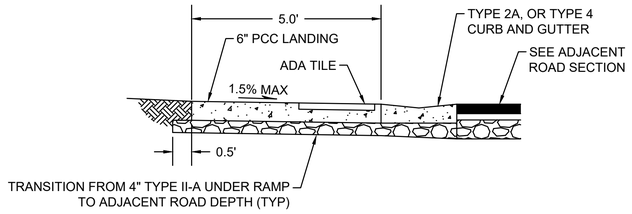
3 C-401 TYPE I PARALLEL CURB RAMP, TYP
NTS



A C-401 PERPENDICULAR CURB RAMP-SECTION, TYP
NTS



B C-401 PARALLEL CURB RAMP, TYP
NTS



C C-401 PARALLEL CURB RAMP, TYP
NTS

CURB TYPE NOTES:

1. USE TYPE 4 CURB AND GUTTER THROUGH LANDING WHEN TYPE 1 OR TYPE 5 CURB AND GUTTER ARE USED ON THE UPHILL SIDE OF RAMP.
2. USE TYPE 2A CURB AND GUTTER THROUGH LANDING WHEN TYPE 2 CURB AND GUTTER IS USED ON THE UPHILL SIDE OF RAMP.

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
REGISTERED PROFESSIONAL ENGINEER
Jan 14, 2026

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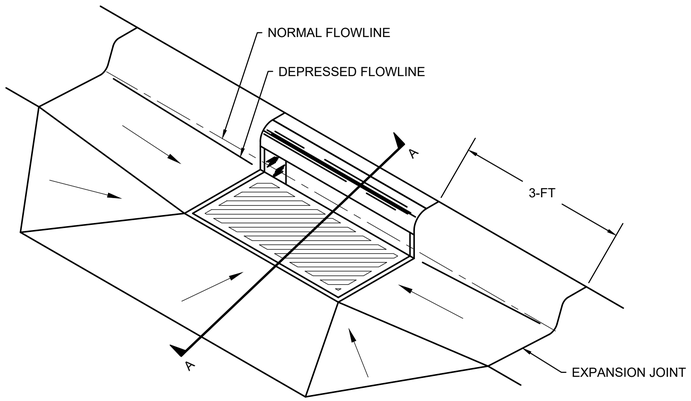
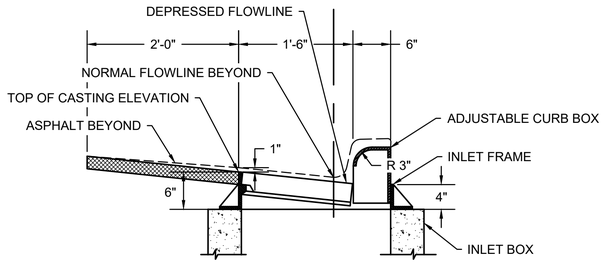
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
DETAILS
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

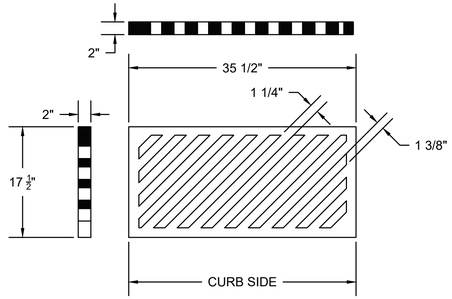
C-401

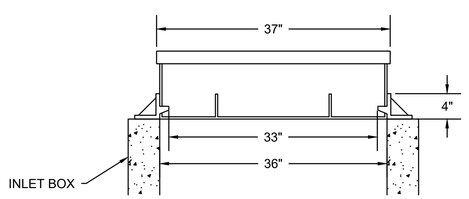




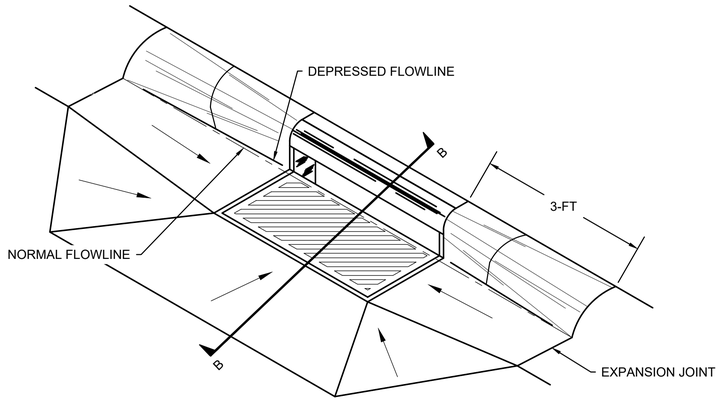
SECTION A - A

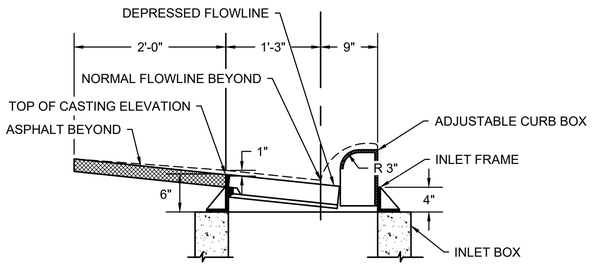
1 / C-402 TYPE 1 C&G FRAME AND GRATE
NTS





FRAME & GRATE DETAIL





SECTION B - B

2 / C-402 TYPE 5 C&G FRAME AND GRATE
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/14/2026
REGISTERED PROFESSIONAL ENGINEER

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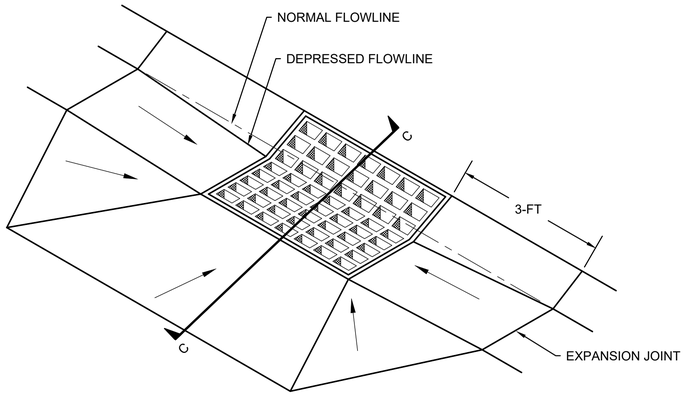
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

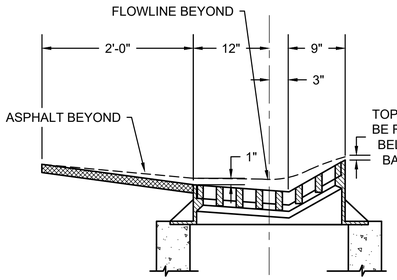
DETAILS

VALDEZ, ALASKA

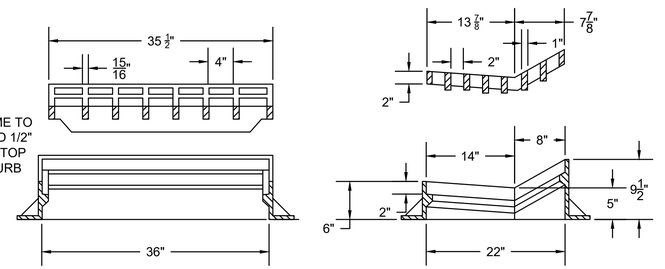
PROJECT	63461.01
DATE	01/16/2026

C-402

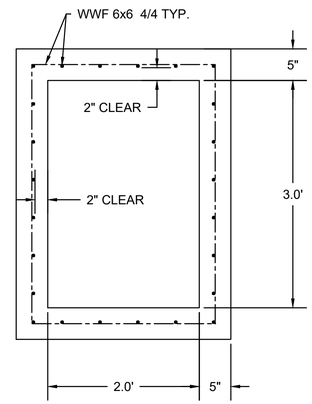




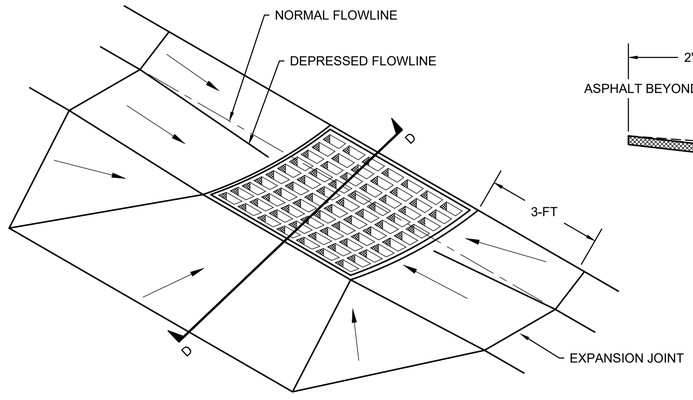
SECTION C - C

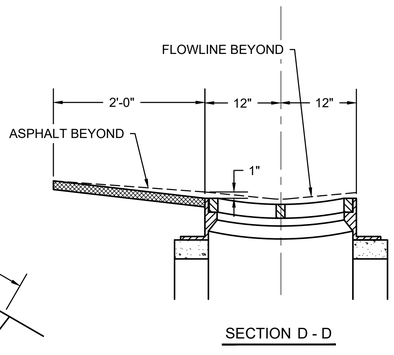


FRAME & GRATE DETAIL

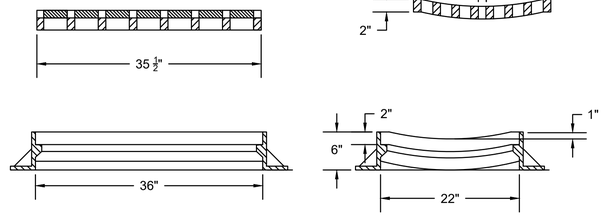


3 / C-403 TYPE 2 CURB & GUTTER INLET
NTS

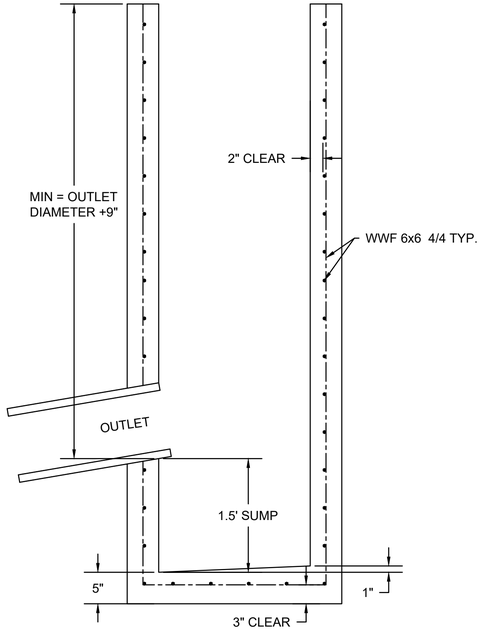




SECTION D - D



FRAME & GRATE DETAIL



4 / C-403 TYPE 2A/4 CURB & GUTTER
NTS

5 / C-403 TYPE "A" INLET BOX
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 14, 2026
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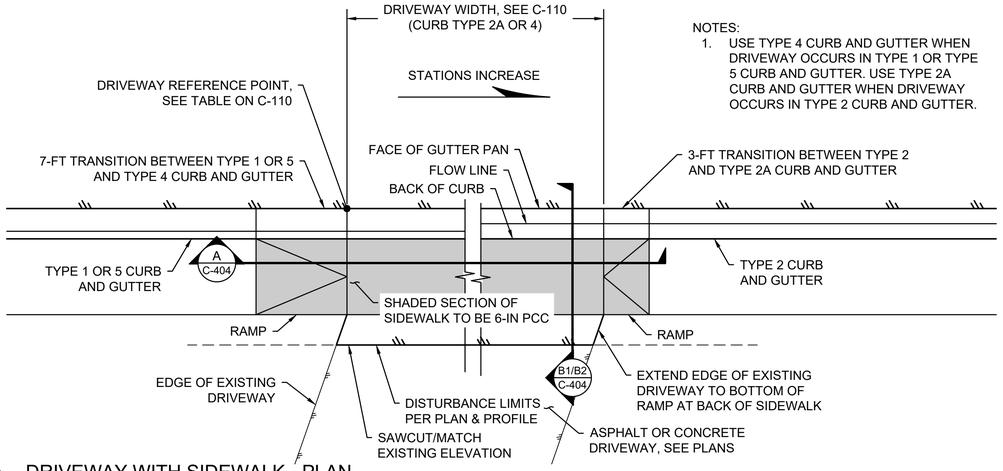
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
DETAILS
VALDEZ, ALASKA

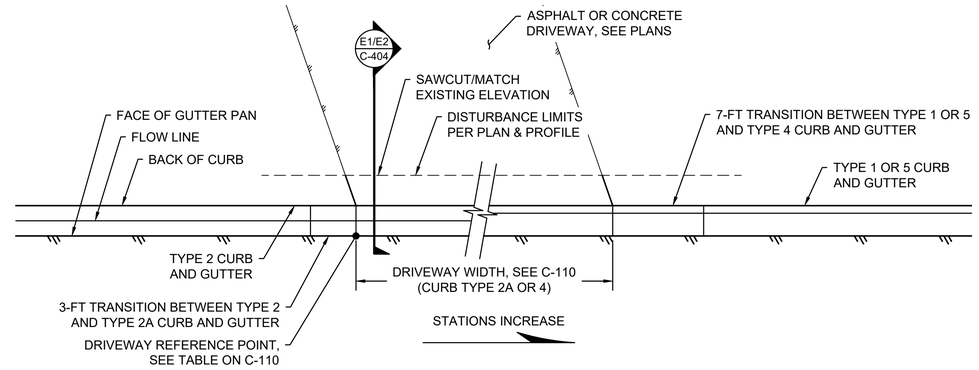
PROJECT 63461.01
DATE 01/16/2026

C-403

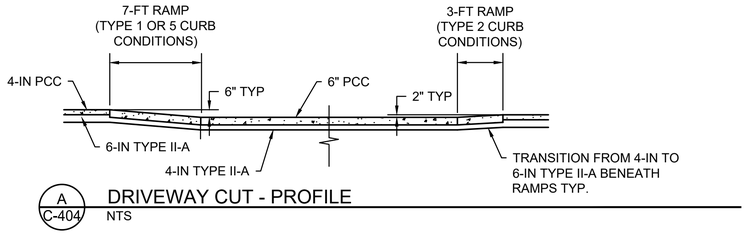


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

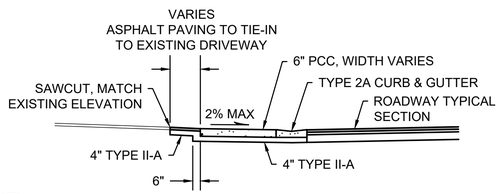
1 C-404 **DRIVEWAY WITH SIDEWALK - PLAN**
NTS



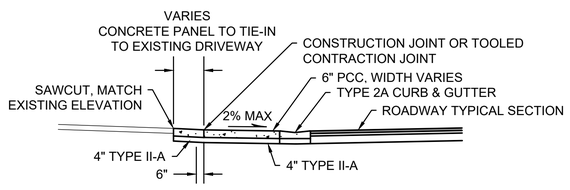
2 C-404 **DRIVEWAY WITHOUT SIDEWALK - PLAN**
NTS



A C-404 **DRIVEWAY CUT - PROFILE**
NTS

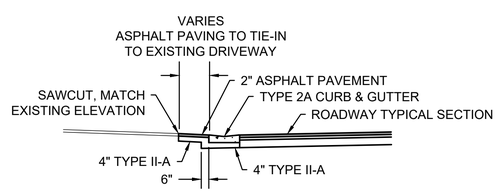


B1 C-404 **ASPHALT DRIVEWAY W/SIDEWALK**
NTS

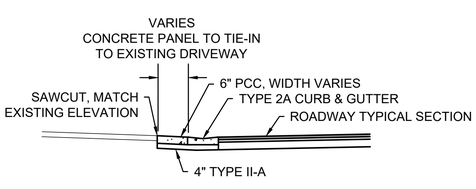


B2 C-404 **CONCRETE DRIVEWAY W/SIDEWALK**
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



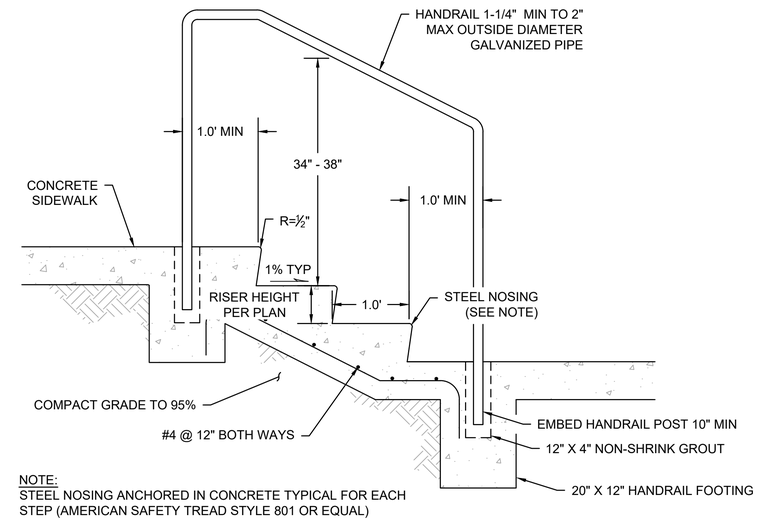
E1 C-404 **ASPHALT DRIVEWAY W/OUT SIDEWALK**
NTS



E2 C-404 **CONCRETE DRIVEWAY W/OUT SIDEWALK**
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 **TYPICAL HANDRAIL**
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

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Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-404

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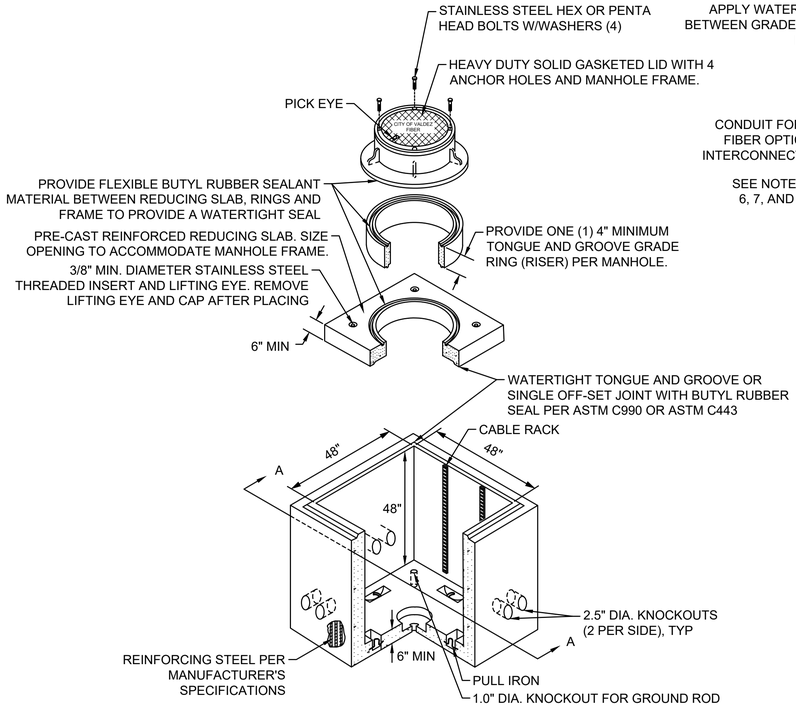
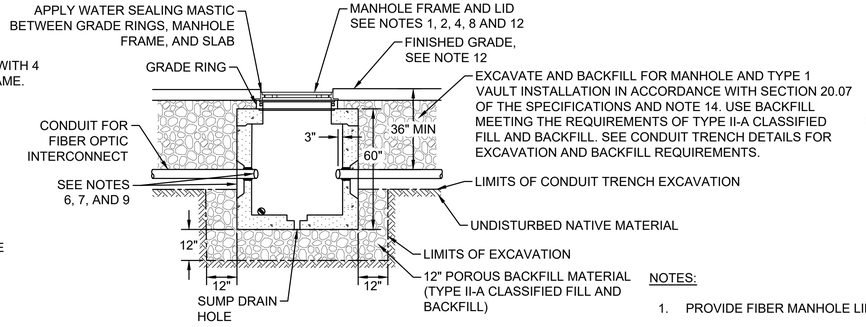
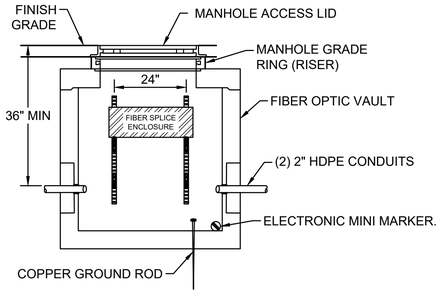


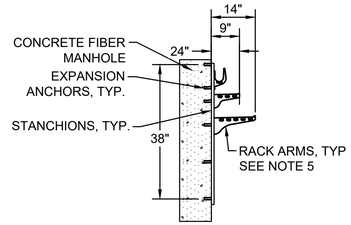
FIBER OPTIC WITH MANHOLE LID
NTS



SECTION A - A



FIBER OPTIC VAULT LAYOUT, TYPE 1
NTS

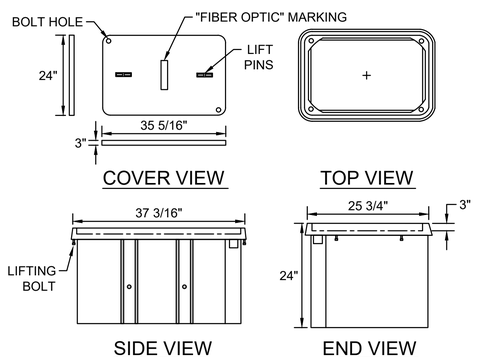


TYPICAL CABLE RACK
NTS

NOTES:

1. PROVIDE FIBER MANHOLE LIDS RATED FOR AASHTO HS-20-44 LOADING.
2. SUPPLY ALL LIDS WITH A HOLE OR SLOT FOR REMOVAL WITH A LEVER OR HOOK.
3. WHERE REQUIRED BY OSHA, PROVIDE A PORTABLE ENTRY LADDER MEETING OSHA REQUIREMENTS.
4. PROVIDE FIBER MANHOLE LIDS MARKED "CITY OF VALDEZ FIBER".
5. PROVIDE FIBER VAULTS WITH A HEAVY-DUTY NON-METALLIC CABLE STORAGE RACK SYSTEM. PROVIDE RACK ARMS OR STANCHIONS CAPABLE OF SUPPORTING A MINIMUM OF 250 LBS. INCLUDE A MINIMUM OF 36 INCH RACK STANCHIONS AND 4 RACK ARMS.
6. INSTALL CONDUITS INTO FIBER VAULTS AT THINWALL SECTIONS ONLY. CORE DRILL IN THE THINWALL SECTION TO CONDUIT SIZE PLUS ¼ INCH ALL AROUND. DO NOT "KNOCK OUT" THE THINWALL SECTION.
7. SEAL CONDUIT PENETRATIONS USING SIKA LEAKMASTER LV-1 OR APPROVED PRODUCT EQUIVALENT.
8. BOND AND GROUND ALL METALLIC COMPONENTS OF THE FIBER VAULT, INCLUDING RACK, FRAME AND LIDS.
9. PLUG CONDUITS ENDS TO EXCLUDE WATER UNTIL FIBER OPTIC CABLE IS INSTALLED.
10. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF VAULTS AND MANHOLES.
11. USE A SPLIT BOLT CONNECTOR TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
12. U.O.N., TOP OF FIBER VAULTS SHALL BE INSTALLED:
    A. FROM 0" TO 3/16" BELOW FINISHED GRADE WHEN LOCATED IN A SIDEWALK OR PATHWAY;
    B. 3/8" BELOW FINISHED GRADE WHEN LOCATED IN A PAVED PARKING LOT, MEDIAN, OR ROADWAY;
    C. OR AS DIRECTED BY THE ENGINEER.
13. DO NOT PLACE FIBER VAULTS IN THE BOTTOM OF DRAINAGE COLLECTION AREAS.
14. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH COV STANDARD SPECIFICATIONS, AND OSHA SAFETY STANDARDS AND REGULATIONS.

1 C-405 TYPE I 4'X4' FIBER OPTIC VAULT
NTS



2 C-405 FIBER OPTIC HANDHOLE VAULT
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

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Anchorage, Alaska 99503
907-562-2000

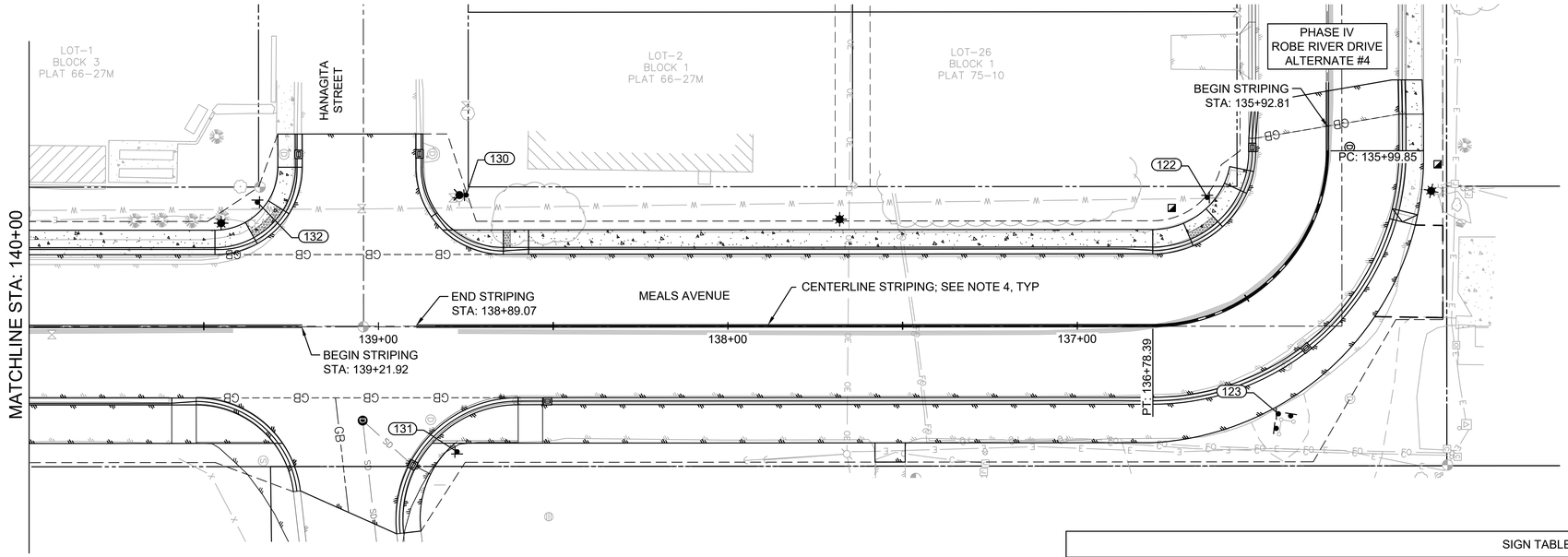
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-405



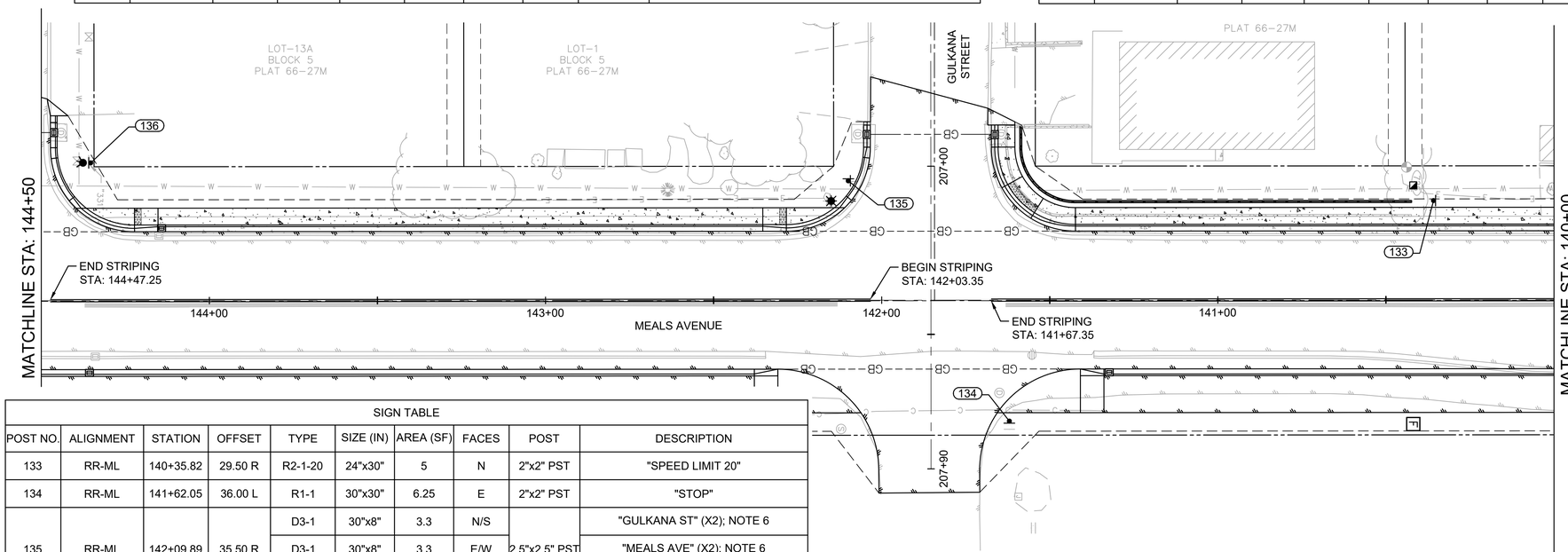
GENERAL NOTES

(206) SIGN POST

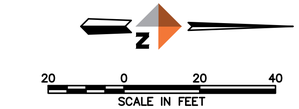
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-504.

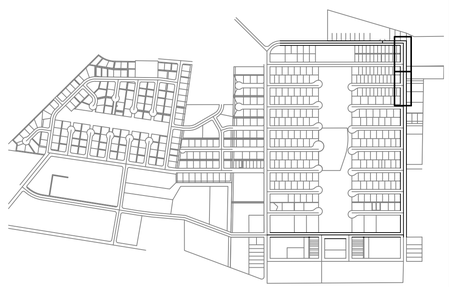
SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
130	RR-ML	138+74.88	37.50 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "344"; NOTE 1
131	RR-ML	138+77.54	36.00 L	R1-1	30"x30"	6.25	E	2"x2" PST	"STOP"
132	RR-ML	139+34.63	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"HANAGITA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"

SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
122	RR-ML	136+35.16	29.50 R	D3-1	42"x8"	4.7	N/S	2.5"x2.5" PST	"ROBE RIVER DR" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
123	RR-ML	136+56.12	33.40 L	W1-6R	60"x30"	12.5	W	3 - 2.5"x2.5" PST	DIRECTION ARROW RIGHT
				W1-6L	60"x30"	12.5	S		DIRECTION ARROW LEFT
				EM-1A	24"x24"	4	S		"TSUNAMI EVACUATION ROUTE"
				D9-301	24"x6"	1	S		BLUE LEFT ARROW



SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
133	RR-ML	140+35.82	29.50 R	R2-1-20	24"x30"	5	N	2"x2" PST	"SPEED LIMIT 20"
134	RR-ML	141+62.05	36.00 L	R1-1	30"x30"	6.25	E	2"x2" PST	"STOP"
135	RR-ML	142+09.89	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"GULKANA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
136	RR-ML	144+35.24	41.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "331"; NOTE 1





REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
RENEWAL 2026
REGISTERED PROFESSIONAL ENGINEER

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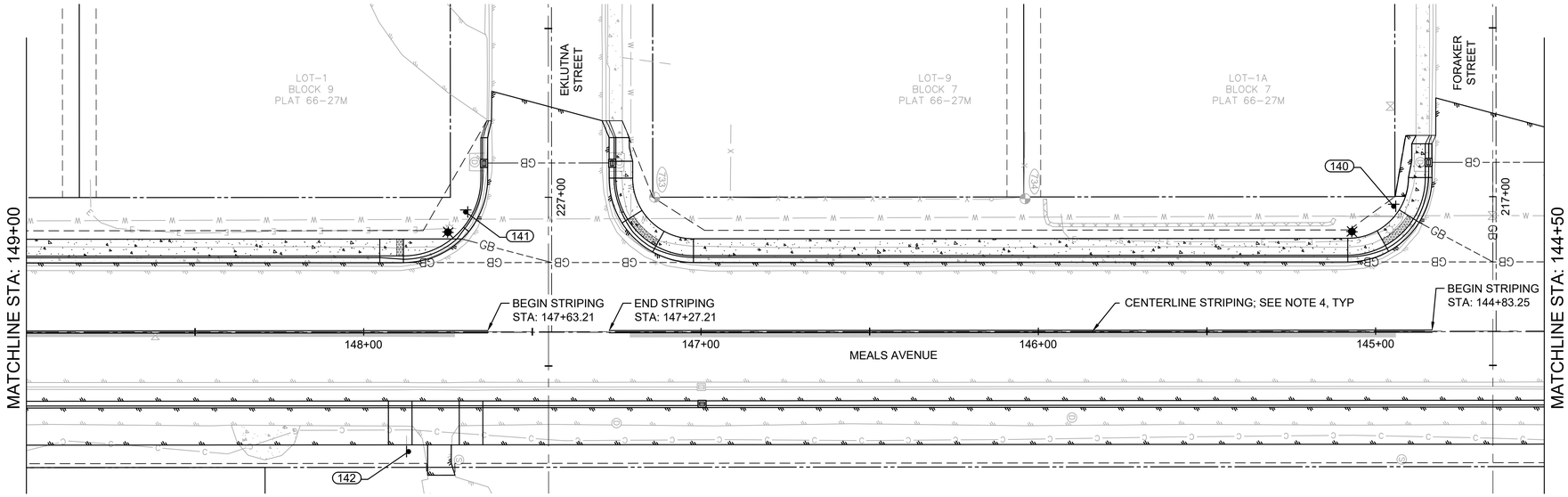
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-501



GENERAL NOTES

(206) SIGN POST

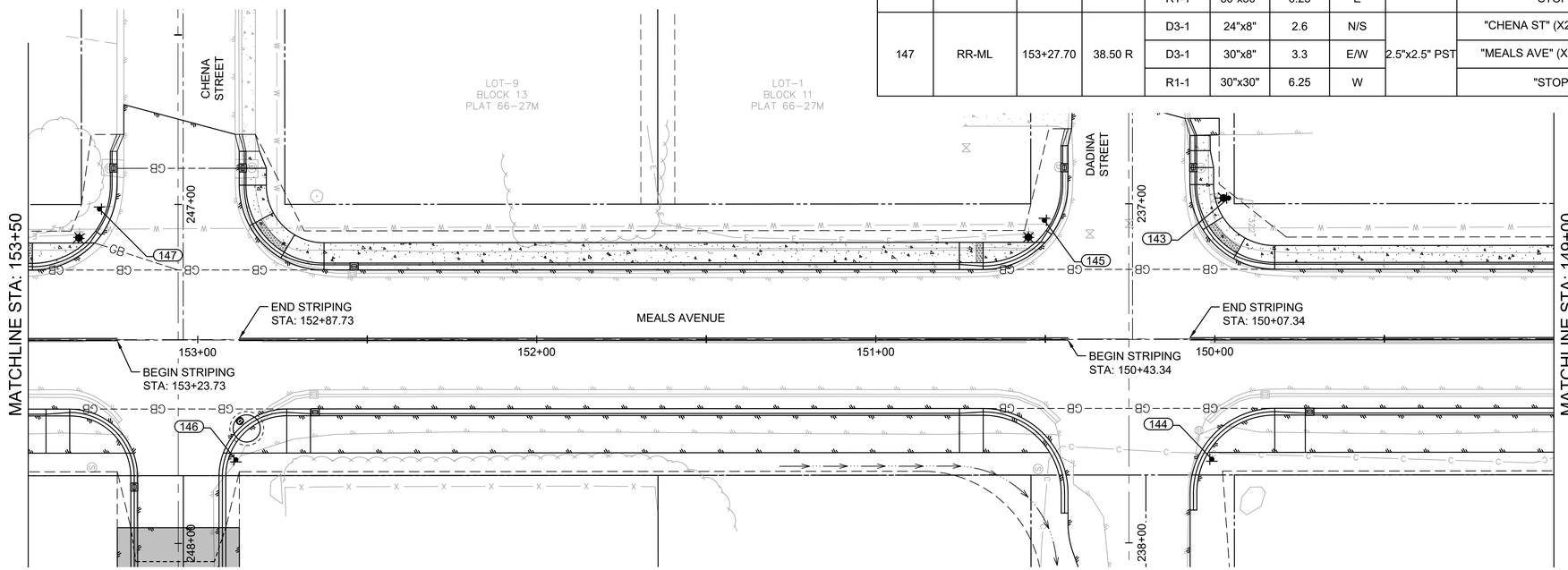
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-504.

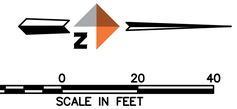
SIGN TABLE

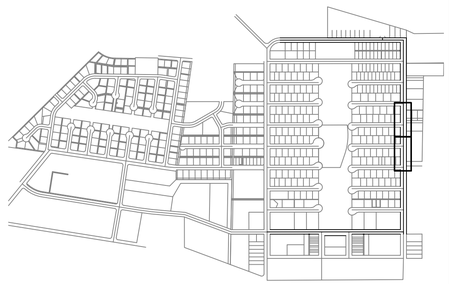
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
140	RR-ML	144+94.62	37.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"FORAKER ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
141	RR-ML	147+69.73	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"EKLUTNA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
142	RR-ML	147+86.72	35.50 L	D9-X	24"x12"	2	S	2"x2" PST	"ASSEMBLY OF GOD CHURCH" ARROW LEFT

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
143	RR-ML	149+95.40	41.50 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "322"; NOTE 1
144	RR-ML	149+98.42	35.50 L	D3-1	36"x8"	4	N/S	2.5"x2.5" PST	"E DADINA ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"
				EM-IA	24"x24"	4	S		"TSUNAMI EVACUATION ROUTE"
145	RR-ML	150+49.77	35.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"DADINA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
146	RR-ML	152+84.53	35.50 L	D3-1	30"x8"	3.3	N/S	2"x2" PST	"E CHENA ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"
147	RR-ML	153+27.70	38.50 R	D3-1	24"x8"	2.6	N/S	2.5"x2.5" PST	"CHENA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"







REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
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REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

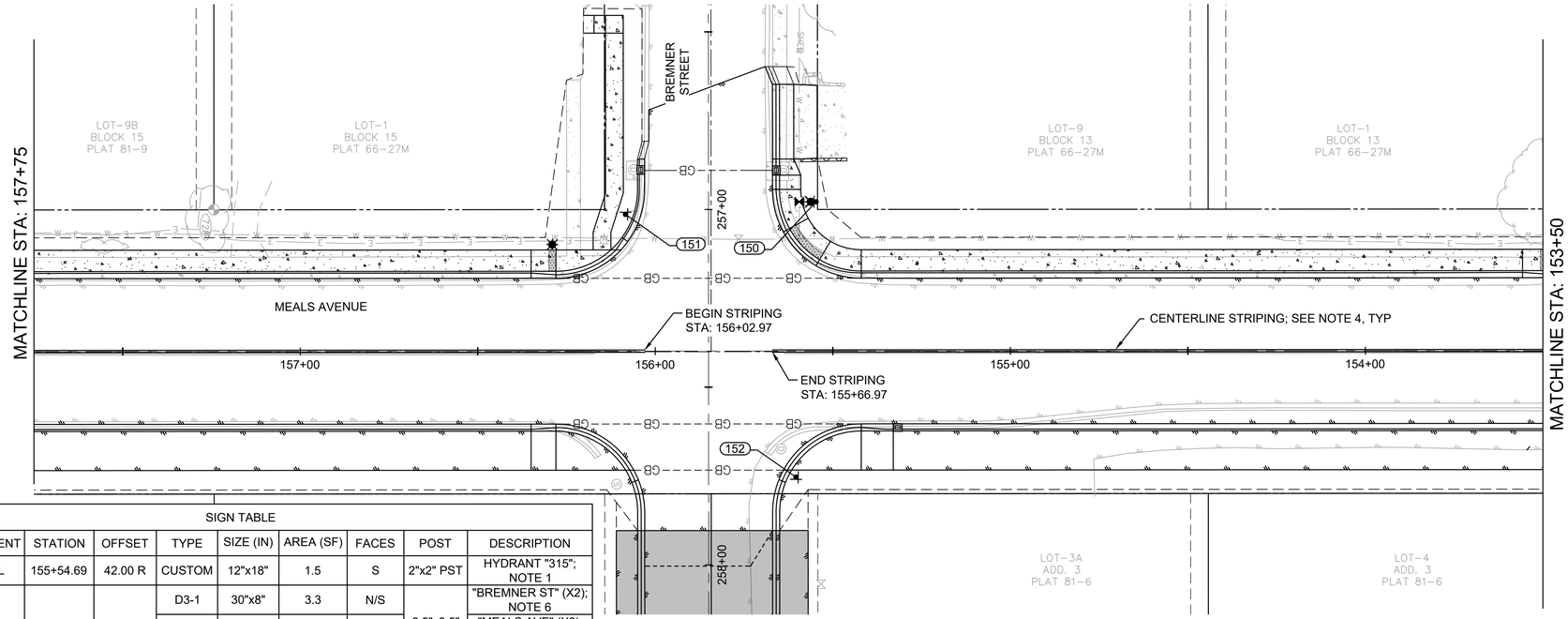
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

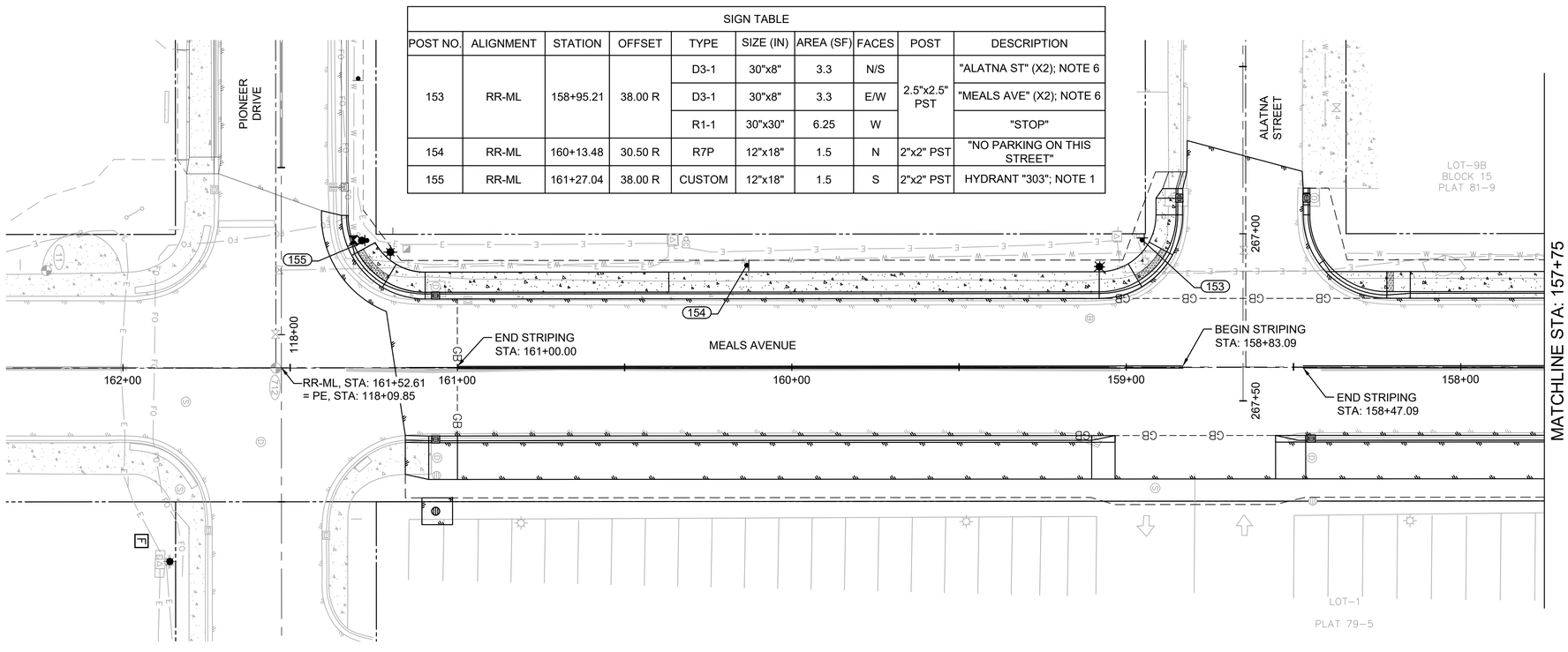
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-502



SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
150	RR-ML	155+54.69	42.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "315"; NOTE 1
151	RR-ML	156+08.36	38.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"BREMNER ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
152	RR-ML	155+60.38	35.50 L	D3-1	36"x8"	4	N/S	2.5"x2.5" PST	"E BREMNER ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"

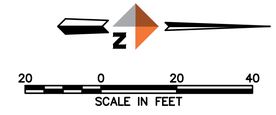


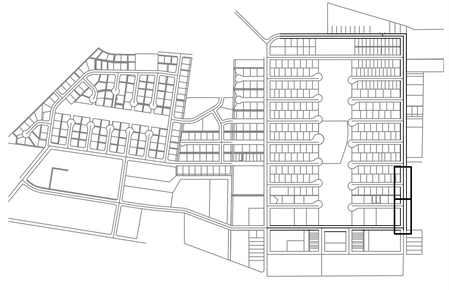
SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
153	RR-ML	158+95.21	38.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"ALATNA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
154	RR-ML	160+13.48	30.50 R	R7P	12"x18"	1.5	N	2"x2" PST	"NO PARKING ON THIS STREET"
155	RR-ML	161+27.04	38.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "303"; NOTE 1

GENERAL NOTES

(206) SIGN POST

1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-504.





REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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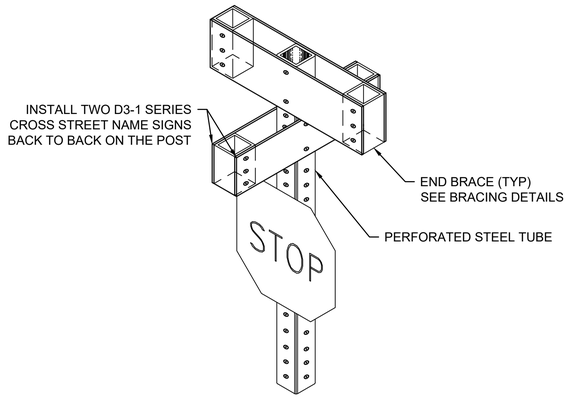
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

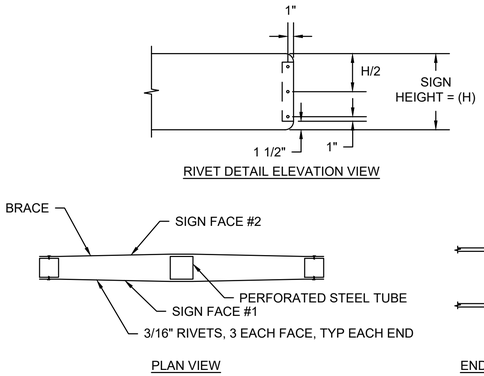
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-503



STREET NAME SIGN MOUNTING DETAIL



BRACING DETAILS

1 C-504 STREET SIGN MOUNTING

NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

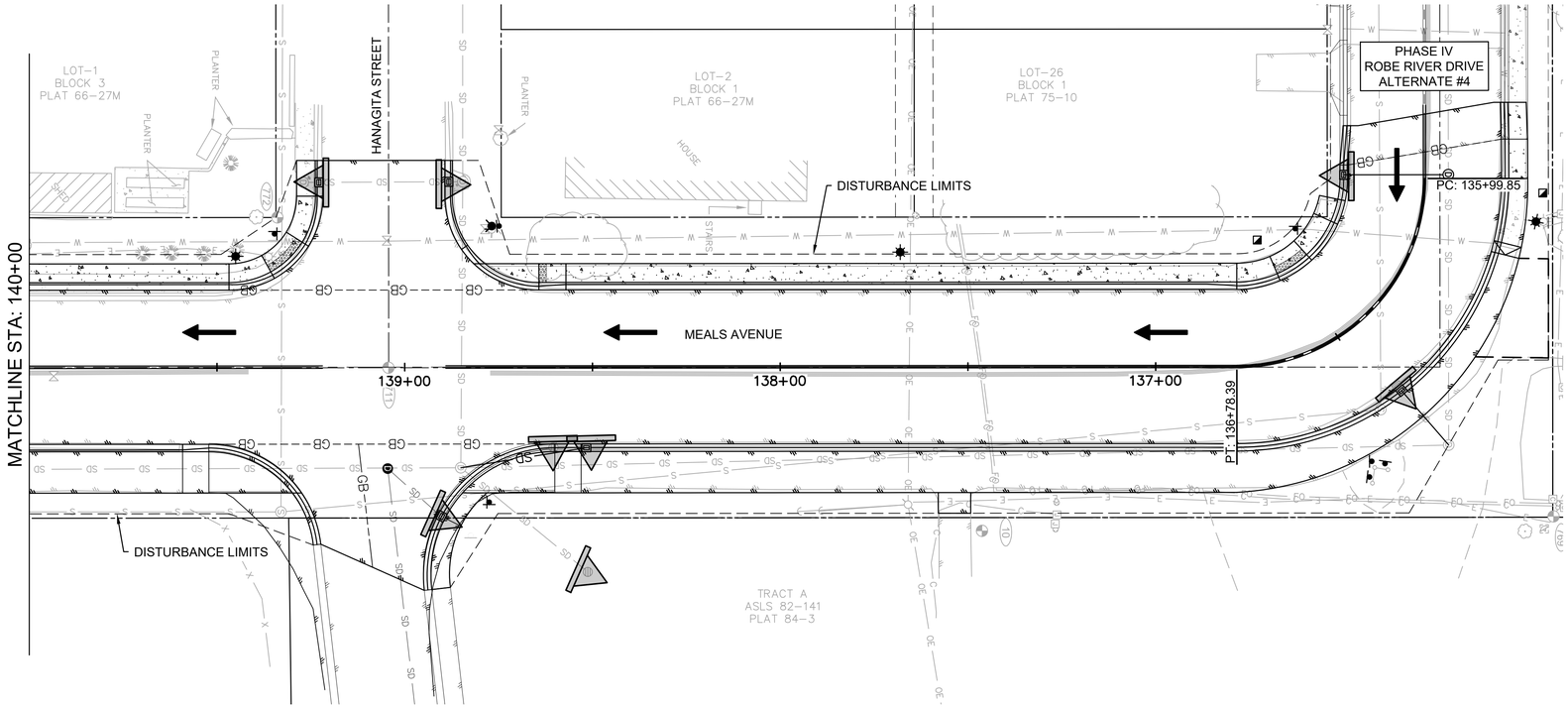
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-504

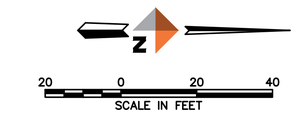


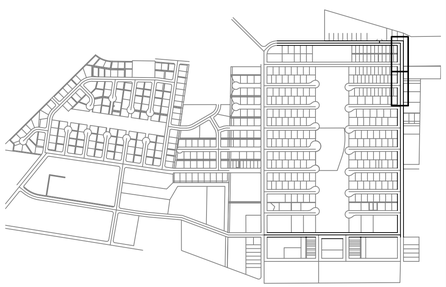
ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

GENERAL NOTES

1. REFER TO CONTRACTOR SWPPP REPORT FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs).
2. CONTRACTOR SHALL UTILIZE BMPs MOST APPROPRIATE FOR CONDITIONS ON-SITE. IF INSPECTION REVEALS EROSION CONTROL MEASURES ARE INSUFFICIENT, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT CORRECTIVE ACTION, AS NECESSARY, TO CORRECT THE DEFICIENCY.
3. ALL DISTURBED AREAS FOR THIS PROJECT ARE LOCATED AMID THE PROPOSED WORK SHOWN ON SHEETS C-601 THROUGH C-604.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES TO ENSURE THAT CONSTRUCTION ACTIVITIES HAVE MINIMAL IMPACTS ON THE NATURAL BUFFER AREAS OF THE RECEIVING WATER BODY. DISTURBED AREAS ADJACENT TO DRAINAGE OR IN-WATER WORK SHALL BE RESTORED TO THEIR FUNCTIONAL CAPACITY OR PLANNED DESIGN, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
5. VEGETATION SHALL REMAIN UNDISTURBED TO THE FULLEST EXTENT POSSIBLE.
6. ALL DISTURBED AREAS NOT RECEIVING HMA PAVEMENT, PORTLAND CEMENT CONCRETE, OR RIPRAP, SHALL RECEIVE HYDROSEED WITH MULCH AS A FINAL STABILIZATION MEASURE, UNLESS OTHER TREATMENTS ARE REQUIRED BY PERMIT CONDITIONS.
7. ON-SITE DUST CONTROL, INCLUDING WATERING AND SWEEPING, SHALL BE PROVIDED BY THE CONTRACTOR TO MINIMIZE AIR-BORNE DUST WHEN NECESSARY OR DIRECTED BY THE ENGINEER. ROUTINE SWEEPING MAY BE PERFORMED IN LIEU OF UTILIZING A STABILIZED CONSTRUCTION EXIT UNLESS CONDITIONS NECESSITATE A MUD MAT.
8. ANY CONCRETE WASHOUT AREAS UTILIZED BY THE CONTRACTOR SHALL BE DESIGNATED, MAINTAINED, AND LOCATED, TO THE EXTENT PRACTICABLE, AWAY FROM WATER OF THE U.S. AND STORM WATER CONVEYANCE CHANNELS.
9. ALL DISCHARGE FROM EXCAVATION DEWATERING ACTIVITIES WILL BE TREATED WITH THE APPROPRIATE CONTROL MEASURES, UNTREATED WATER FROM CONSTRUCTION DEWATERING OPERATIONS SHALL NOT BE DISCHARGED TO ANY RECEIVING WATERS NOR SHALL UNTREATED WATER BE ALLOWED TO RUN OFF-SITE, UNLESS THE WATER IS NON-DISCHARGED.
10. PROVIDE INLET PROTECTION FOR EXISTING CATCH BASINS UNTIL STRUCTURE IS REMOVED, TYP. PROVIDE INLET PROTECTION FOR PROPOSED CATCH BASINS ONCE INSTALLED.





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01.14.2026
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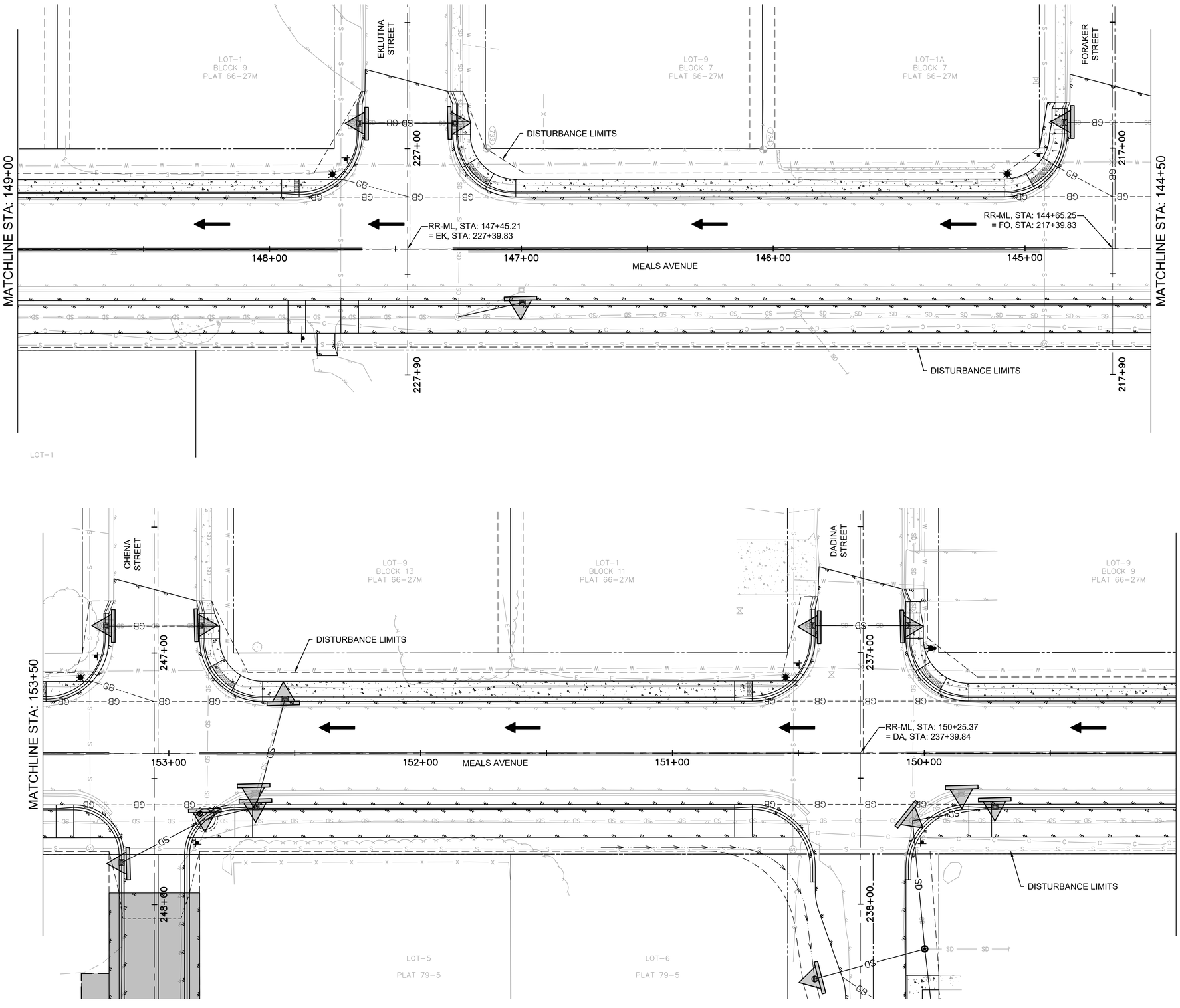
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-601

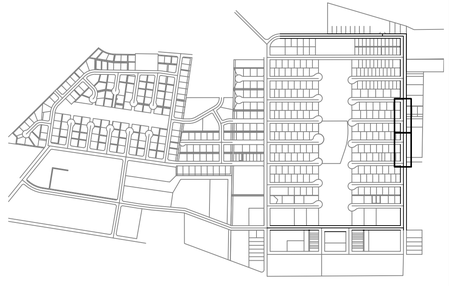


ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

N

20 0 20 40
SCALE IN FEET



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

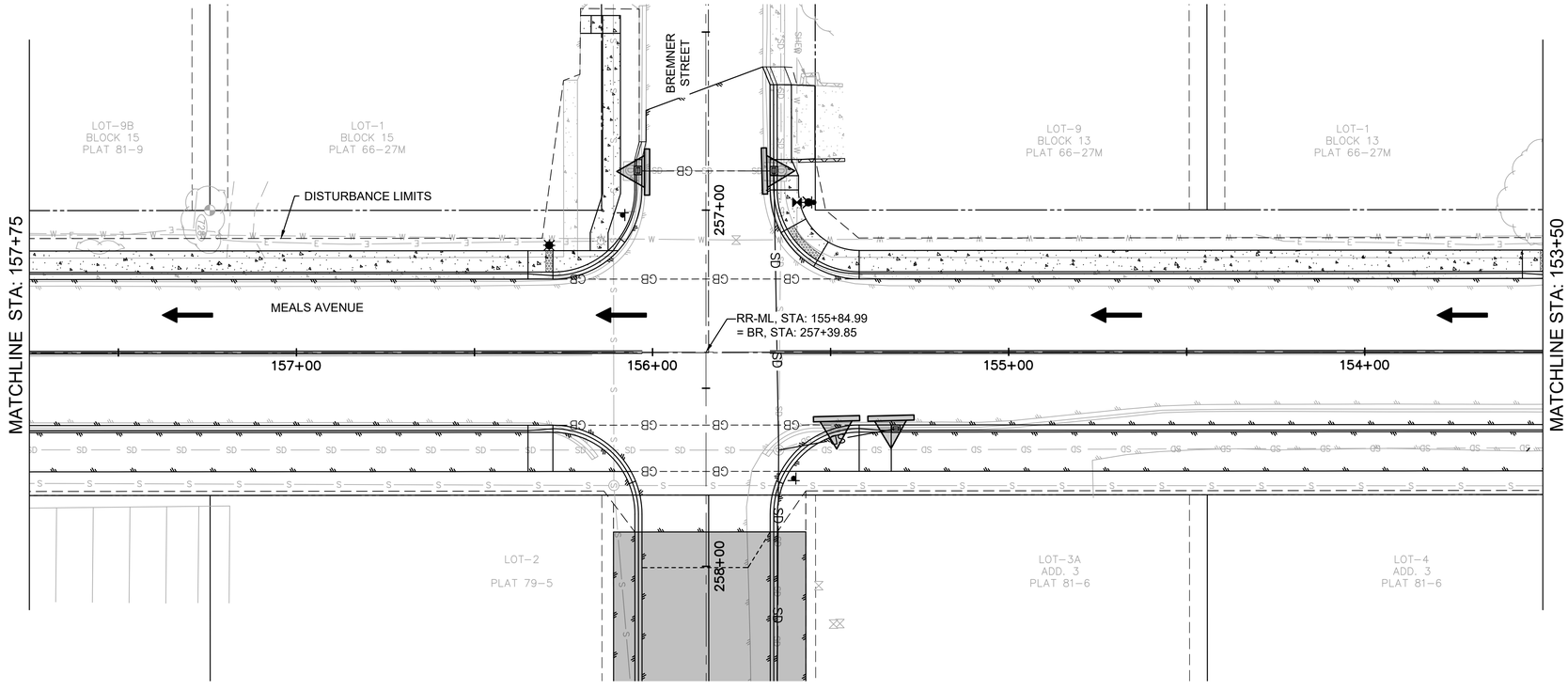
VALDEZ, ALASKA

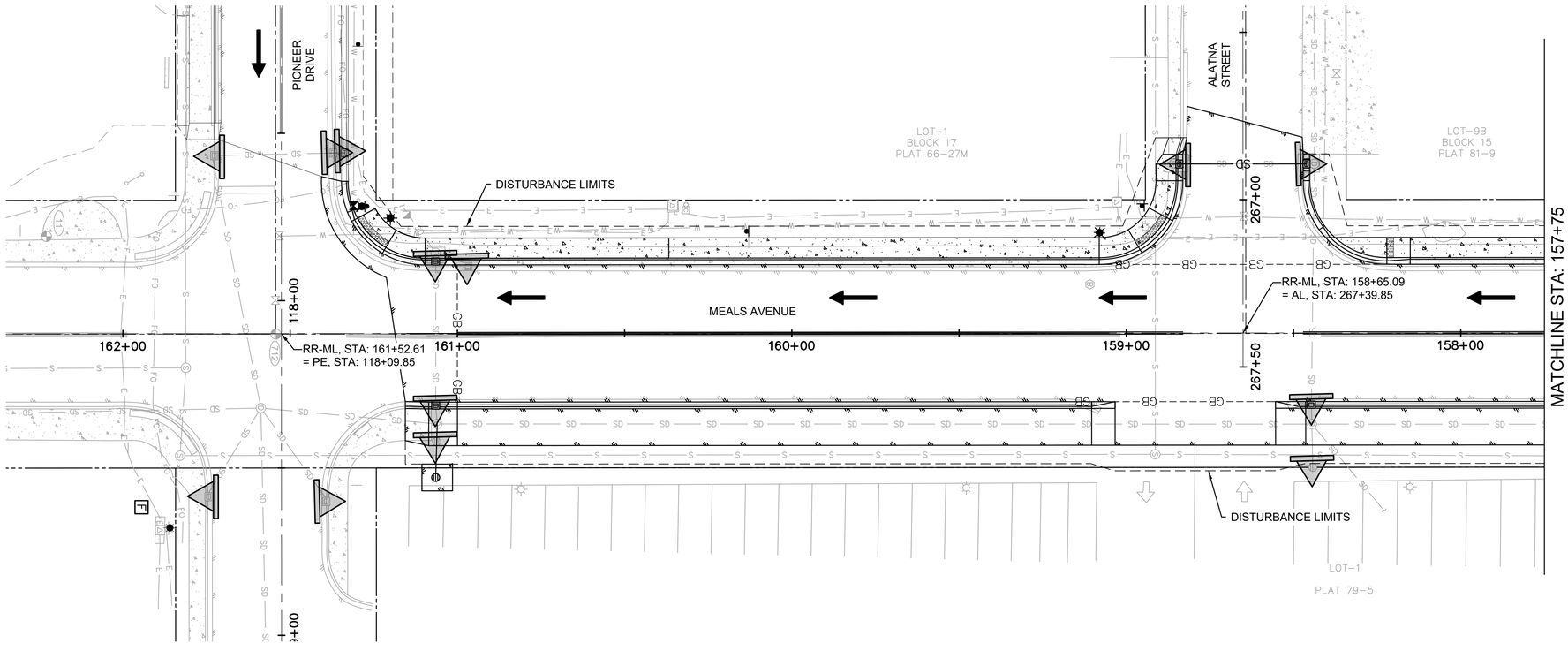
PROJECT	63461.01
DATE	01/16/2026

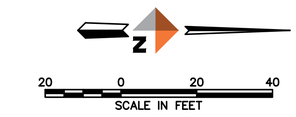
C-602

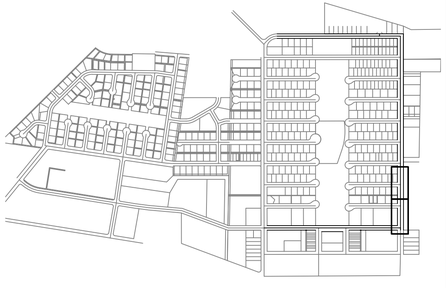
ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARREL	









KEY MAP
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REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

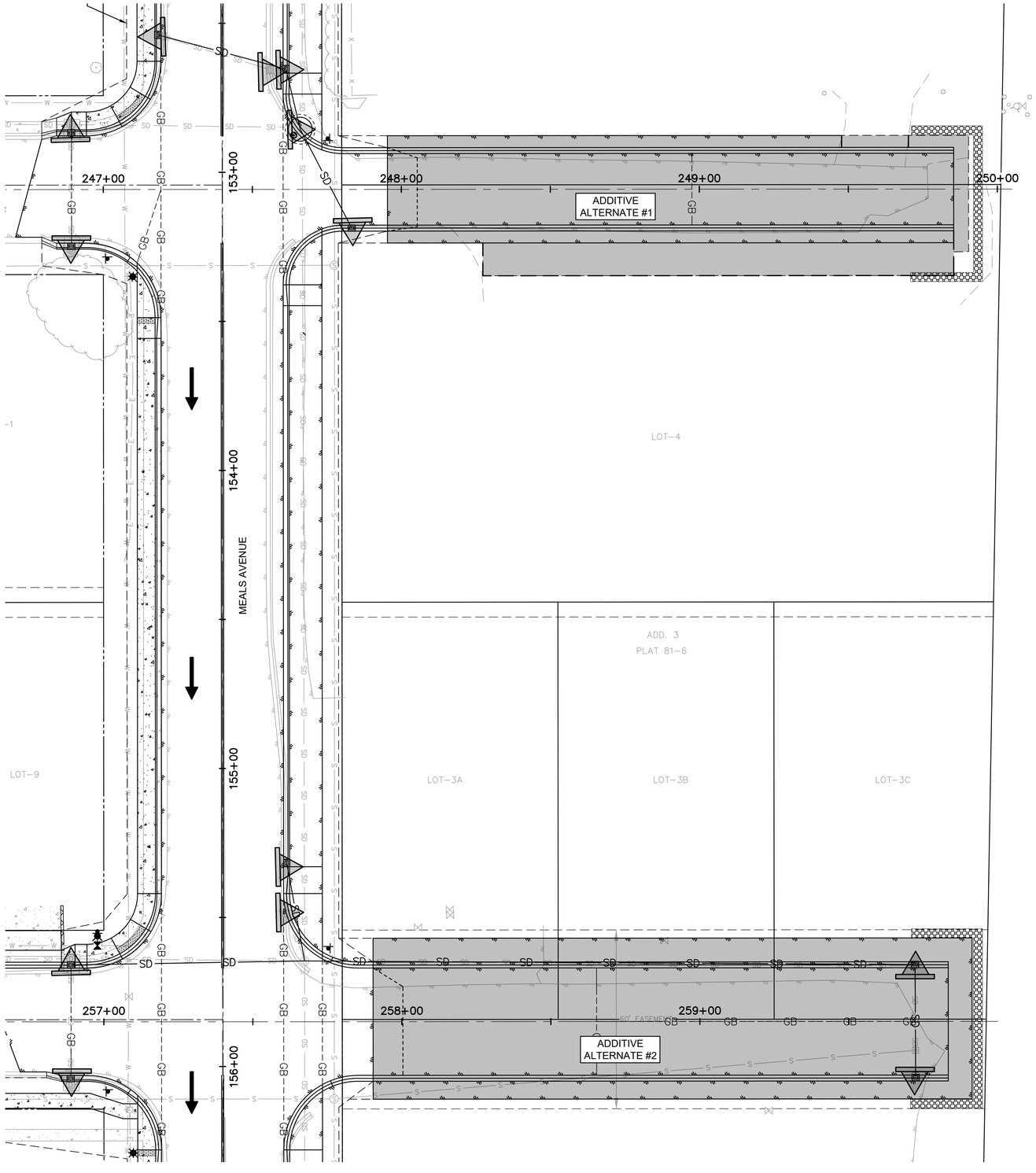
VALDEZ, ALASKA

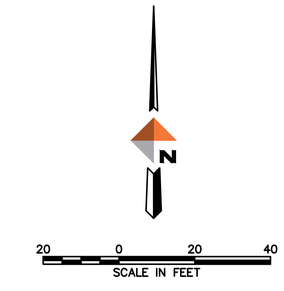
PROJECT	63461.01
DATE	01/16/2026

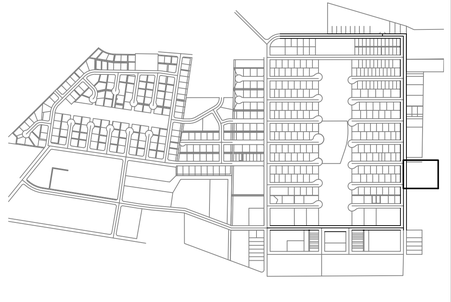
C-603

ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	







KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 14, 2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN - ADD ALT #1 & #2

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-604

J:\22\63461-01\65CAD\Sheet Files\Meals Ave Phase IV Split\SC24-CS-ESCP-VALDEZ-PHASE_IV_MA.dwg PLOT DATE 2026-1-16 16:55 SAVED DATE 2026-01-16 16:19 USER: wlaws

LEGEND

⊖▭	POLE MOUNTED AREA LIGHT – OUTDOORS, WEATHERPROOF
⟨A⟩	FIXTURE TAG (LETTER INDICATES TYPE)
$	SINGLE POLE SWITCH
(P)	PHOTOCELL
⌒	CONDUIT, CONCEALED
⌒ #10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A–2 ⌒	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
—OH/E—	OVERHEAD ELECTRICAL LINE
—UG/E—	UNDERGROUND ELECTRICAL LINE
—UG/FO—	ADD ALT #5 UNDERGROUND FIBER OPTIC LINE (CONDUIT ONLY)
▬	PANEL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
J	JUNCTION BOX
▲	PADMOUNT UTILITY TRANSFORMER
◨	IN GRADE EXTERIOR JUNCTION BOX – TYPE 1A UON
◹	ADD ALT #5 IN GRADE EXTERIOR FIBER OPTIC HANDHOLE
⊠	ADD ALT #5 IN GRADE EXTERIOR FIBER OPTIC VAULT
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRSC	GALVANIZED RIGID STEEL CONDUIT
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT (ADDITIVE ALTERNATE #3)
K	KELVIN
L#	LIGHT POLE NUMBER (IE L1)
LED	LIGHT EMITTING DIODE
LM	LUMENS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	AS SHOWN	CREE – QUANTITY (1) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	LED STREET LIGHT, ALUMINUM HOUSING, TYPE 2 MEDIUM DISTRIBUTION, 40 LED, BACKLIGHT SHIELD, AND SILVER COLOR. MOUNT ON 25' POLE WITH 6' MAST ARM.	POLE/MAST ARM	27'–6" AFG	6000LM 4000K	120/240/277V	66
A2	AS SHOWN	CREE – QUANTITY (2) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	SAME AS TYPE A1 EXCEPT TWO FIXTURES MOUNTED ON ONE POLE.	POLE/MAST ARM	27'–6' AFG	6000LM 4000K EACH	120/240/277V	66 EACH

Voltage Drop Calculation — RSA Engineering, Inc.

Job Name:	**Valdez Pavement Management Phase IV**
Job Number:	**M2078**
Feeder/Circuit From:	**Panel 'ML'**
Feeder/Circuit To:	**Furthest Light Pole (Future L1 on Robe River)**
Date:	**1/16/2026**

Circuit Description

Circuit Length(1-WAY):	**3700** ft.	Includes loops in JBs
Load Current:	**5.225** amps	
Voltage:	**240** volts	

Circuit Type **2**
1. 1 phase, 2 wire (120V or 277V)
2. 1 phase, 3 wire line to line (208V or 480V, 1 ph)
3. 1 phase, 3 wire line to neutral
4. 3 phase, 3 or 4 wire line to lin (208V or 480V, 3ph)
5. 3 phase, 3 or 4 wire line to neutral

Power Factor **1**
1. 100%
2. 90%
3. 80%
4. 70%
5. 60%

Conductor Size # **4** AWG

Conductor Type **1** Copper
1. Copper
2. Aluminum

Conduit Type **2** Non-Magnetic
1. Magnetic
2. Non-Magnetic

Number of Parallel Runs **1** Set

Total Voltage Drop	**11.97 Volts**
Voltage Drop Percentage	**4.99 %**

LIGHT POLE SCHEDULE

POLE #	ALGN	STATION	OFFSET	SIDE	CIRCUIT
L6	RR-ML	136+07.00	30.50	L	ML-1,3
L7	RR-ML	137+68.00	30.50	R	ML-1,3
L8	RR-ML	139+45.00	29.50	R	ML-1,3
L9	RR-ML	142+15.00	29.50	R	ML-1,3
L10	RR-ML	145+07.00	29.50	R	ML-1,3
L11	RR-ML	147+75.00	29.50	R	ML-1,3
L12	RR-ML	150+55.00	30.00	R	ML-1,3
L13	RR-ML	153+35.00	30.00	R	ML-1,3
L14	RR-ML	156+29.00	30.00	R	ML-1,3
L15	RR-ML	159+08.00	30.00	R	ML-1,3
L26	RR-ML	161+86.00	58.00	L	EXIST

EXISTING LOADCENTER PANEL 'ML'

LIGHTING LOADCENTER — VOLTS: 120/240V,1PH,3W — ENCLOSURE: NEMA 3R — 100 A
TYPE: PANELBOARD — VOLT-AMPS — MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	20	**MEALS LTG L6-L15**	LTG	**363**	462			LTG	(E)MEALS/PION. LTG L16-L25	20	2	2	b
a	3	2	20	^^	LTG			**363**	462	LTG	^^	20	2	4	b
	5	2	20	SPARE							SPARE	20	2	6	
	7	2		^^							^^		2	8	
	9	1	-	SPACE							SPACE	-	1	10	
	11	1	-	SPACE							SPACE	-	1	12	
				TOTAL V-A			825		825			1,650	VA		
				TOTAL AMPS			7		7			7	A		

A.I.C. RATING: 10,000

	LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	1.65	0.00	0.00	0.00	0.00	0.00	1.7 KVA	7 A
DEMAND LOAD IN KVA:	2.06	0.00	0.00	0.00	0.00	0.00	2.1 KVA	9 A

PANEL NOTES:
a DENOTES A NEW LOAD ON EXISTING SPARE BREAKER.
b DENOTES EXISTING LOADS/BREAKER TO REMAIN.

PANEL OPTIONS:
MAIN LUGS ONLY

REVISIONS

REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE-13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spur Road, Suite 200
Anchorage, AK 99518
Phone (907) 276-0521
Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL LEGEND, SCHEDULES AND CALCULATIONS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-001

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE CITY OF VALDEZ STANDARD SPECIFICATIONS (CVSS), INCLUDING ALL STATE AND LOCAL AMENDMENTS. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION. IN THE ABSENCE OF CVSS PERTAINING TO STREET LIGHTING SYSTEMS, REFERENCES TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) HAVE BEEN ADDED TO THESE SPECIFICATIONS AND DRAWINGS TO ASSIST WITH SPECIFIC CRITERIA. A COPY OF THE MASS CAN BE FOUND ONLINE AT MUNI.ORG.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DRAWINGS. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT. WHERE ABANDONED CONDUIT ENTERS BELOW GRADE, CUT CONDUIT TO A MINIMUM OF 6" BELOW GRADE, CAP OFF, AND REPAIR SURFACE.

D. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT SURFACES AFTER DEMOLITION. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

E. CONTRACTOR TO FIELD VERIFY ELECTRICAL ITEMS TO BE DEMOLISHED PRIOR TO START OF WORK. DEMOLISH CONDUITS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE SCHEDULED FOR DEMOLITION. WHERE CIRCUITS ARE SHARED WITH EQUIPMENT THAT IS EXISTING TO REMAIN, PROVIDE ALL WORK NECESSARY (INCLUDING EXTENDING AND RE-ROUTING CONDUITS) TO MAINTAIN ACCESS AND PROVIDE ELECTRICAL CONTINUITY TO EXISTING SYSTEMS AND CIRCUITRY

26 05 19 – WIRE AND CABLE

B. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

C. MATERIALS:
1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG.

C. INSTALLATION:
1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/240V CONDUCTORS BLACK, RED, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN CONDUIT AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

26 05 26 – GROUNDING AND BONDING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.

B. MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.

C. INSTALLATION:
1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR 6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN 6 AWG.
3. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: EQUIPMENT SUPPORT CHANNEL SHALL BE CORROSION RESISTANT STAINLESS STEEL OR FIBERGLASS. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO RESIST LATERAL EARTHQUAKE FORCES. .

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS
1. RIGID STEEL CONDUIT: ANSI C80.1, GALVANIZED RIGID STEEL CONDUIT (GRSC). FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT. PROVIDE PVC COATED RIGID CONDUIT WHERE EXPOSED OUTDOORS, 40 MIL EXTERIOR COATING AND 2 MIL INTERIOR COATING. CONDUIT FITTINGS SHALL MATCH CONDUIT TYPE (IE PVC COATED RIGIDE FITTINGS WHERE PVC COATED RIGID IS REQUIRED).
2. ADDITIVE ALTERNATE #3 AND #5 – HIGH DENSITY POLYETHYLENE CONDUIT (HDPE): NEMA TC 7, SCHEDULE 40, HDPE CONDUIT RATED FOR 90°C CABLE. FITTINGS AND CONDUIT BODIES: NEMA TC 7. HDPE TO HDPE COUPLINGS: UL LISTED, BUTT-FUSION, ELECTRO-FUSION, SELF-THREADING, OR DRIVE-ON TYPE. HDPE TO RIGID COUPLINGS: DURALINE #SHUR-LOCK II, OR EQUAL.
3. PROVIDE TYPE 1A CONCRETE JUNCTION BOXES IN-GRADE WHERE SHOWN ON DRAWINGS. TYPE 1A JUNCTION BOX CONSISTING OF REINFORCED CONCRETE RATED FOR A MINIMUM TEST LOAD OF 7500 POUNDS DISTRIBUTED OVER A 10"x10" AREA, LIGHT TRAFFIC RATED, CAST-IRON LID WITH "LIGHTING" LABEL, AND STAINLESS STEEL HARDWARE.
4. ADDITIVE ALTERNATE #5 – FIBER OPTIC HANDHOLE: POLYMER CONCRETE BOX AND COVER, JH AMERICAN ENCLOSURES #APC 243624, OR APPROVED EQUAL. SEE CIVIL DRAWINGS FOR DETAILS.
5. ADDITIVE ALTERNATE #5 – FIBER OPTIC VAULT: 48"x48"x48" CONCRETE VAULT WITH MANHOLE LID RATED FOR AASHTO HS-20-44 LOADING. SEE CIVIL DRAWINGS FOR DETAILS.

C. INSTALLATION:
1. INSTALL GALVANIZED RIGID STEEL CONDUIT UNDERGROUND AND ABOVE GRADE WHERE NOTE EXPOSED TO THE ELEMENTS (IE STUBBED UP UNDER EQUIPMENT), UNLESS OTHERWISE NOTED. PROVIDE PVC COATED RIGID STEEL CONDUIT WHERE EXPOSED OUTDOORS.
2. ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE CONDUIT APPROVED FOR USE IN UNDERGROUND APPLICATIONS ONLY.
3. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS
1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.
3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:
1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.
2. CONDUITS: LABEL CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

26 50 00 – LIGHTING FIXTURES

A. SUBMITTALS:
1. SUBMIT PRODUCT DATA ON LIGHT FIXTURES, POLES, ARMS, PILES, AND ALL ACCESSORIES FOR APPROVAL.
2. SUBMIT STRUCTURALLY ENGINEERED SHOP DRAWINGS AND CALCULATIONS, STAMPED AND SIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA, FOR LIGHT POLES/ARM ASSEMBLIES AND PILES. DRAWINGS AND CALCULATIONS SHALL STATE CONFORMANCE TO THE INTERNATIONAL BUILDING CODE (IBC), THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) REQUIREMENTS SPECIFIC TO THE PROJECT AREA.
3. FIXTURE SUBSTITUTIONS SHALL BE SUBMITTED WITH POINT-BY-POINT LIGHTING CALCULATIONS ON A 2'X2' GRID SHOWING COMPLIANCE WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) RECOMMENDED LIGHTING LEVELS AND UNIFORMITY THROUGHOUT THE PROJECT AREA. LIGHT FIXTURE SUBSTITUTIONS WILL NOT BE CONSIDERED WITHOUT THE REQUIRED LIGHTING CALCULATIONS. FIXTURE, POLE AND ARM APPROVED ALTERNATES WILL CONFORM TO THE SAME BASIC SHAPE/STYLE, TECHNICAL AND AESTHETIC CHARACTERISTICS, PROVIDE EQUAL OR BETTER ILLUMINATION/UNIFORMITY, CONSUME EQUAL OR LESS POWER, AND BE ACCOMPANIED BY AN EQUAL OR BETTER MANUFACTURER WARRANTY THAN THE SPECIFIED PRODUCTS.

B. MATERIALS:
1. LUMINAIRES: PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
2. LED DRIVERS: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT -40°F WHERE INSTALLED OUTDOORS.
3. LED LAMPS: UNLESS OTHERWISE SCHEDULED ON THE PLANS, PROVIDE NOMINAL 4000 K, WITH MINIMUM 75CRI AND A MINIMUM L70 LAMP LIFE OF 50,000 HOURS.
4. LIGHT POLES: POLES SHALL BE HOT-DIPPED GALVANIZED MEETING THE REQUIREMENTS OF MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) DETAIL 80-19, HEIGHT AS SHOWN ON THE FIXTURE SCHEDULE. MAST ARMS SHALL BE HOT-DIPPED GALVANIZED STEEL MEETING THE REQUIREMENTS OF MASS DETAIL 80-20, LENGTH AS SHOWN ON THE FIXTURE SCHEDULE. POLE BASES SHALL BE FIXED BASE PER MASS DETAIL 80-21. DRIVEN STEEL PILE FOUNDATIONS SHALL BE PER MASS DETAIL 80-13.

C. INSTALLATION:
1. LUMINAIRE POLES, MAST ARMS, AND BASES SHALL BE INSTALLED PER THE APPLICABLE PORTIONS OF THE MASS DIVISION 80, INCLUDING DETAILS 80-13, 80-19, 80-20, 80-21, AND 80-25.
2. PROVIDE LUMINAIRE DISCONNECTING MEANS IN DRIVER CHANNEL OF EACH LIGHT FIXTURE. WHERE THE LUMINAIRE IS FED FROM A MULTI-WIRE BRANCH CIRCUIT, PROVIDE MULTI-POLE DISCONNECT TO SIMULTANEOUSLY BREAK ALL SUPPLY CONDUCTORS TO THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR.

REVISIONS

REV	DATE	DESCRIPTION	BY

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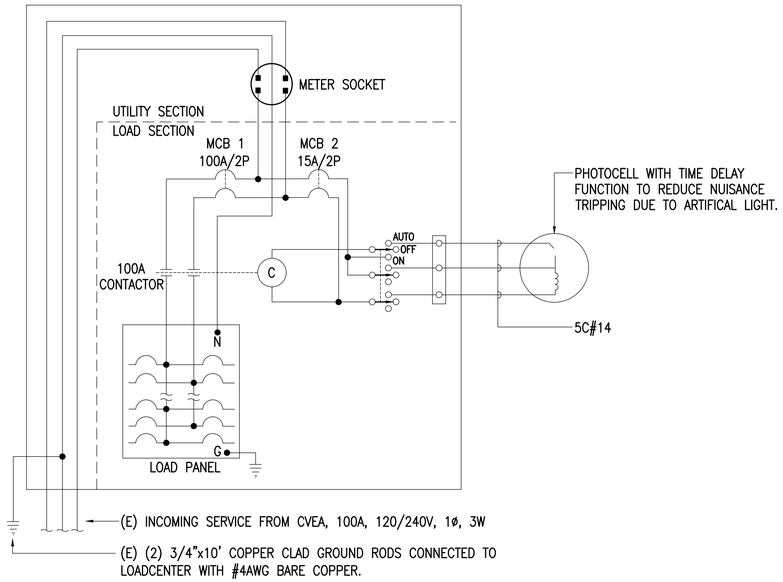
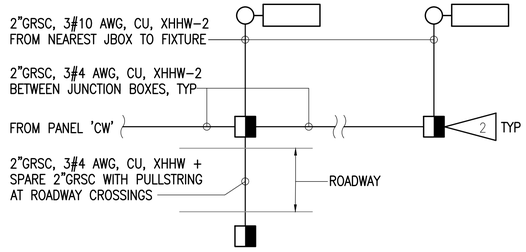
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL SPECIFICATIONS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-002

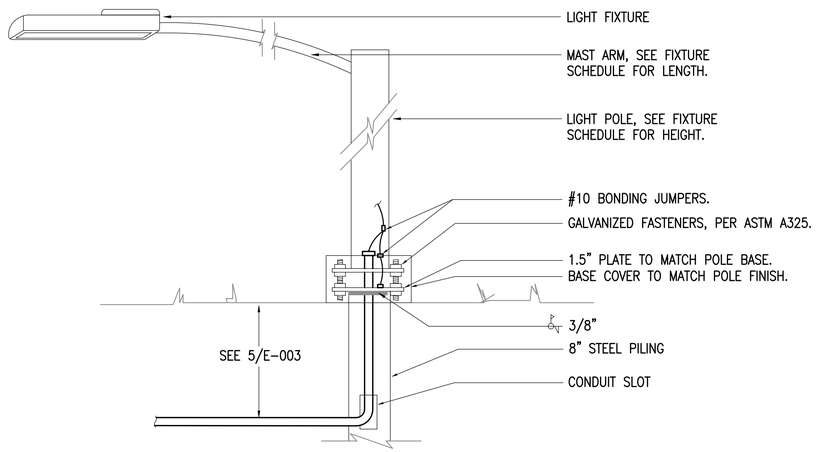


1 EXISTING LOADCENTER TYPICAL WIRING DIAGRAM
NO SCALE



ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE MAY BE UTILIZED IN PLACE OF GRSC FOR UNDERGROUND APPLICATIONS ONLY.

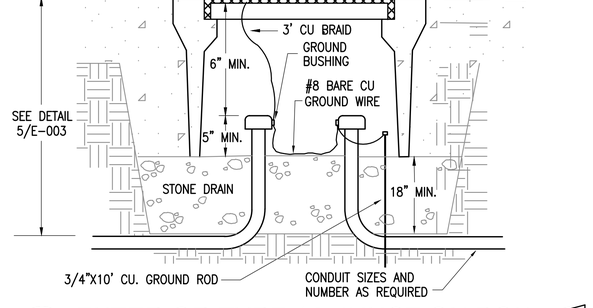
3 STREET LIGHTING SCHEMATIC
NO SCALE



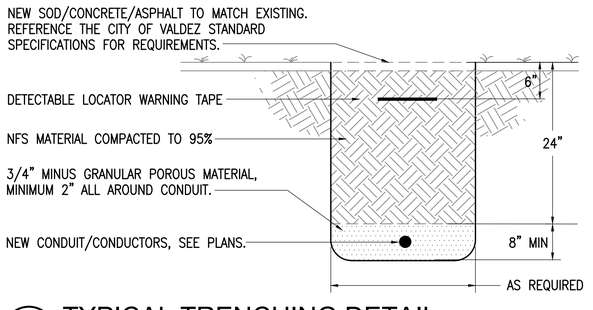
DETAIL NOTES FOR LIGHT POLE BASES:

1. REFERENCE SPECIFICATION SECTION 26 50 00 FOR LIGHT POLE, MAST ARM, AND DRIVEN PILE REQUIREMENTS.

2 TYPICAL LIGHT POLE BASE DETAIL
NTS



4 EXTERIOR TYPE 1A JUNCTION BOX 1
NO SCALE



5 TYPICAL TRENCHING DETAIL
NO SCALE

SHEET NOTES:

1. PROVIDE A 36" LOOP WITHIN THE STREET LIGHTING CONDUCTORS AT EACH JUNCTION BOX TO PROVIDE SLACK FOR FUTURE MAINTENANCE PURPOSES.

REVISIONS

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VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL DETAILS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-003

1230

GENERAL NOTES:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

D. CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY LOCATES WITHIN THE VICINITY OF THEIR EXCAVATION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

E. REFERENCE THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR ALL REQUIREMENTS RELATED TO TRENCHING, EXCAVATION, BACKFILL, CONCRETE, ASPHALT, AND GRASS/SOD PRIOR TO BEGINNING WORK.

F. UNLESS OTHERWISE NOTED DEMOLISH LIGHT FIXTURES, POLES, BASES/PILES, AND ALL ASSOCIATED EXPOSED CONDUIT AND WIRE AS SHOWN. DEMOLISH UNDERGROUND WIRING WITHIN CONDUIT TO SOURCE. DEMOLISH UNDERGROUND CONDUIT AND/OR DIRECT BURIED CABLE TO EXTENT NECESSARY AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.

G. UNLESS OTHERWISE NOTED DEMOLISH LIGHT POLES AND BASES/PILES COMPLETE, AND BACKFILL AND COMPACT ALL HOLES.

H. UTILITY TRANSFORMERS POWERING THE EXISTING STREET LIGHTING ARE NOT SHOWN ON THESE SHEETS. ALL UTILITY TRANSFORMERS SHALL REMAIN. DEMOLISH STREET LIGHTING CONDUIT AND CONDUCTORS AS SHOWN/NOTED.

D. REFERENCE THE DETAILS ON SHEET E-003 FOR ADDITIONAL LIGHTING AND LIGHTING CONDUIT/WIRING REQUIREMENTS.

E. LOCATIONS OF NEW LIGHT POLES SHOWN ON E-001 SCHEDULE. LOCATIONS OF JUNCTION BOXES, AND UNDERGROUND CONDUIT ROUTING IS APPROXIMATE ONLY. ADJUST LOCATIONS IN THE FIELD TO AVOID EXISTING UNDERGROUND UTILITIES.

F. ADDITIVE ALTERNATE #5 – ALL UNDERGROUND FIBER OPTIC LINES SHOWN (UG/FO) SHALL BE (2) RUNS OF 2" HDPE CONDUIT. ONLY A SINGLE LINE IS SHOWN FOR CLARITY, BUT (2) SHALL BE PROVIDED. ROUTE CONDUIT IN COMMON TRENCH WITH THE NEW LIGHTING CONDUIT TO FURTHEST EXTENT PRACTICAL. COORDINATE THE FINAL LOCATION OF ALL HANDHOLES AND VAULTS WITH THE COV PRIOR TO EXCAVATION.

1 ELECTRICAL SITE PLAN AND OVERALL MAP
1"=200'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
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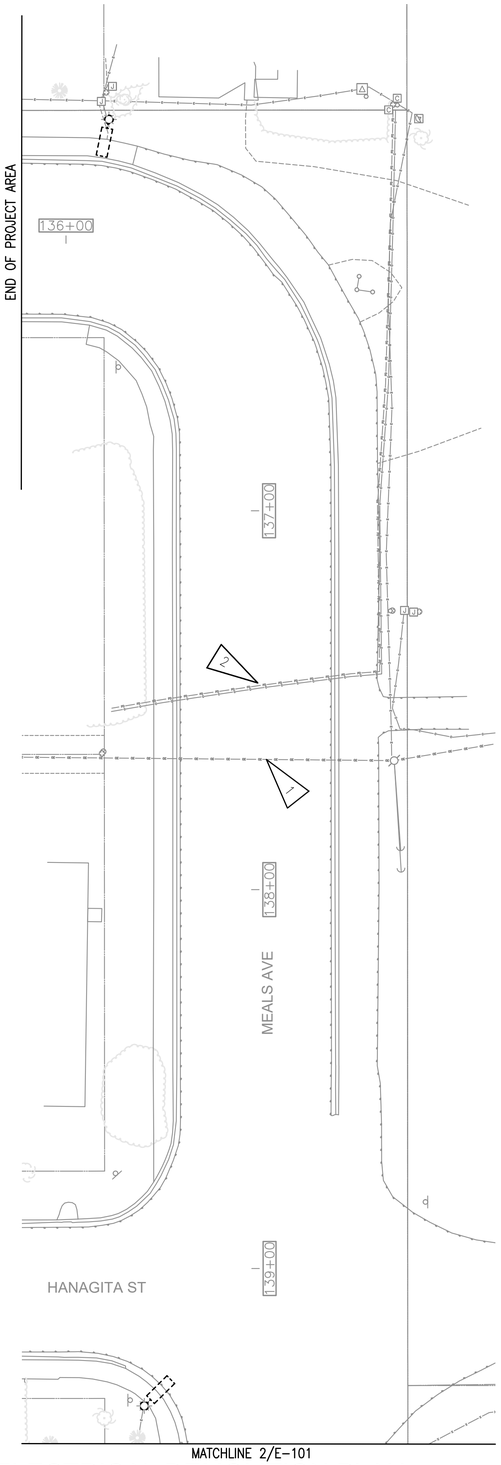
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL SITE PLAN AND OVERALL MAP

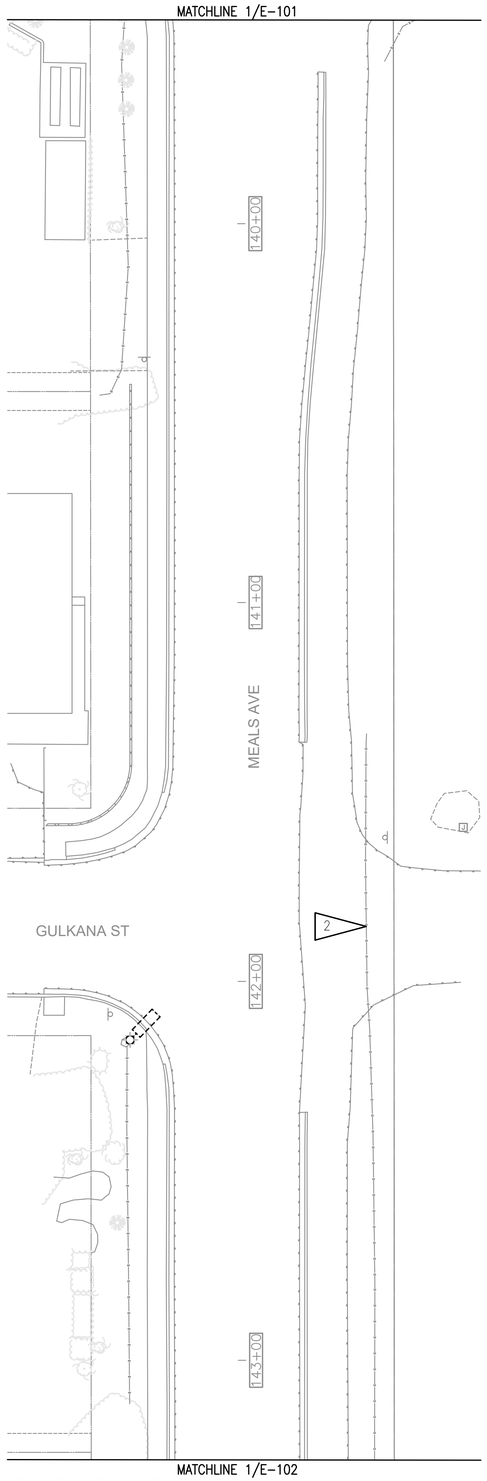
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

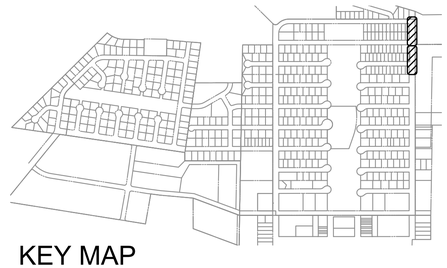
E-004



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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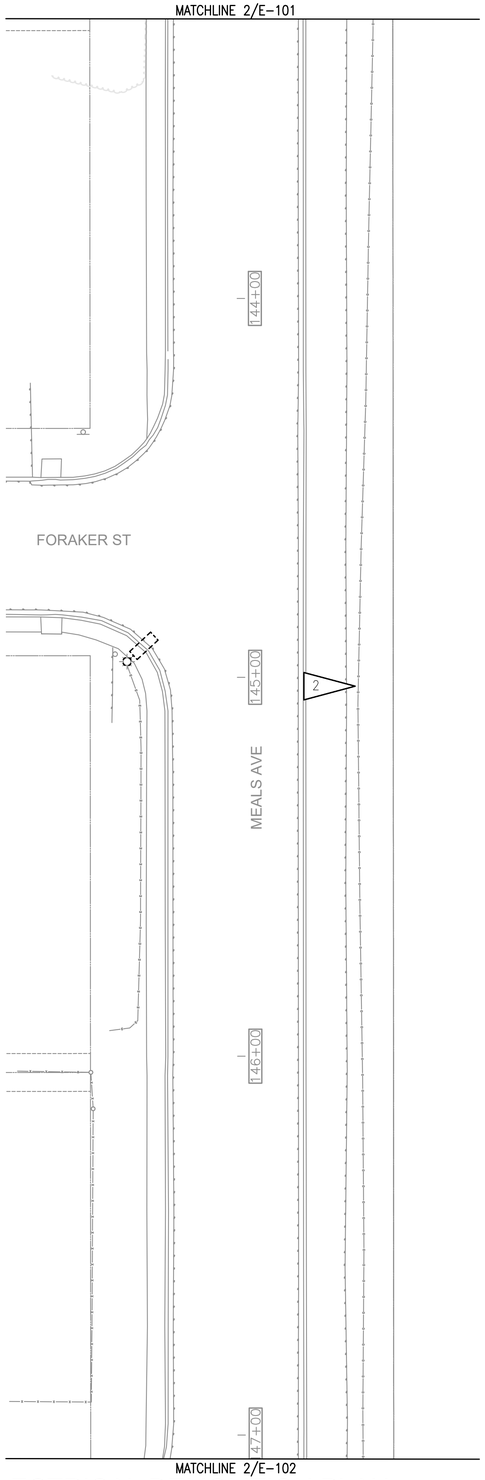
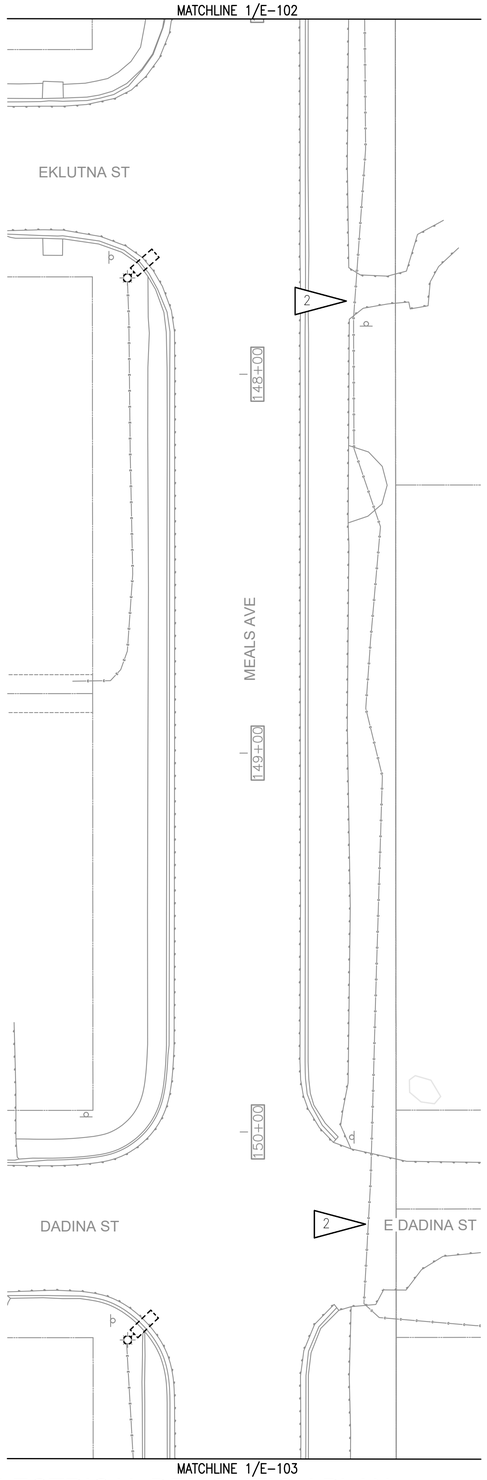
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

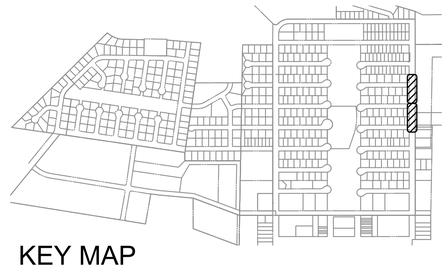
E-101



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. NOT USED.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS		
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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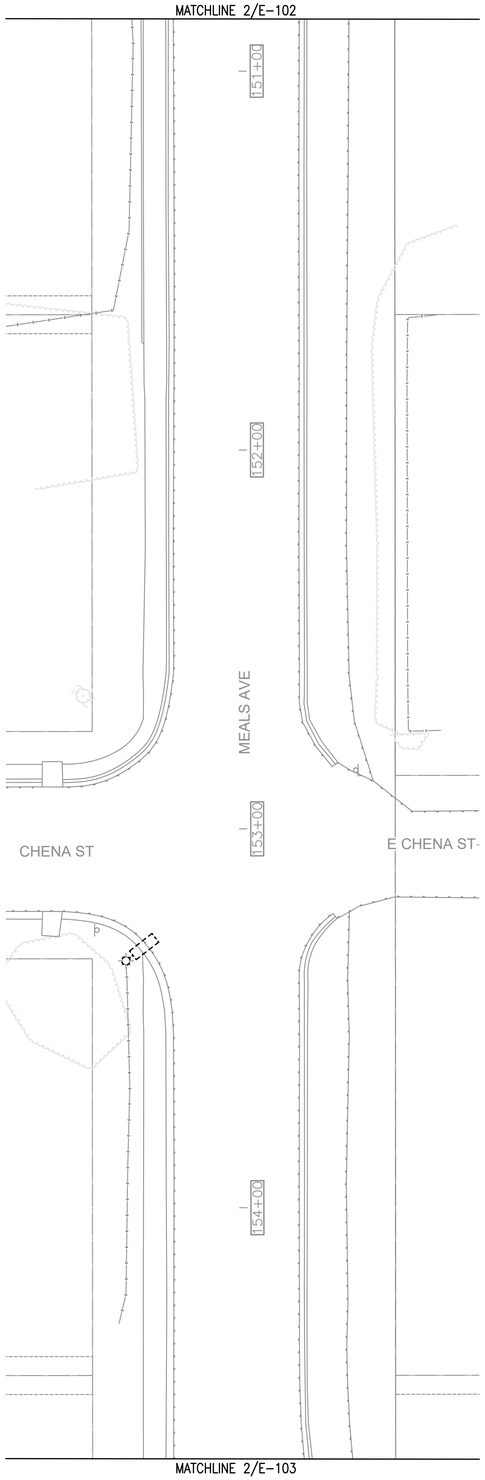
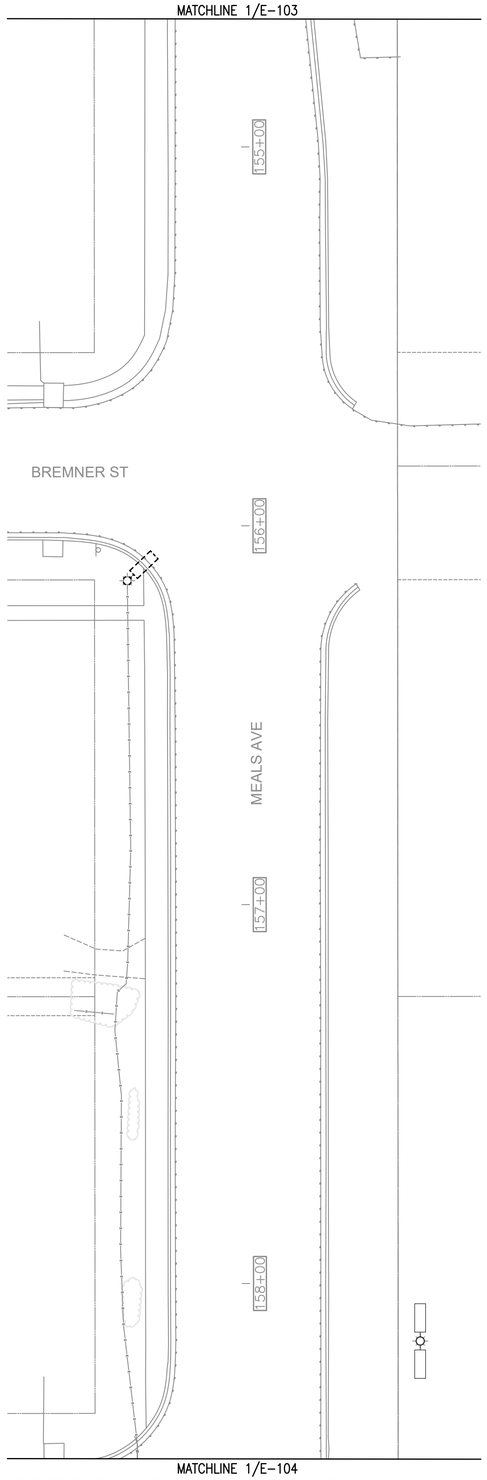
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

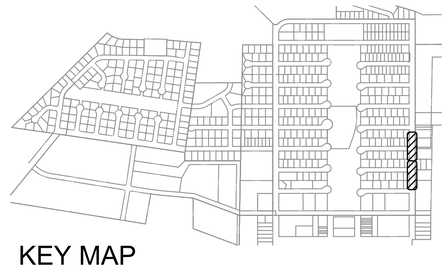
E-102



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
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01/16/26
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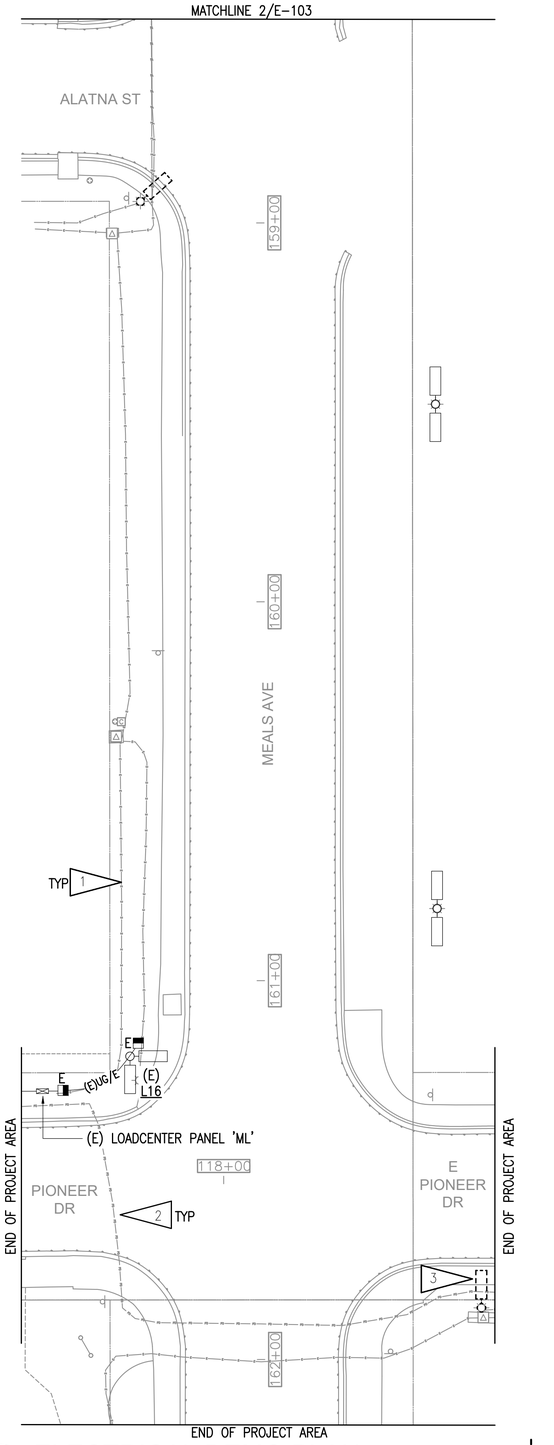
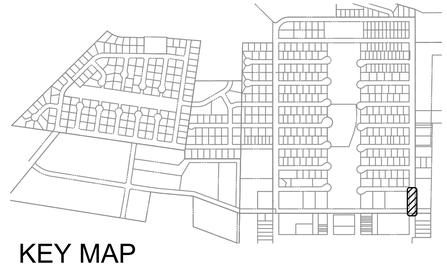
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-103



1 ELECTRICAL DEMO PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. DEMOLISH FIXTURE AND POLE ONLY IN LOCATION NOTED. SALVAGE CONDUIT AND WIRE FOR REUSE WITH NEW POLE/FIXTURE IN SAME LOCATION.

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA
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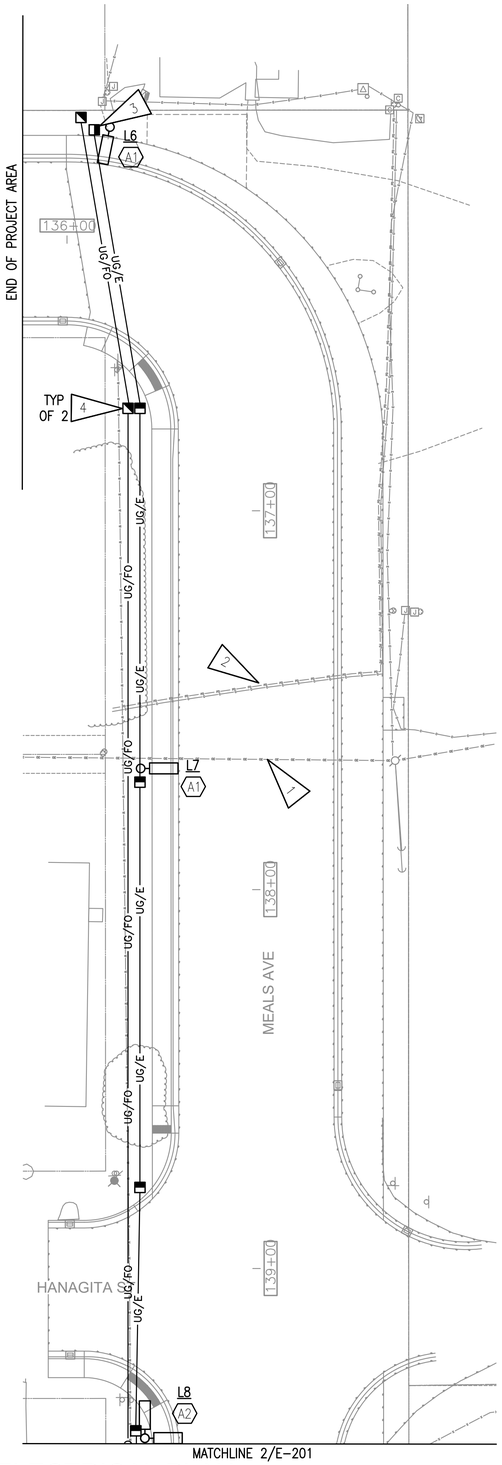
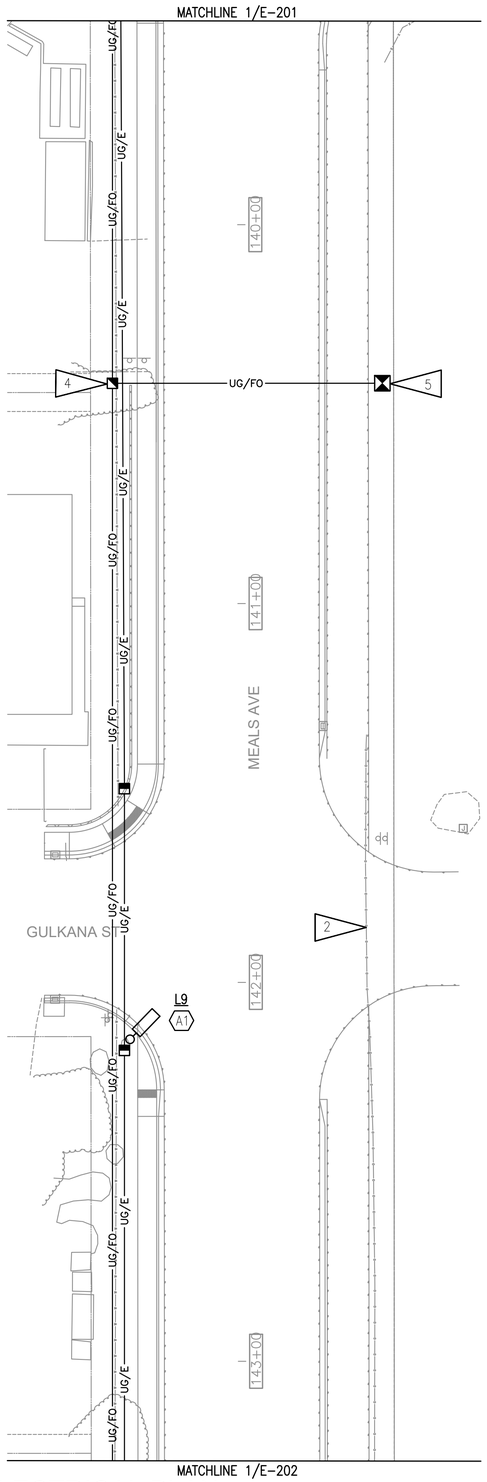
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

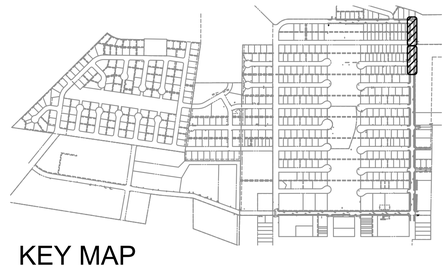
E-104



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROVIDE PROVISIONS WITHIN JUNCTION BOX NOTED FOR FUTURE EXTENSION OF LIGHTING CONDUIT AND CONDUCTORS DOWN ROBE RIVER AVENUE.
4. FIBER OPTIC HANDHOLE, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.
5. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spreading Lane, Suite 200
Anchorage, AK 99518
Phone (907) 276-0521
Corporate No.: AECC542

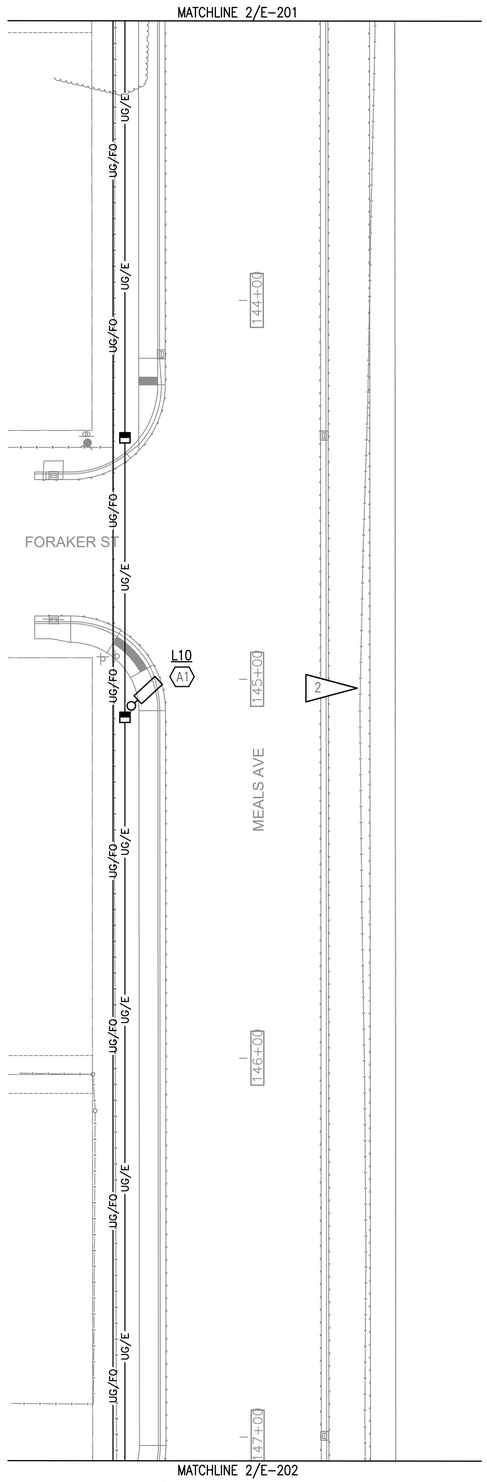
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

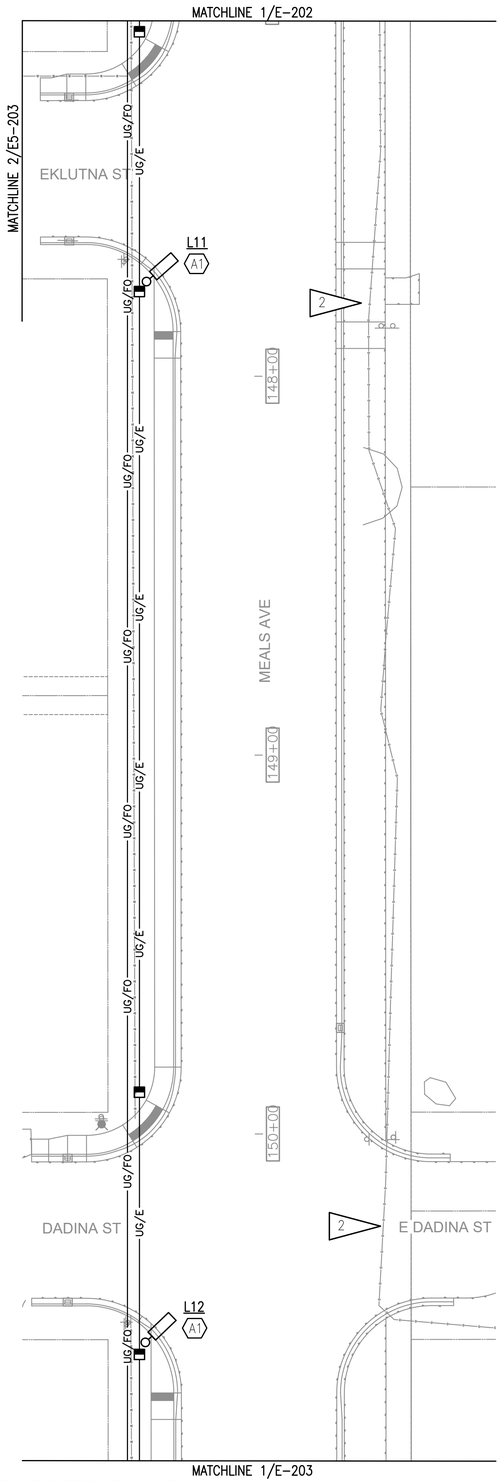
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

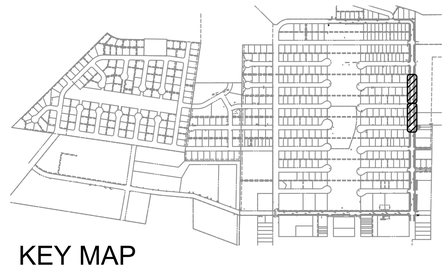
E-201



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. NOT USED.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
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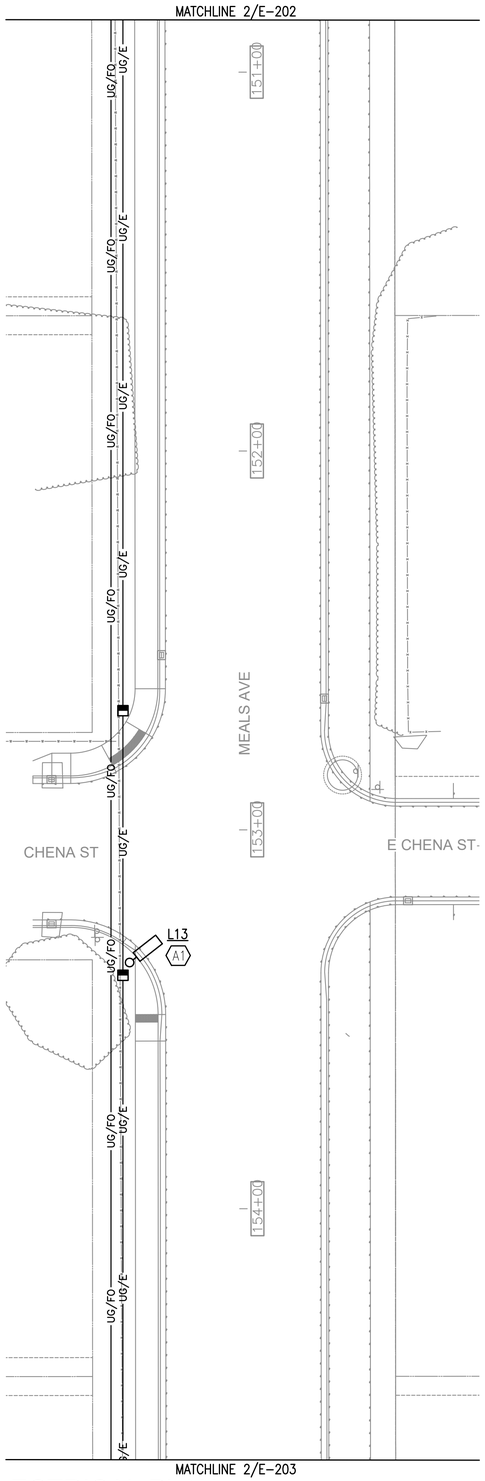
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-202



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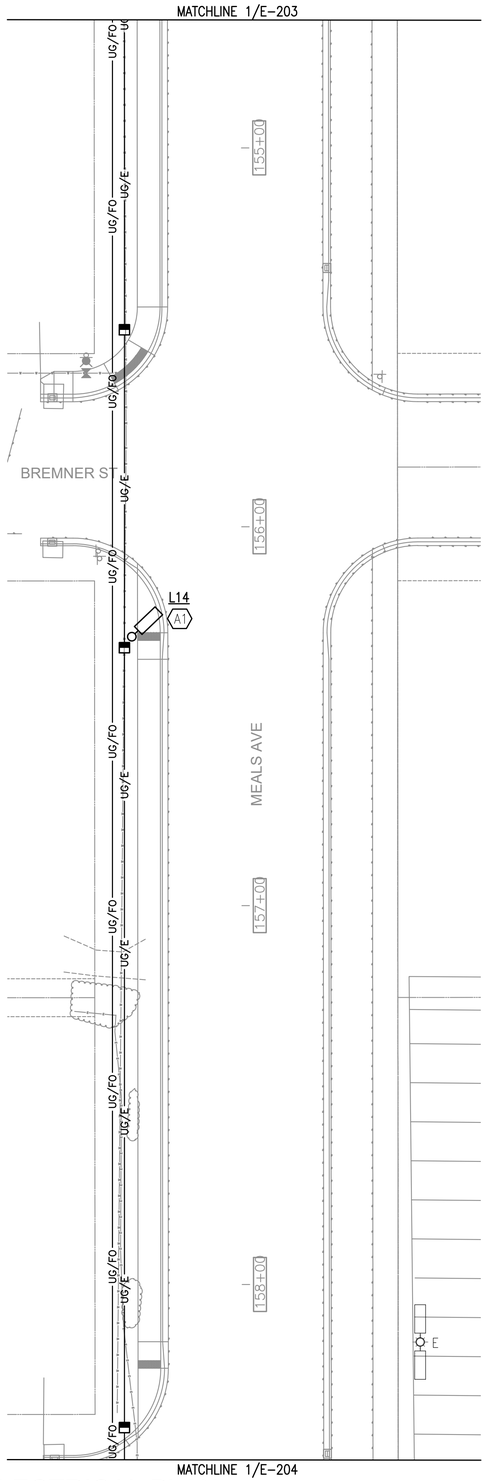
1"=20'



2 ELECTRICAL PLAN
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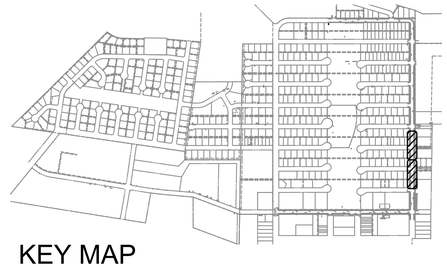

KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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Phone (907) 276-0521
Corporate No.: AECC542

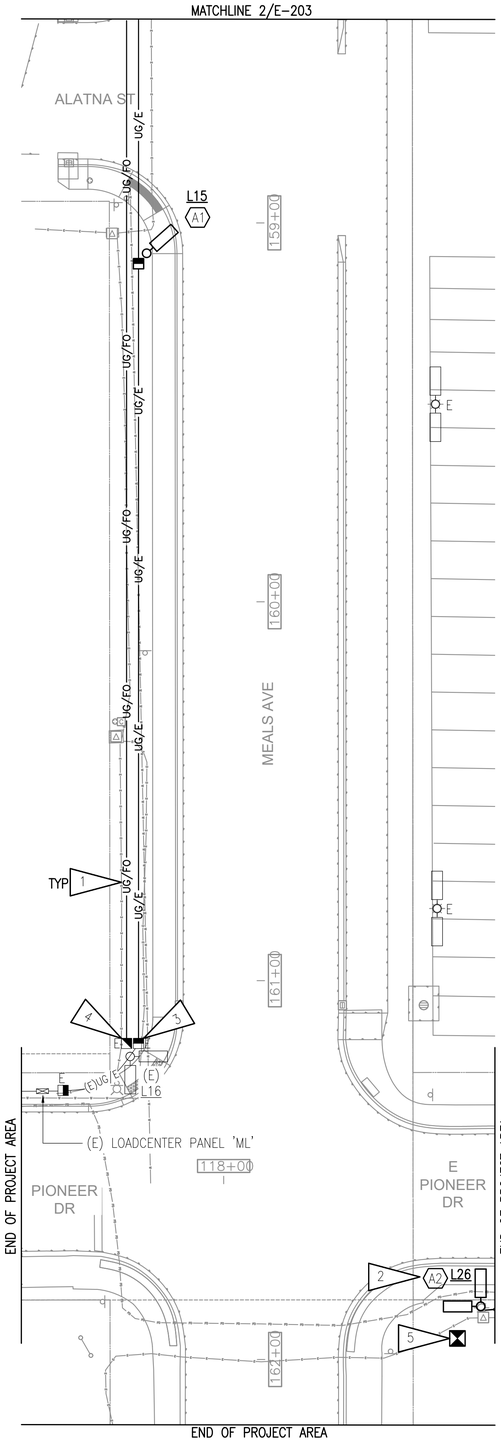
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-203



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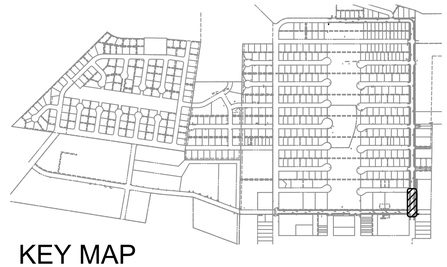

KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROVIDE NEW POLE AND FIXTURES IN LOCATION NOTED AND RECONNECT TO EXISTING SALVAGED CONDUIT AND WIRE.
3. ROUTE NEW LIGHTING CONDUIT/CONDUCTORS INTO EXISTING IN-GRADE JUNCTION BOX.
4. ROUTE NEW FIBER OPTIC CONDUITS INTO EXISTING FIBER OPTIC HANDHOLE.
5. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING. NO UNDERGROUND CONDUIT WILL BE ROUTED TO THIS VAULT UNDER THIS PROJECT.

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
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VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

VALDEZ, ALASKA

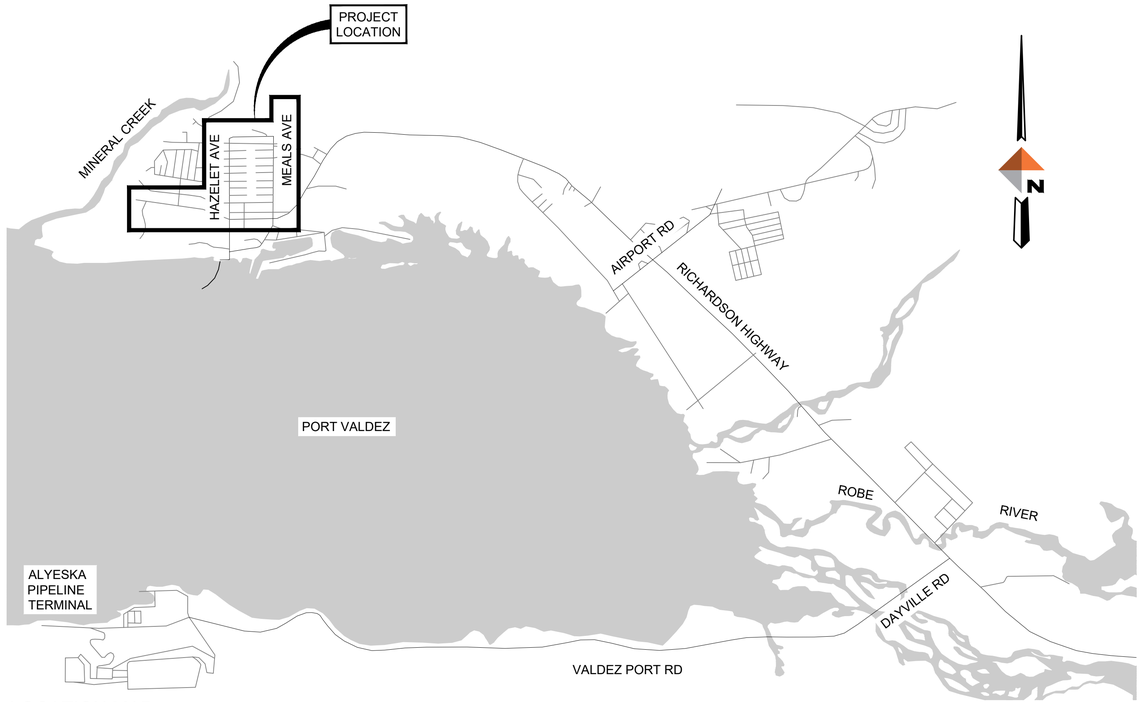
RSA PROJECT M2078
DATE 01/16/2026

E-204

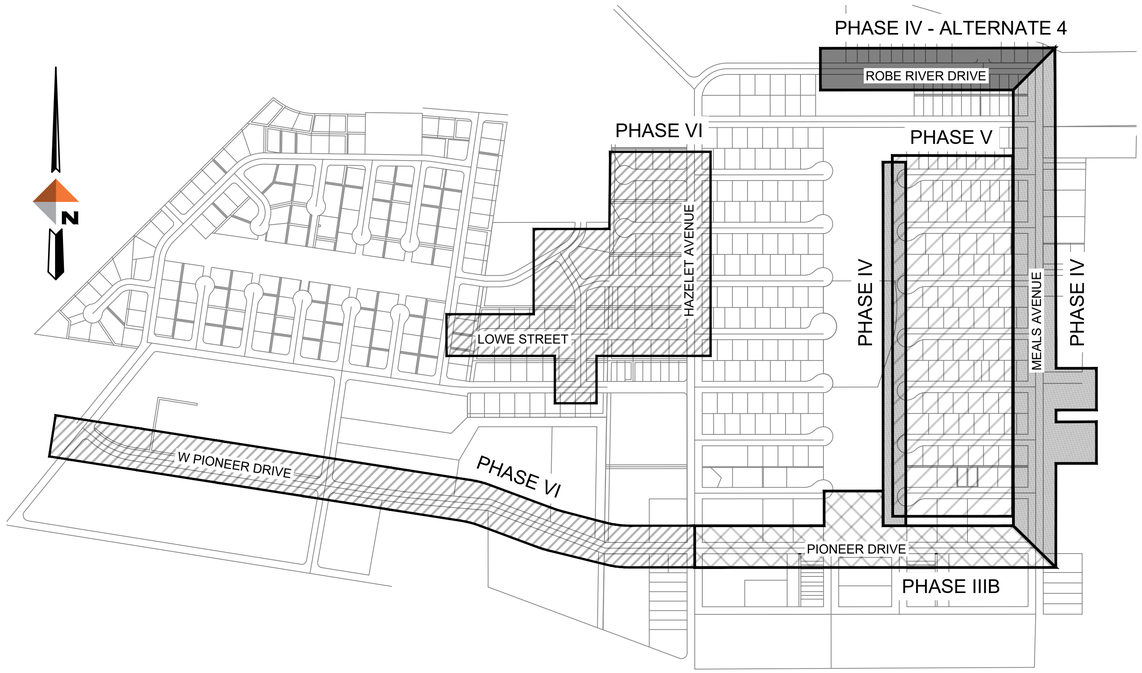
VALDEZ PAVEMENT REHABILITATION

PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PROJECT NUMBER 22-310-1115



LOCATION MAP
VALDEZ, AK



VICINITY MAP

SHEET INDEX

PREPARED FOR:

CITY OF VALDEZ, ALASKA
GATEWAY TO THE INTERIOR

PREPARED BY:

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01-16-2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - - ALTERNATE 4

COVER SHEET

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-001

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	
TYPE III STORM MANHOLE		
SEWER MANHOLE	S	
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4
NOTES, LEGEND, AND ABBREVIATIONS
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

G-002

TRAFFIC CONTROL AND PHASING

GENERAL

A. ALL STAGING AREAS USED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE COMPLETION OF THE PROJECT PHASE.
B. ALL TRAFFIC CONTROL OPERATIONS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LATEST EDITION OF THE ALASKA TRAFFIC MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ALASKA SIGN SPECIFICATIONS AND THE MUTCD.
C. TEMPORARY TRAFFIC CONTROL (TTC) PLANS FOR EACH PHASE AND FOR SPECIFIC CONSTRUCTION ACTIVITIES THAT CANNOT BE EXECUTED WITHIN A PARTICULAR PHASE TTC, SHALL BE PREPARED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AT LEAST 7 DAYS IN ADVANCE OF THE WORK UNLESS OTHERWISE APPROVED BY THE ENGINEER.
D. TEMPORARY TRAFFIC LANES SHALL BE A MINIMUM OF 10-FT WIDE.
E. WHEN CONSTRUCTION ACTIVITIES REQUIRE THE CLOSURE OF THE EXISTING OR NEW SIDEWALKS, ALTERNATIVE PEDESTRIAN ROUTES THROUGH OR AROUND THE ACTIVE CONSTRUCTION ZONE SHALL BE ESTABLISHED.
F. WITH THE EXCEPTION OF CONCRETE POURS AND DRIVEWAY WORK VEHICULAR ACCESS SHALL BE MAINTAINED TO EACH LOT WITHIN THE PROJECT LIMITS AT ALL TIMES.

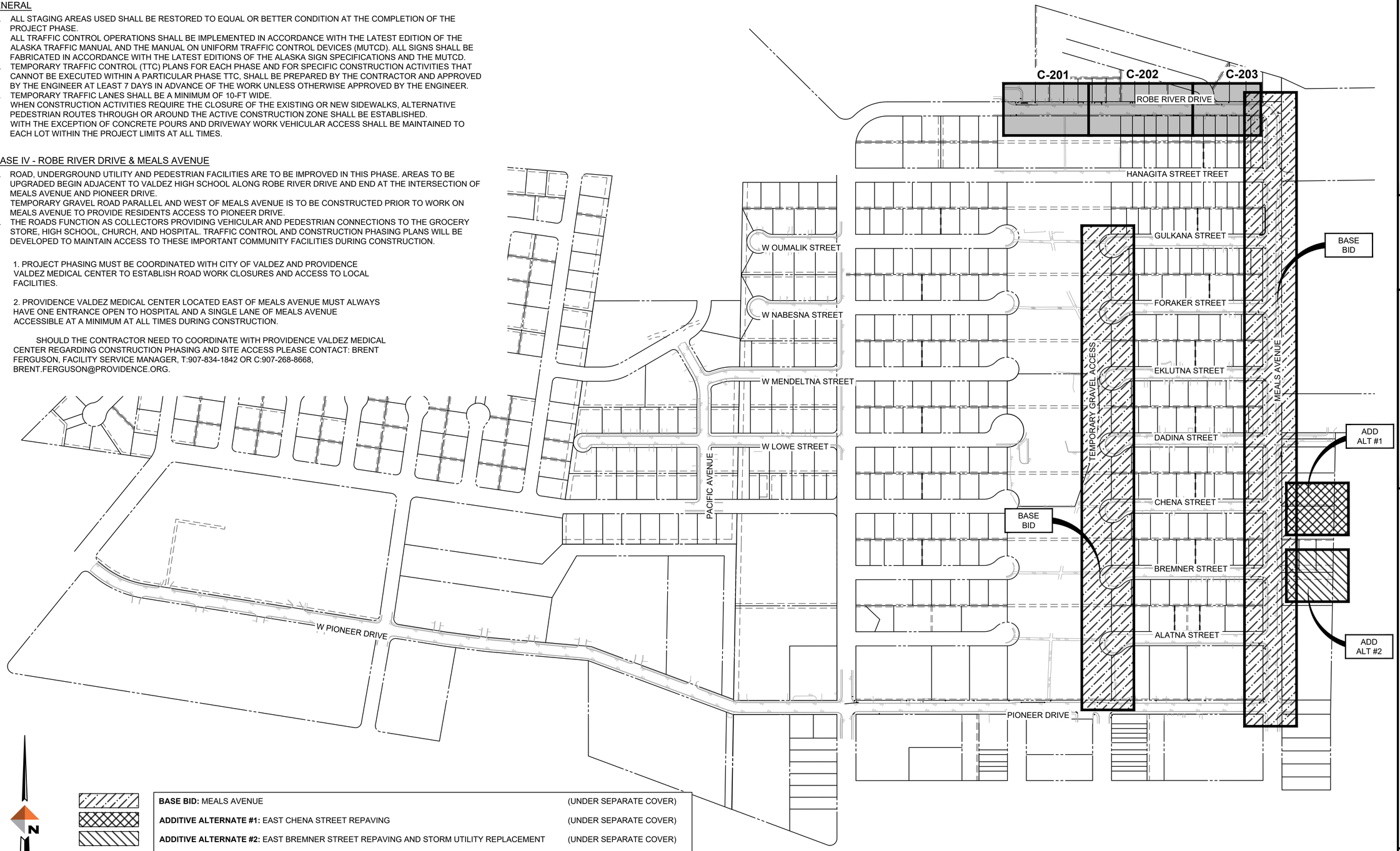
PHASE IV - ROBE RIVER DRIVE & MEALS AVENUE

A. ROAD, UNDERGROUND UTILITY AND PEDESTRIAN FACILITIES ARE TO BE IMPROVED IN THIS PHASE. AREAS TO BE UPGRADED BEGIN ADJACENT TO VALDEZ HIGH SCHOOL ALONG ROBE RIVER DRIVE AND END AT THE INTERSECTION OF MEALS AVENUE AND PIONEER DRIVE.
B. TEMPORARY GRAVEL ROAD PARALLEL AND WEST OF MEALS AVENUE IS TO BE CONSTRUCTED PRIOR TO WORK ON MEALS AVENUE TO PROVIDE RESIDENTS ACCESS TO PIONEER DRIVE.
C. THE ROADS FUNCTION AS COLLECTORS PROVIDING VEHICULAR AND PEDESTRIAN CONNECTIONS TO THE GROCERY STORE, HIGH SCHOOL, CHURCH, AND HOSPITAL. TRAFFIC CONTROL AND CONSTRUCTION PHASING PLANS WILL BE DEVELOPED TO MAINTAIN ACCESS TO THESE IMPORTANT COMMUNITY FACILITIES DURING CONSTRUCTION.

1. PROJECT PHASING MUST BE COORDINATED WITH CITY OF VALDEZ AND PROVIDENCE VALDEZ MEDICAL CENTER TO ESTABLISH ROAD WORK CLOSURES AND ACCESS TO LOCAL FACILITIES.

2. PROVIDENCE VALDEZ MEDICAL CENTER LOCATED EAST OF MEALS AVENUE MUST ALWAYS HAVE ONE ENTRANCE OPEN TO HOSPITAL AND A SINGLE LANE OF MEALS AVENUE ACCESSIBLE AT A MINIMUM AT ALL TIMES DURING CONSTRUCTION.

SHOULD THE CONTRACTOR NEED TO COORDINATE WITH PROVIDENCE VALDEZ MEDICAL CENTER REGARDING CONSTRUCTION PHASING AND SITE ACCESS PLEASE CONTACT: BRENT FERGUSON, FACILITY SERVICE MANAGER, T:907-834-1842 OR C:907-268-8668, BRENT.FERGUSON@PROVIDENCE.ORG.



BASE BID: MEALS AVENUE	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #1: EAST CHENA STREET REPAVING	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #2: EAST BREMNER STREET REPAVING AND STORM UTILITY REPLACEMENT	(UNDER SEPARATE COVER)
ALTERNATE #3: HDPE CONDUIT REPLACES RIGID CONDUIT IN BASE PLANS	
ADDITIVE ALTERNATE #4: ROBE RIVER DRIVE	
ADDITIVE ALTERNATE #5: FIBER OPTIC CONDUIT MEALS AVENUE	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #6: FIBER OPTIC CONDUIT ROBE RIVER DRIVE	

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

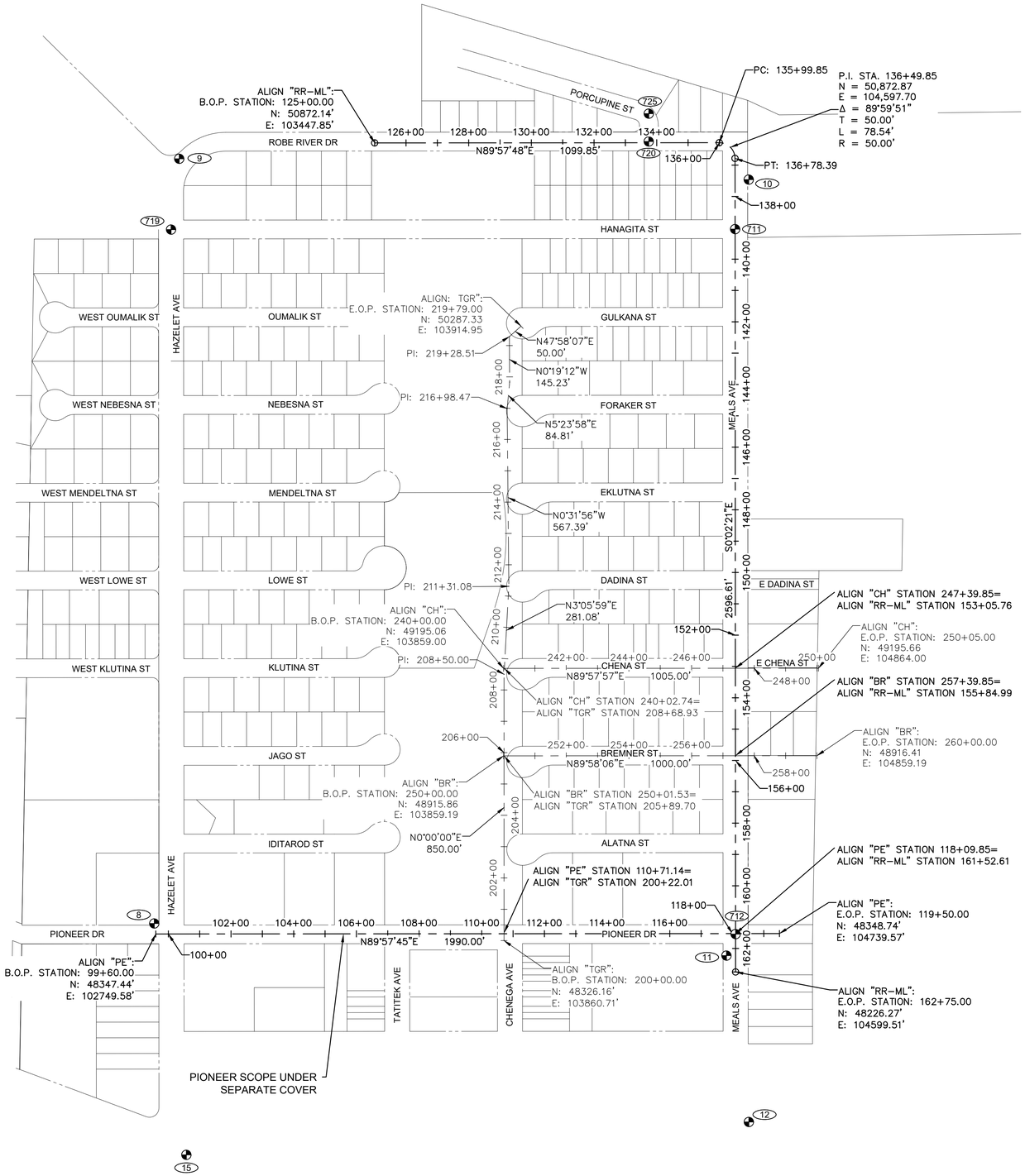
SITE PLAN AND KEY MAP

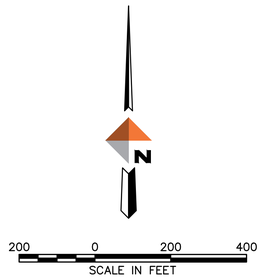
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-003

J:\22\63461-01\65CAD\Street Files\Robe River Alt 4 Split\SC24-CS-CV-VALDEZ_PHASE_IV_RR4.dwg PLOT DATE 2026-1-16 17:17 SAVED DATE 2026-01-16 17:00 USER: wlows





SURVEY CONTROL NOTES

HORIZONTAL CONTROL:
COORDINATES ARE BASED ON AN ASSUMED DATUM IN U.S. FEET. BEARINGS ARE BASED ON THE FINAL PLAT BLACK GOLD NO 1 DIVISION 1 FILED AS PLAT NO. 78-3 IN THE VALDEZ RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA.

VERTICAL CONTROL:
ELEVATIONS ARE NAVD88(GEOID 12A) IN US SURVEY FEET. THE BASIS OF ELEVATIONS IS POINT 601, AN NGS BRASS CAP (PID: BBBB44) STAMPED "4240 T 2000", HAVING AN OPUS DERIVED VALUE OF 49.89 FEET.

SURVEY MONUMENTS

STATIC GPS TIED:

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
*1	49393.66	99959.88	54.37	ALCAP
*2	49755.79	101505.00	58.69	ALCAP
*3	49832.19	101025.73	63.02	ALCAP
*4	50417.76	101106.85	65.97	ALCAP
*5	49996.66	100078.42	59.70	ALCAP
*6	48929.31	99530.75	45.65	ALCAP
*7	48558.80	101468.28	45.80	ALCAP
8	48380.91	102744.58	35.71	BRASS CAP
*9	50821.46	102824.23	58.09	BRASS CAP
10	50755.02	104641.48	37.08	ALCAP
11	48278.43	104570.40	21.72	BRASS CAP
12	47747.39	104641.87	19.63	BRASS CAP
*13	49171.98	102254.73	44.61	ALCAP
*14	49927.19	102115.85	55.80	ALCAP
15	47642.49	102847.16	31.29	ALCAP
*601	47016.69	102889.07	49.89	BRASS CAP

* = MONUMENT NOT SHOWN

"RR-ML" ALIGNMENT CONTROL MONUMENTS

POINT	STATION	OFFSET	LOCAL NORTHING	LOCAL EASTING	NAVD88 ELEVATION	DESCRIPTION
720	133+74.59	4.01' LT	50876.7074	104322.4415	--	CTRL/FOUN.GPSS.BC
725	133+74.72	92.82' LT	50965.5231	104322.5181	--	CTRL/FOUN.GPSS.BC
10	137+46.27	43.70' LT	50755.0225	104641.4774	37.08	CTRL/SETN.GPSS.ALCAP
711	139+04.32	0.17' LT	50596.9436	104598.0610	--	CTRL/FOUN.GPSS.BC
719	139+04.51	1799.69' RT	50595.5252	102798.2043	--	CTRL/FOUN.GPSS.ALMON
712	161+54.27	0.15' LT	48346.9967	104599.5715	--	CTRL/FOUN.GPSS.ALCAP
11	162+22.82	29.07' RT	48278.4281	104570.3967	21.72	CTRL/SETN.GPSS.BC

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
A. WILLIAM STOLL
LS 12941
11/25/2025
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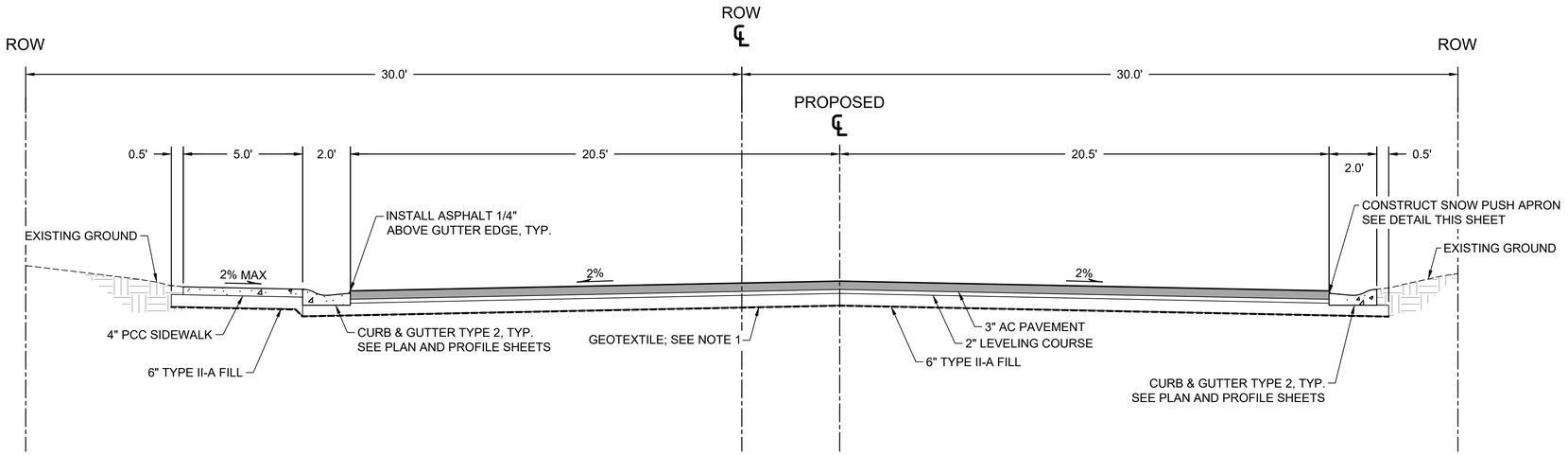
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SURVEY CONTROL SHEET

VALDEZ, ALASKA

PROJECT 63461.01
DATE 11/25/2025

G-004

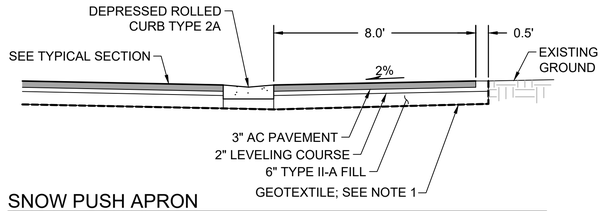


ROBE RIVER DRIVE - TYPICAL SECTION

BOP STA: 125+29.00 TO 129+40.00
STA: 130+60.00 TO 135+92.81

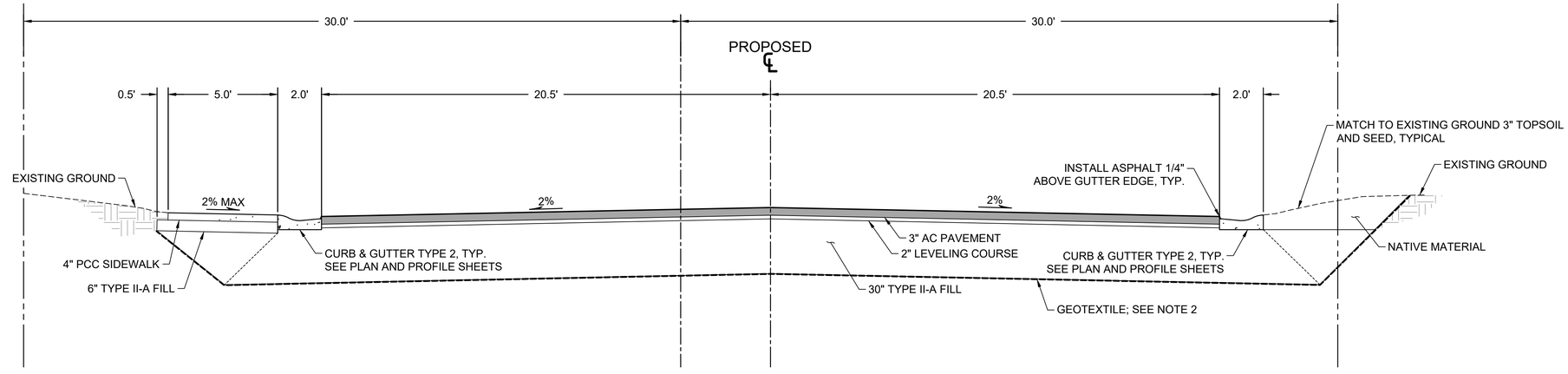
NOTES

1. GEOTEXTILE FOR RE-SURFACING SECTION TO BE A SEPARATION AND STABILIZATION GEOTEXTILE. GEOTEXTILE TO BE WOVEN MEETING CLASS 3 STRENGTH PER AASHTO M288 WHICH ALSO MEETS CRITERIA FOR TYPE A SEPARATION GEOTEXTILE PER CITY OF VALDEZ.
2. GEOTEXTILES USED UNDER REDUCED SUBGRADE SECTION SHALL BE WOVEN AND MEET CRITERIA FOR CITY OF VALDEZ (20.22) TYPE A, SEPARATION GEOTEXTILE.
3. LEVELING COURSE AND TYPE II-A FILL SHALL MEET REQUIREMENTS OF CITY OF VALDEZ GRADATION. SEE GEOTECHNICAL REPORT. CLASSIFIED FILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS IF A LARGE VIBRATORY COMPACTOR IS USED. EACH LIFT SHOULD BE COMPACTED THROUGHOUT ITS ENTIRE DEPTH TO A DENSITY OF AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR AASHTO T180.
4. EXCAVATIONS SHOULD BE COMPLETELY DEWATERED BEFORE PLACEMENT OF CLASSIFIED FILL. DO NOT PLACE FILL OR ASPHALT PAVEMENT OVER FROZEN SOILS. DO NOT FILL OR BACKFILL WITH FROZEN SOILS.
5. GRASS AREAS WITHIN WORK LIMITS SHALL BE REPLACED WITH 2-IN TOPSOIL AND SEED.



SNOW PUSH APRON

STA: 127+77.19 TO 130+10.02



ROBE RIVER DRIVE - REDUCED SUBGRADE STRENGTH (RSS) SECTION

STA: 129+40.00 TO 130+60.00

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

TYPICAL SECTIONS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-101

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
1	RR-ML	126+66.54	20.50 LT	24'
2	RR-ML	127+26.54	20.50 LT	24'
3	RR-ML	127+86.54	20.50 LT	24'
4	RR-ML	128+30.54	20.50 LT	24'
5	RR-ML	129+00.54	20.50 LT	24'
6	RR-ML	129+72.54	20.50 LT	24'
7	RR-ML	130+24.02	20.50 RT	20'
8	RR-ML	130+27.54	20.50 LT	24'
9	RR-ML	130+74.02	20.50 RT	20'
10	RR-ML	130+90.54	20.50 LT	24'
11	RR-ML	131+24.02	20.50 RT	20'
12	RR-ML	131+62.02	20.50 RT	20'
13	RR-ML	131+74.54	20.50 LT	32'
14	RR-ML	132+34.02	20.50 RT	20'
15	RR-ML	132+56.54	20.50 LT	32'
16	RR-ML	132+88.02	20.50 RT	20'
17	RR-ML	133+38.02	20.50 RT	20'
18	RR-ML	133+88.02	20.50 RT	20'
19	RR-ML	134+38.02	20.50 RT	20'
20	RR-ML	134+78.02	20.50 RT	20'
21	RR-ML	135+33.02	20.50 RT	20'
22	RR-ML	135+63.02	20.50 RT	20'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
356	RR-ML	126+48.71	31.00 LT	
352	RR-ML	129+30.44	32.49 LT	
351	RR-ML	132+39.35	32.00 LT	
360	RR-ML	135+40.31	31.00 LT	SHIFTED SOUTH

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1000	RR-ML	125+87.46	28.00 LT	PARALLEL (MODIFIED SEE GRADING)
1001	RR-ML	126+60.54	22.50 LT	TYPE II PARALLEL
1002	RR-ML	133+30.59	22.50 LT	TYPE II PARALLEL
1003	RR-ML	134+28.48	22.50 LT	TYPE II PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	20.86	38.00	31.46	S74° 18' 25"E	20.60
C2	36.13	23.00	90.00	N44° 57' 48"E	32.53
C3	36.14	23.00	90.04	S45° 01' 06"E	32.54
C4	30.69	23.00	76.44	N51° 44' 33"E	28.46
C5	34.28	28.00	70.15	S54° 57' 44"E	32.18

PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	9.43 LF	0.75%	102-CBMH	101-SDMH	RR-ML
CPEP	12"	45.00 LF	0.75%	103-CBMH	102-CBMH	RR-ML
CPEP	12"	65.08 LF	0.75%	106-CBMH	104-SDMH	RR-ML

C-201
C-203

REVISIONS

REV	DATE	DESCRIPTION	BY

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-110

PROPOSED STRUCTURES

NAME	DESCRIPTION
102-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
105-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
106-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

C-201
C-203

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
101-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 125+62.27	28.72 L
104-SDMH	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION	RR-ML 133+74.21	6.20 L

C-201
C-203

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 125+69.37	21.32 L
RR-ML 125+69.63	23.10 R
RR-ML 133+47.75	31.78 L
RR-ML 133+74.65	22.80 R
RR-ML 134+25.74	23.35 L

C-201
C-203

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
251-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 126+80.15	12.89 R
252-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 130+26.21	12.87 R
253-SSMH	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE	RR-ML 133+58.61	12.99 R

C-201
C-202
C-203

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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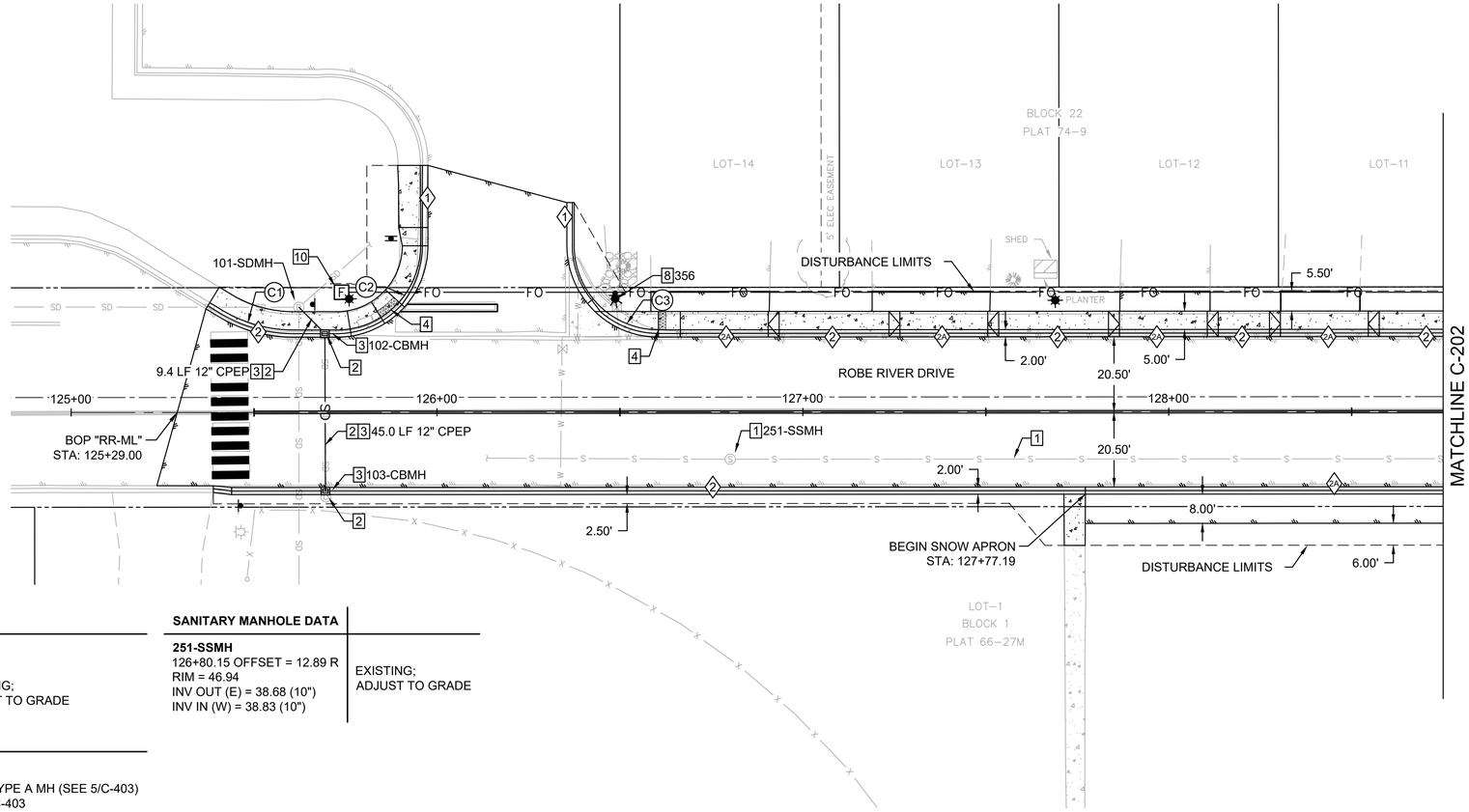
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

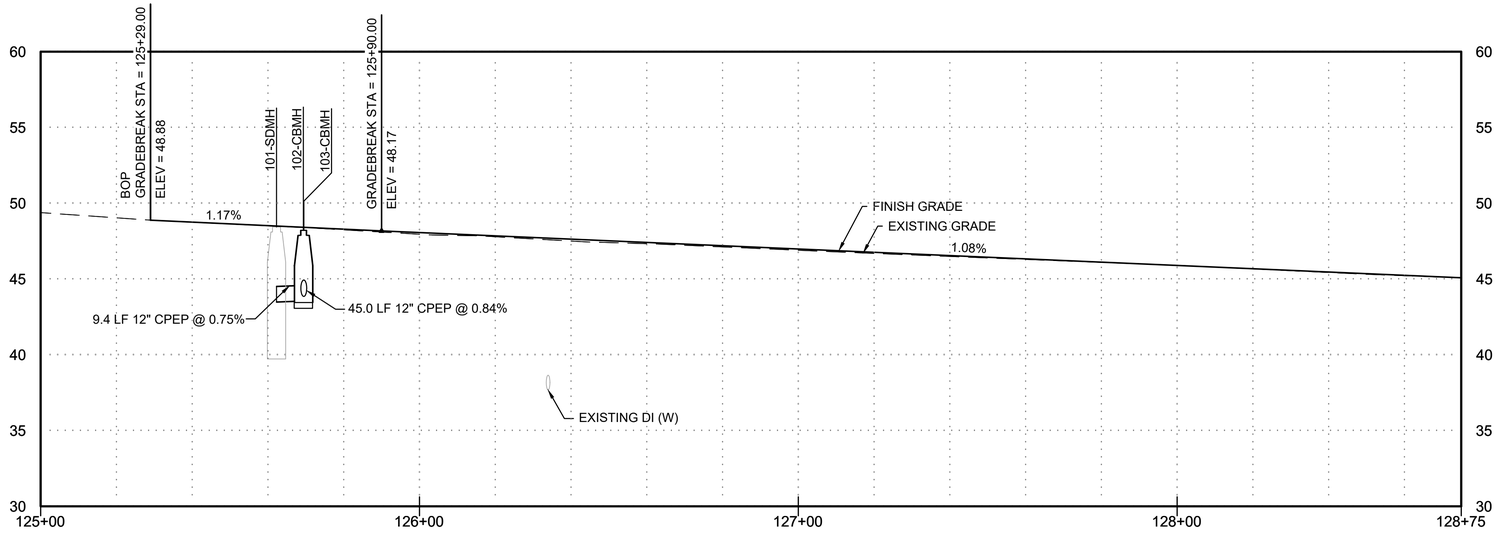
PROJECT 63461.01
DATE 01/16/2026

C-111



STORM MANHOLE DATA	
101-SDMH 125+62.27 OFFSET = 28.72 L RIM = 48.43 INV IN (SE) = 43.49 (12") INV OUT (S) = 42.22 (18") INV IN (W) = 42.26 (12") INV IN (NE) = 42.79 (12")	EXISTING; ADJUST TO GRADE
102-CBMH 125+69.36 OFFSET = 22.50 L RIM = 48.21 INV IN (S) = 43.61 (12") INV OUT (NW) = 43.56 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH 125+69.49 OFFSET = 22.50 R RIM = 48.21 INV OUT (N) = 43.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403

SANITARY MANHOLE DATA	
251-SSMH 126+80.15 OFFSET = 12.89 R RIM = 46.94 INV OUT (E) = 38.68 (10") INV IN (W) = 38.83 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

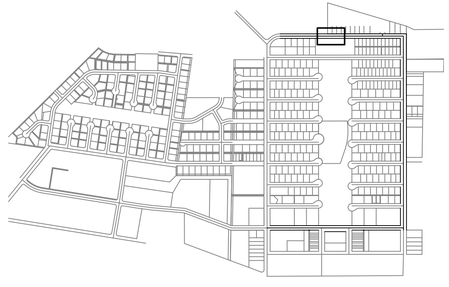
CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
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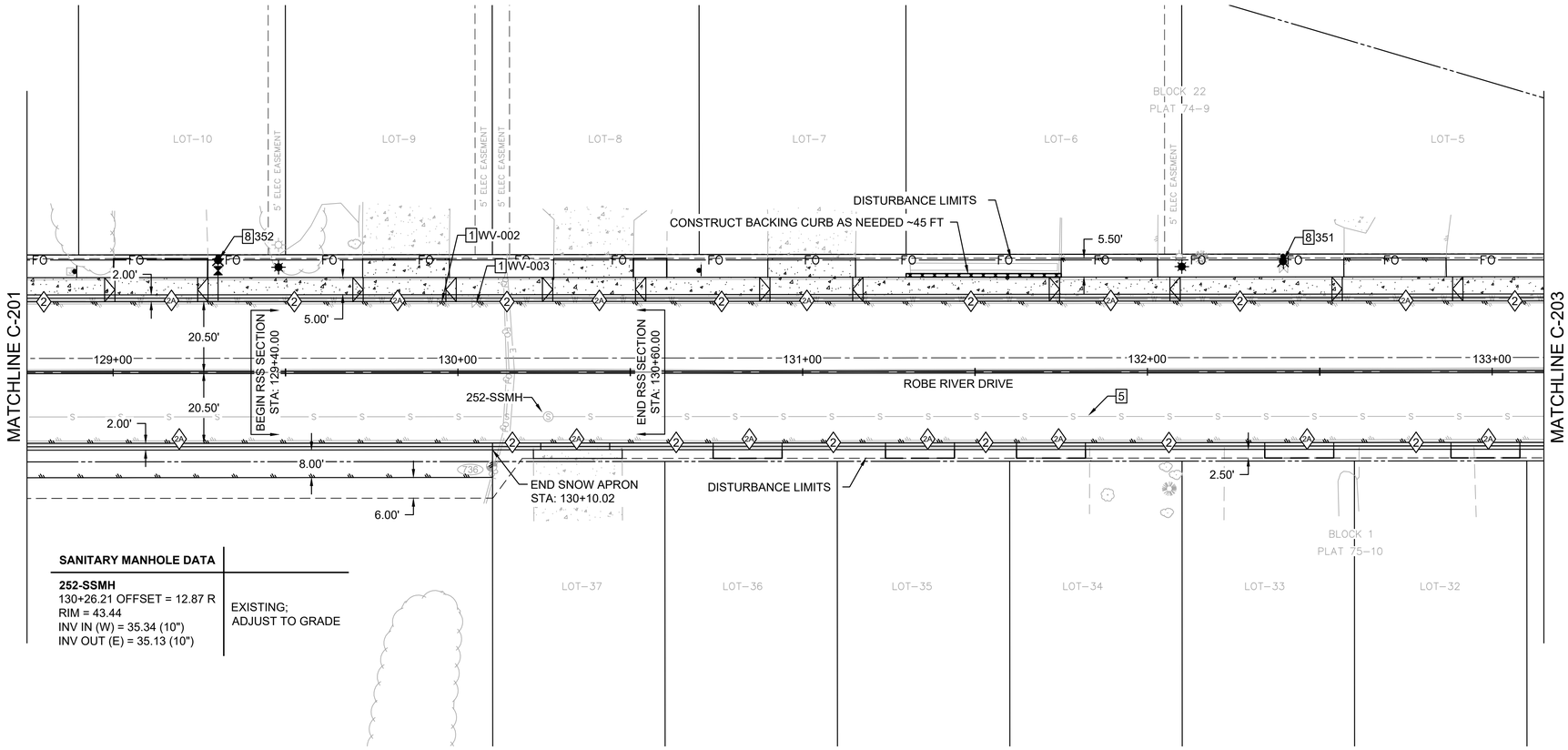
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

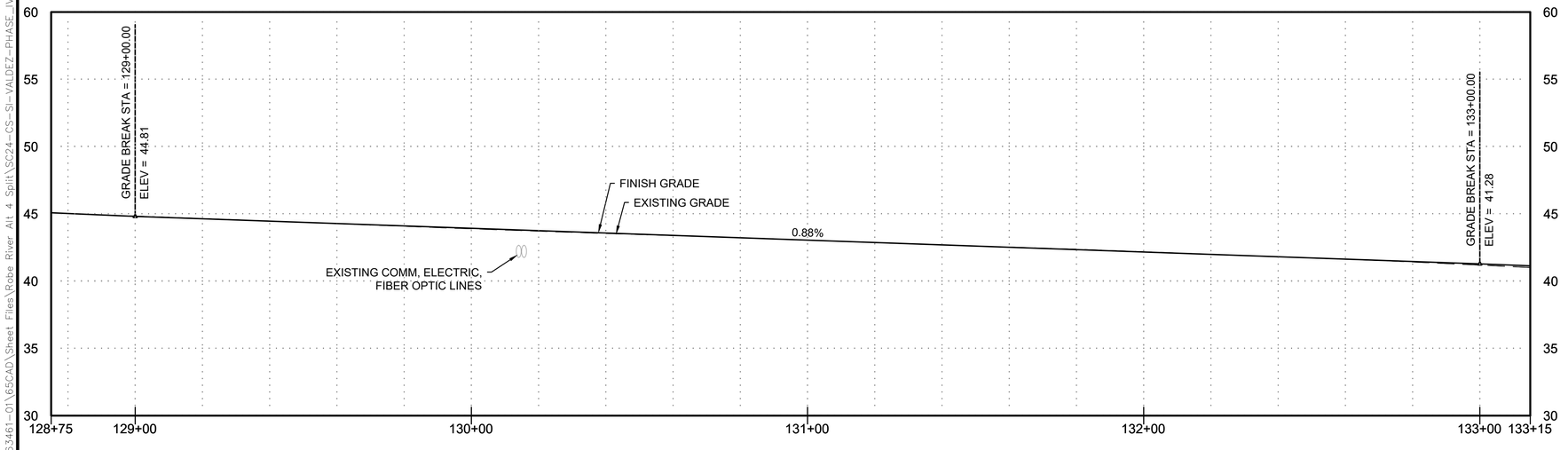
PROJECT	63461.01
DATE	01/16/2026

C-201



SANITARY MANHOLE DATA

252-SSMH 130+26.21 OFFSET = 12.87 R RIM = 43.44 INV IN (W) = 35.34 (10") INV OUT (E) = 35.13 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
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KEY NOTES

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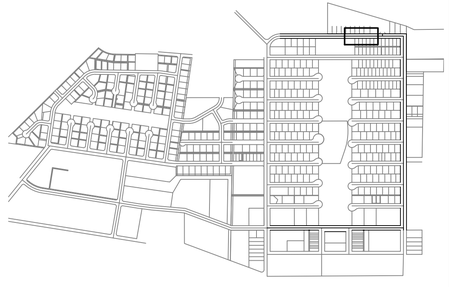
20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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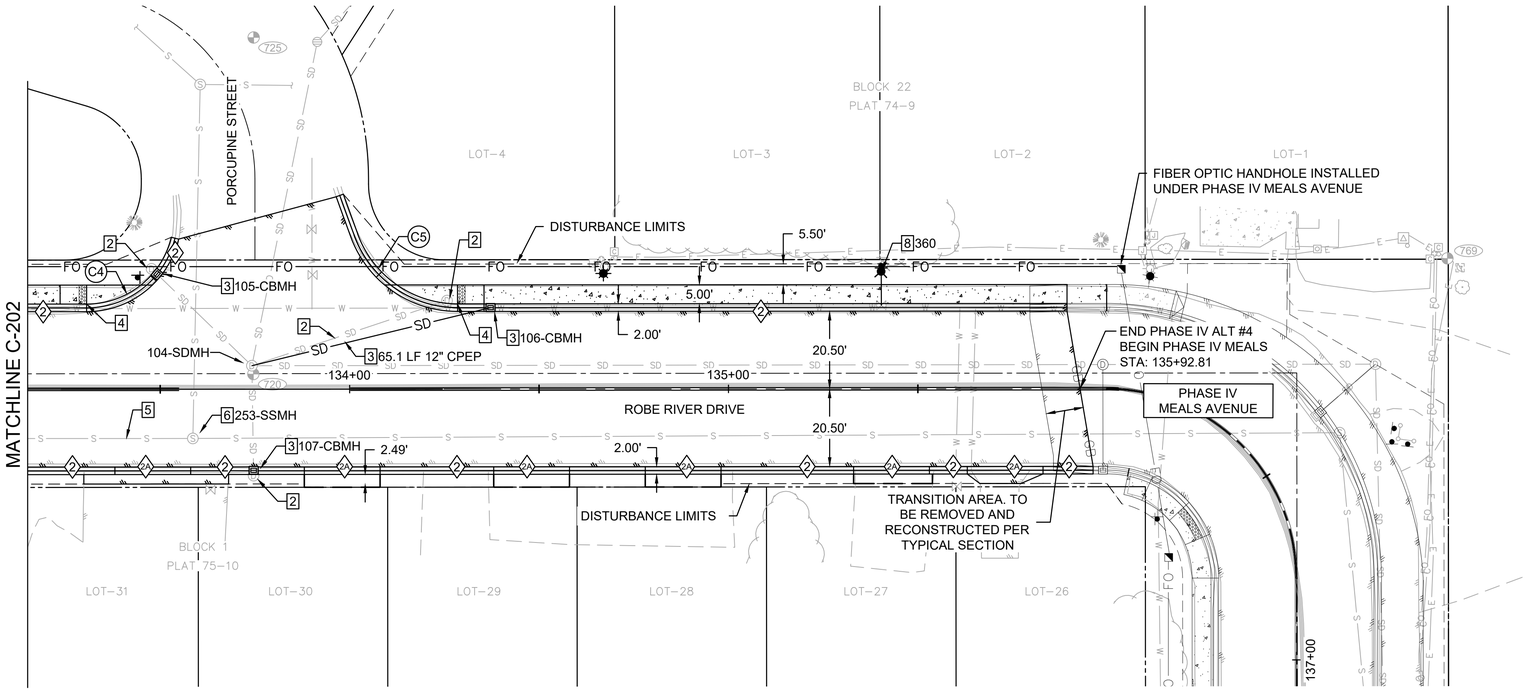
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

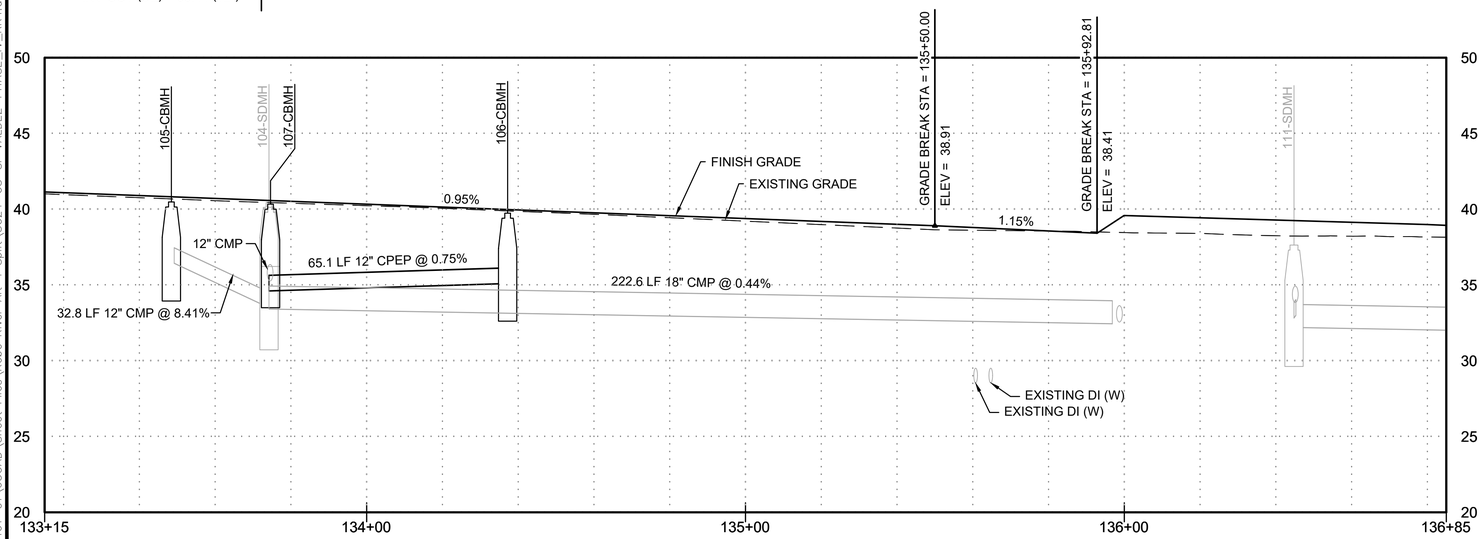
C-202



STORM MANHOLE DATA	
104-SDMH 133+74.21 OFFSET = 6.20 L RIM = 40.45 INV OUT (E) = 33.42 (18") INV IN (N) = 33.22 (18") INV IN (NW) = 33.68 (12") INV IN (E) = 34.62 (12") INV IN (S) = 33.79 (12")	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION
105-CBMH 133+48.45 OFFSET = 31.00 L RIM = 40.48 INV OUT (SE) = 36.44 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

STORM MANHOLE DATA	
106-CBMH 134+37.21 OFFSET = 22.50 L RIM = 39.74 INV OUT (W) = 35.11 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH 133+74.63 OFFSET = 22.50 R RIM = 40.33 INV OUT (N) = 36.00 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
253-SSMH 133+58.61 OFFSET = 12.99 R RIM = 40.46 INV IN (W) = 31.84 (10") INV OUT (E) = 31.78 (10") INV IN (N) = 31.85 (10")	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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01.16.2026
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907-562-2000

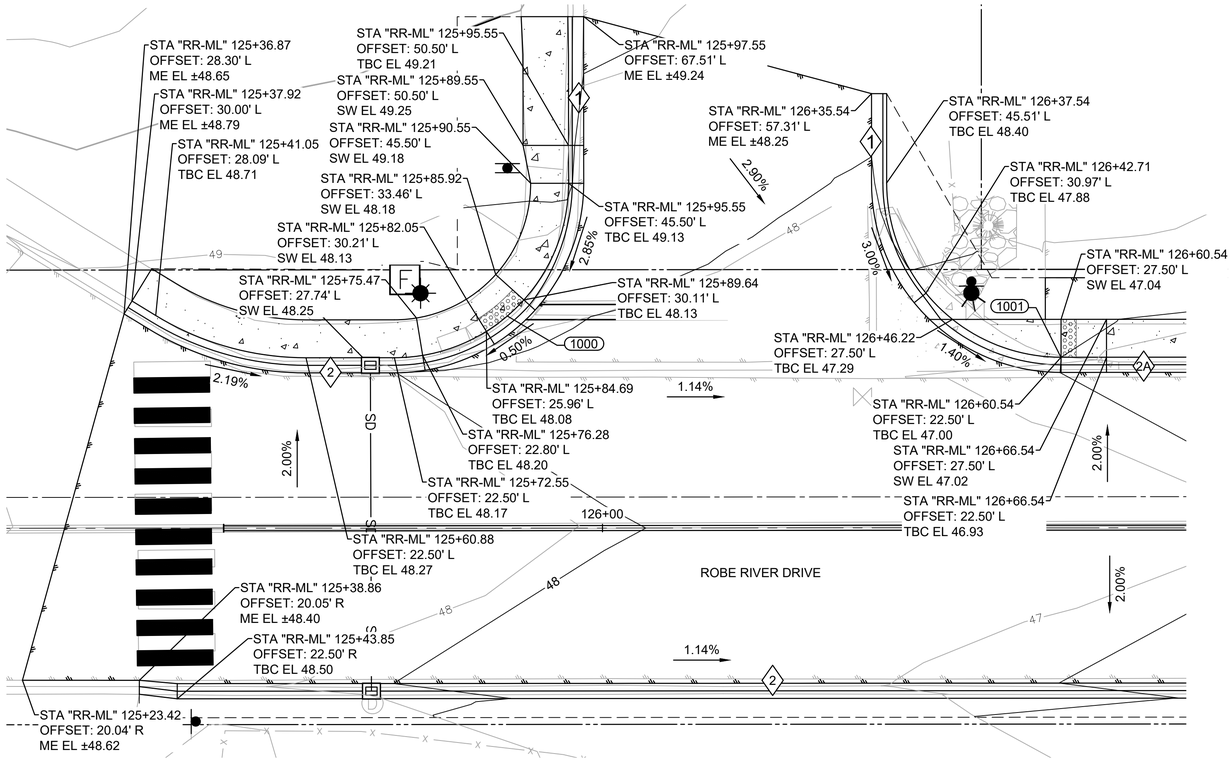
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

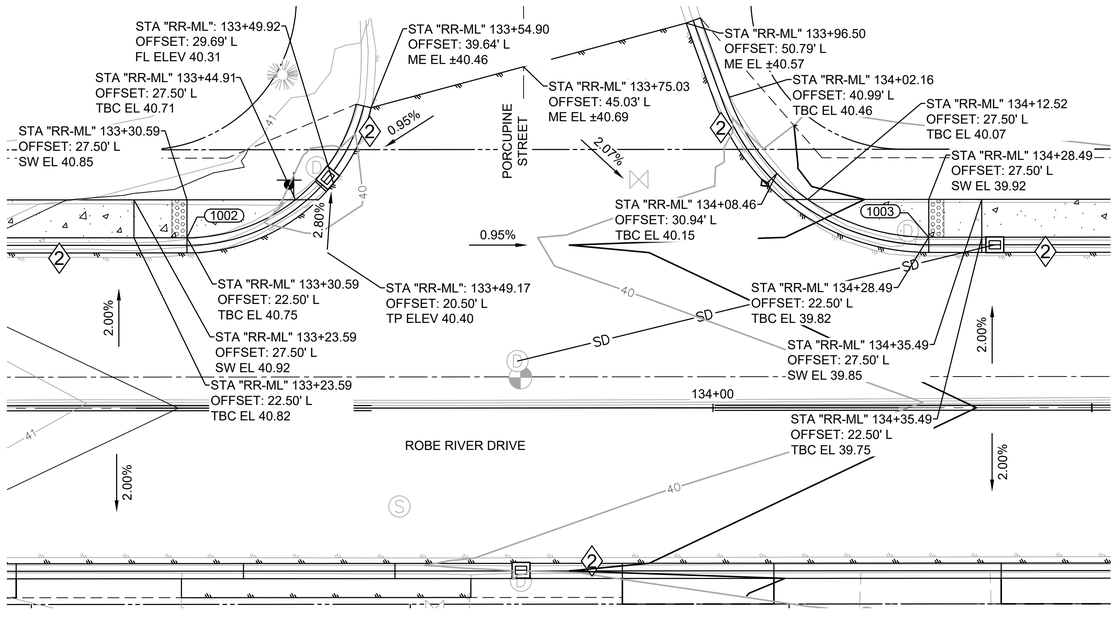
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

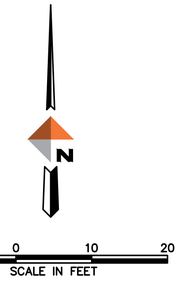
C-203

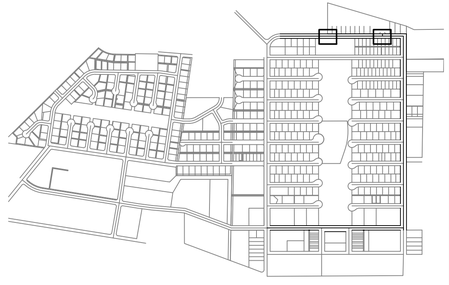


VALDEZ HIGH SCHOOL DRIVEWAY



PORCUPINE STREET INTERSECTION





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
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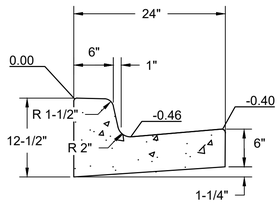
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

INTERSECTION GRADING

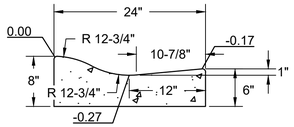
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

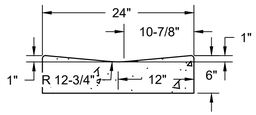
C-301



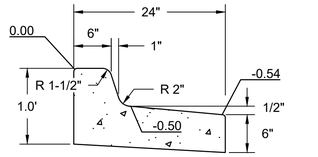
STANDING CURB AND GUTTER
TYPE 1



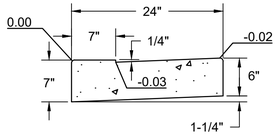
ROLLED CURB AND GUTTER
TYPE 2



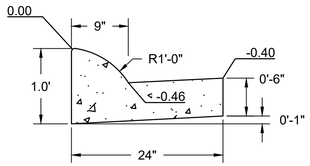
DEPRESSED ROLLED CURB
TYPE 2A



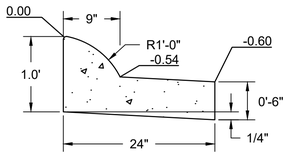
SHEDDING CURB AND GUTTER
TYPE 3



DEPRESSED CURB AND GUTTER
(USED AT CURB CUTS)
TYPE 4

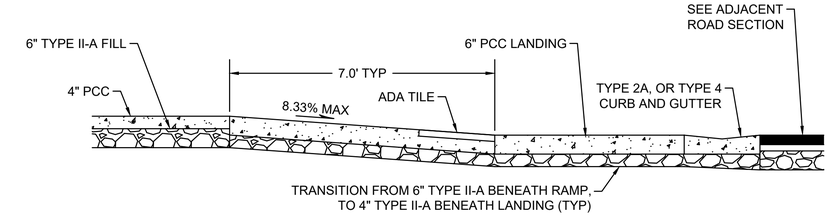


FULL HEIGHT ROLLED
CURB AND GUTTER
TYPE 5

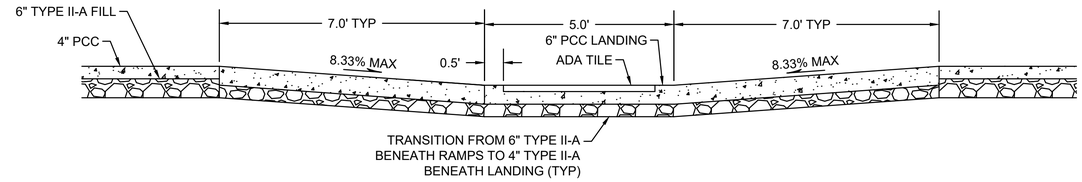


FULL HEIGHT ROLLED SHEDDING
CURB AND GUTTER
TYPE 6

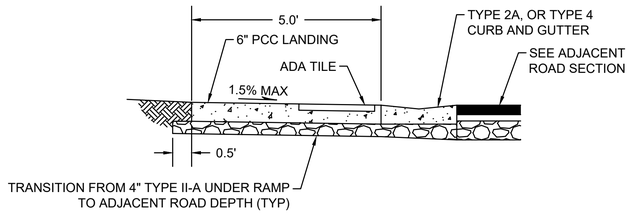
1 C-401 CURB AND GUTTER CROSS SECTIONS (SEE COV 30-1)
NTS



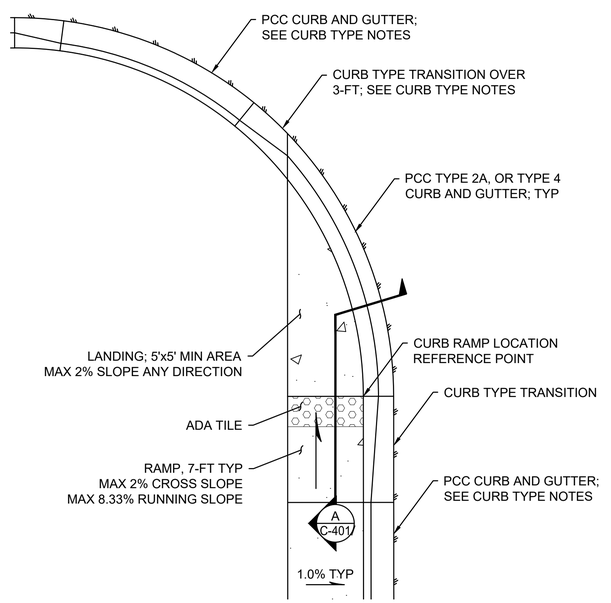
A C-401 PERPENDICULAR CURB RAMP-SECTION, TYP
NTS



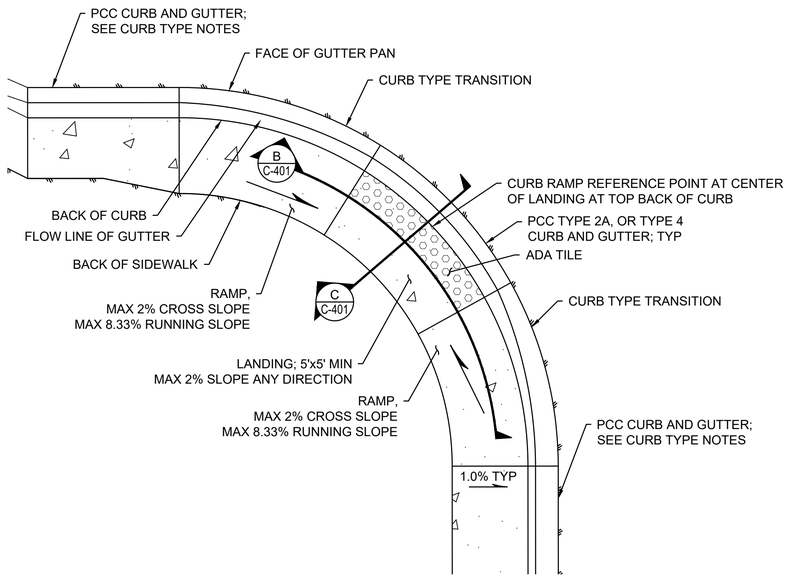
B C-401 PARALLEL CURB RAMP, TYP
NTS



C C-401 PARALLEL CURB RAMP, TYP
NTS



2 C-401 TYPE II PARALLEL CURB RAMP - PLAN, TYP
NTS



3 C-401 TYPE I PARALLEL CURB RAMP, TYP
NTS

CURB TYPE NOTES:

1. USE TYPE 4 CURB AND GUTTER THROUGH LANDING WHEN TYPE 1 OR TYPE 5 CURB AND GUTTER ARE USED ON THE UPHILL SIDE OF RAMP.
2. USE TYPE 2A CURB AND GUTTER THROUGH LANDING WHEN TYPE 2 CURB AND GUTTER IS USED ON THE UPHILL SIDE OF RAMP.

REVISIONS

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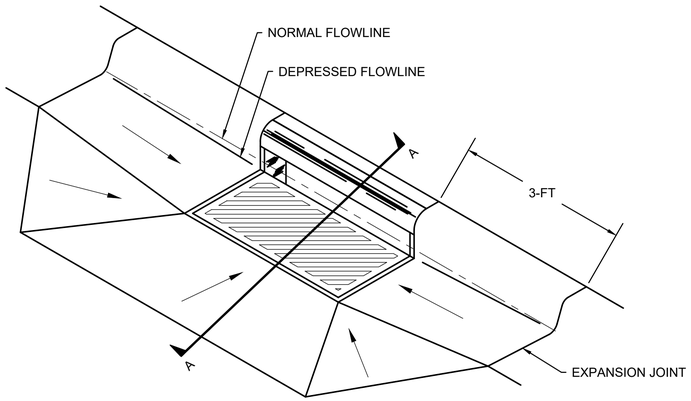
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

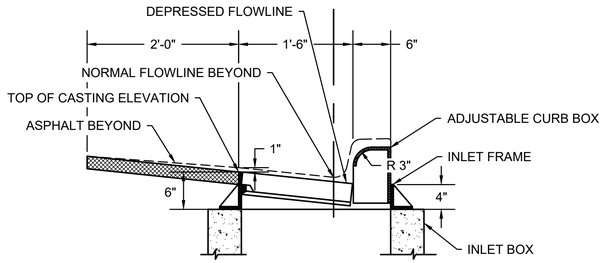
DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

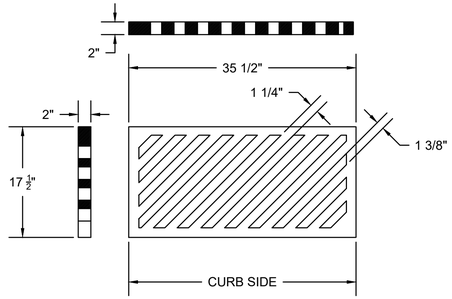
C-401

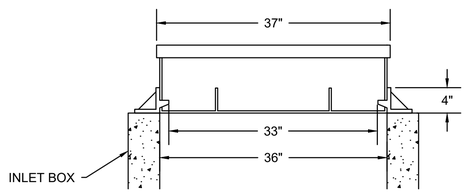




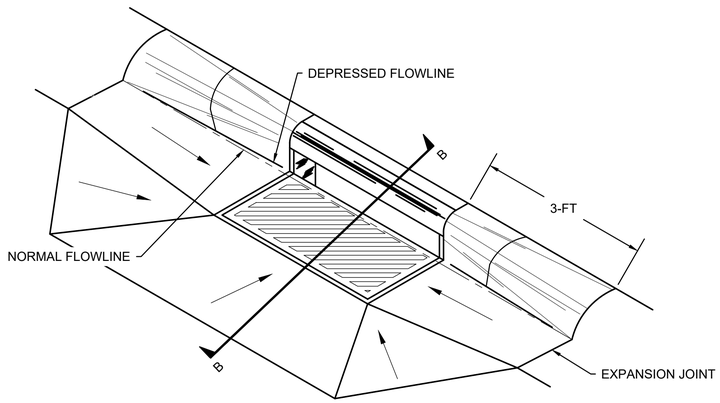
SECTION A - A

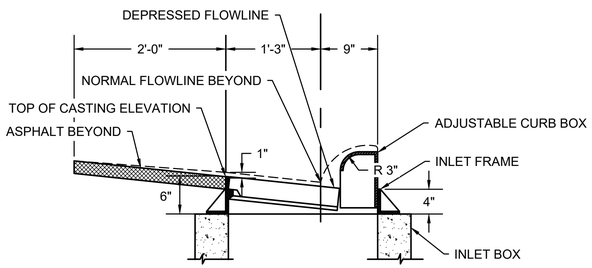
1 / C-402 TYPE 1 C&G FRAME AND GRATE
NTS





FRAME & GRATE DETAIL





SECTION B - B

2 / C-402 TYPE 5 C&G FRAME AND GRATE
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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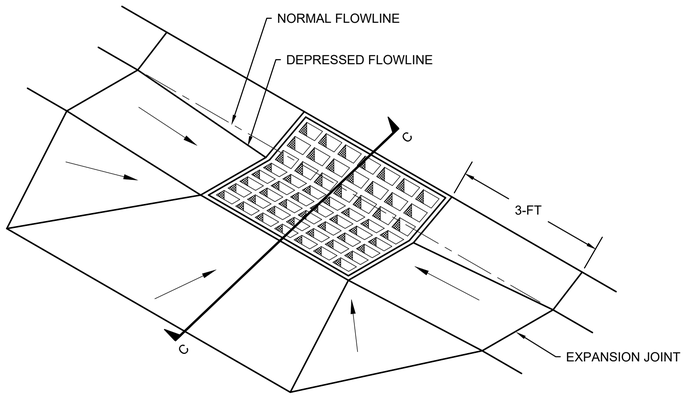
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

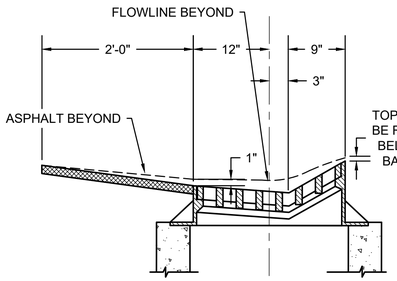
DETAILS

VALDEZ, ALASKA

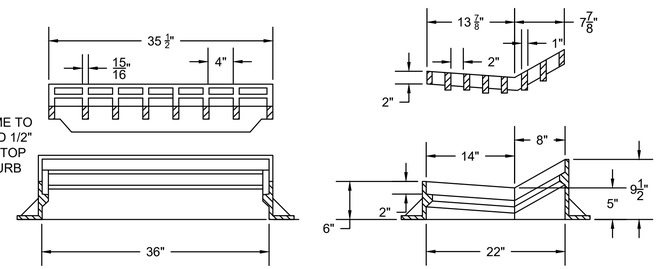
PROJECT	63461.01
DATE	01/16/2026

C-402

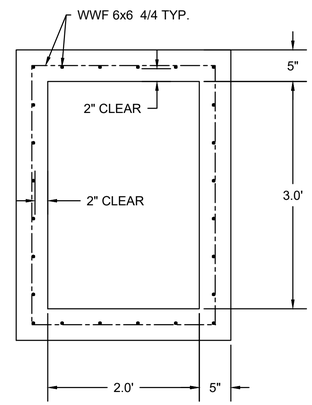




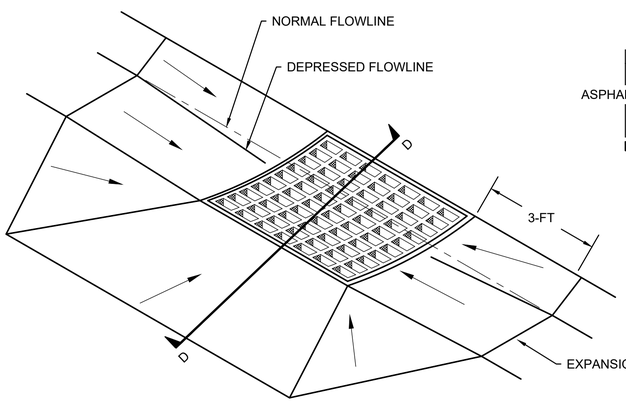
SECTION C - C

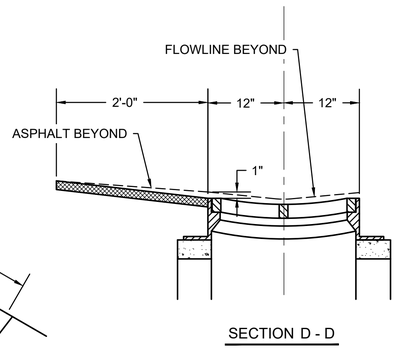


FRAME & GRATE DETAIL

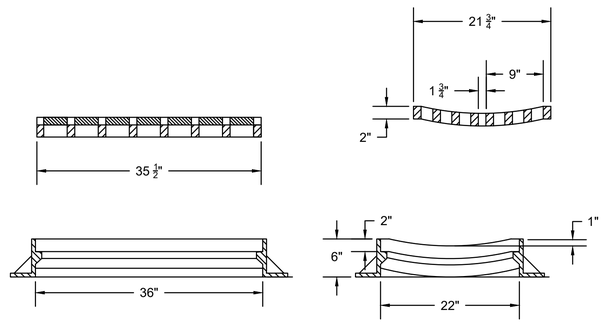


3 C-403 TYPE 2 CURB & GUTTER INLET
NTS





SECTION D - D



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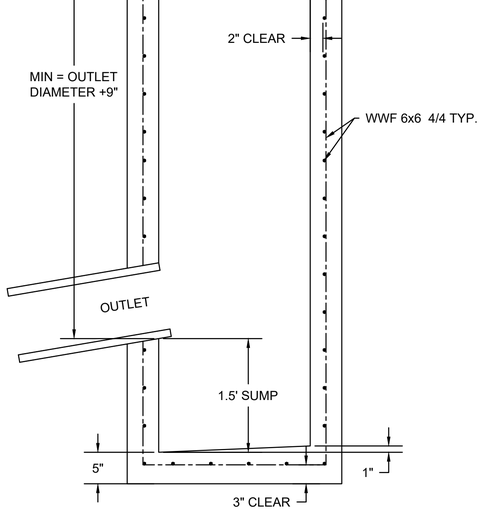

4 C-403 TYPE 2A/4 CURB & GUTTER
NTS

5 C-403 TYPE "A" INLET BOX
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

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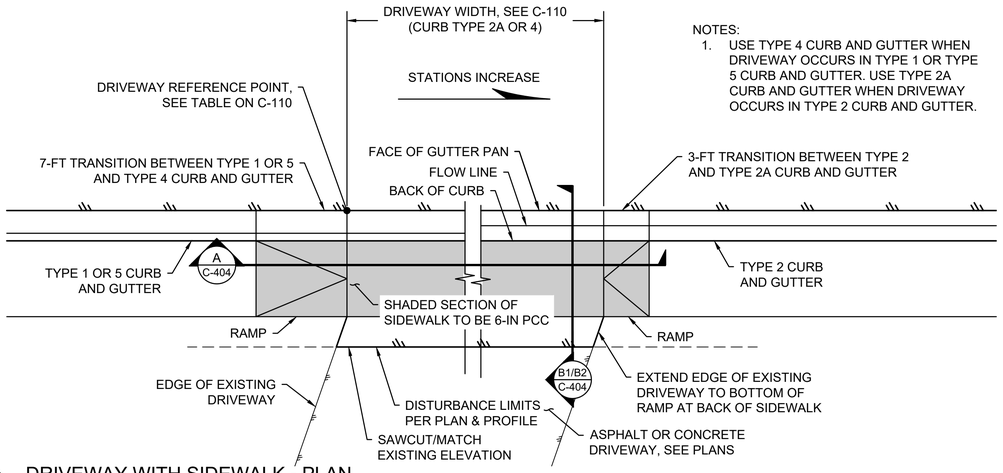
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

VALDEZ, ALASKA

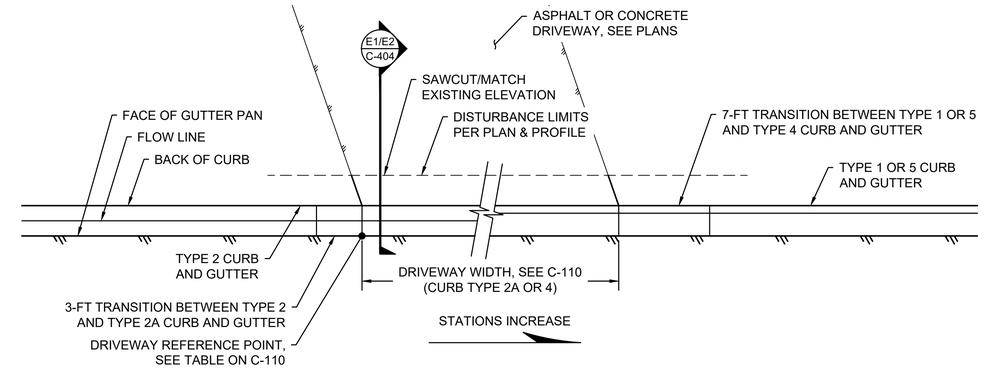
PROJECT	63461.01
DATE	01/16/2026

C-403

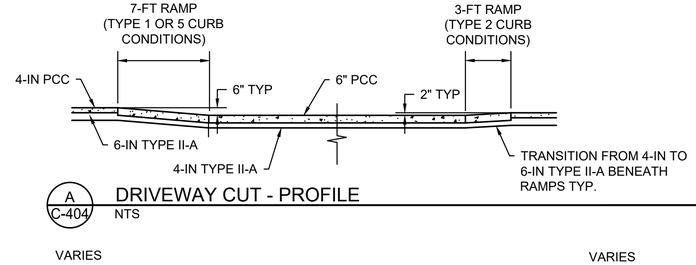


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

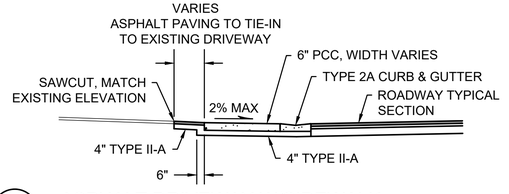
1 C-404 DRIVEWAY WITH SIDEWALK - PLAN
NTS



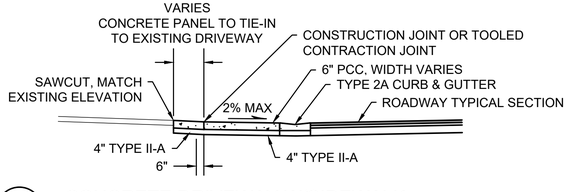
2 C-404 DRIVEWAY WITHOUT SIDEWALK - PLAN
NTS



A C-404 DRIVEWAY CUT - PROFILE
NTS

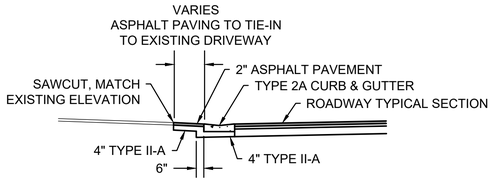


B1 C-404 ASPHALT DRIVEWAY W/SIDEWALK
NTS

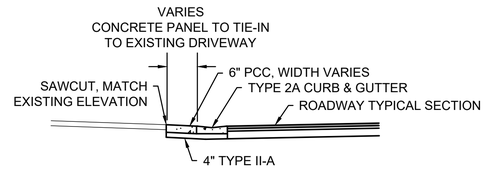


B2 C-404 CONCRETE DRIVEWAY W/SIDEWALK
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



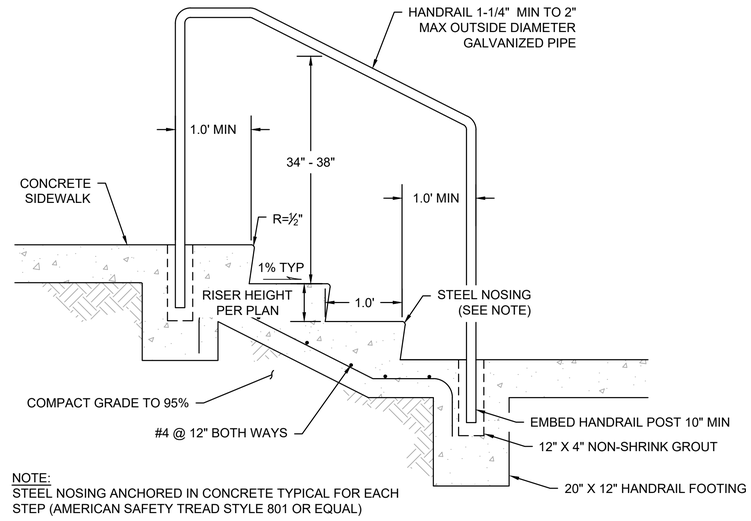
E1 C-404 ASPHALT DRIVEWAY W/OUT SIDEWALK
NTS



E2 C-404 CONCRETE DRIVEWAY W/OUT SIDEWALK
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 TYPICAL HANDRAIL
NTS

REVISIONS

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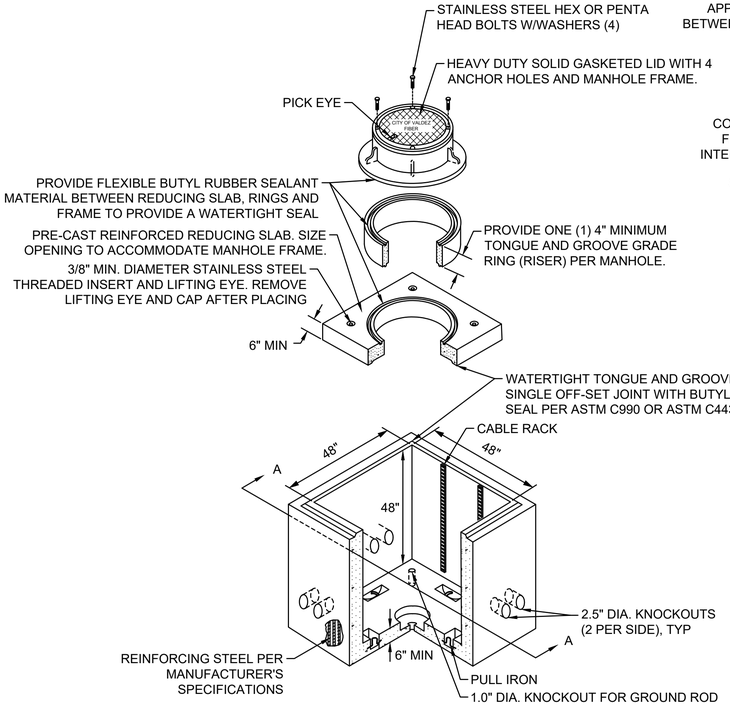
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

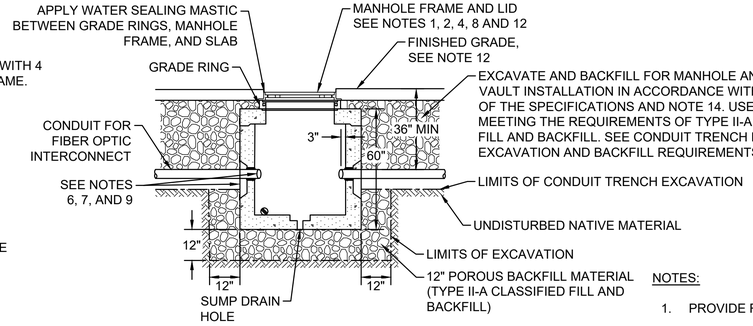
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

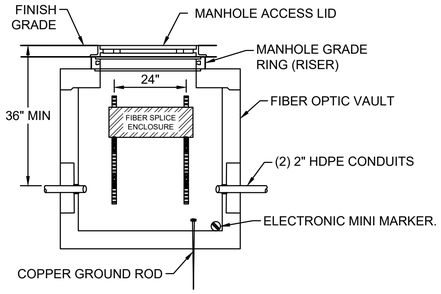
C-404



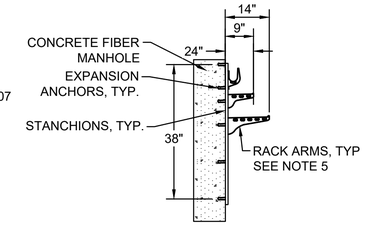
FIBER OPTIC WITH MANHOLE LID
NTS



SECTION A - A



FIBER OPTIC VAULT LAYOUT, TYPE 1
NTS

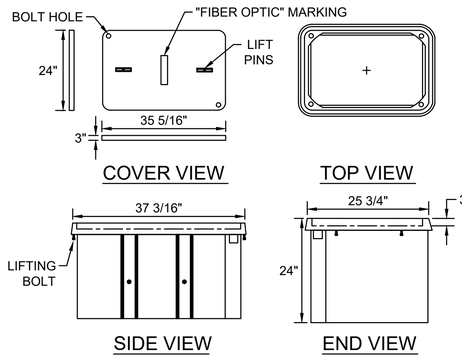


TYPICAL CABLE RACK
NTS

NOTES:

1. PROVIDE FIBER MANHOLE LIDS RATED FOR AASHTO HS-20-44 LOADING.
2. SUPPLY ALL LIDS WITH A HOLE OR SLOT FOR REMOVAL WITH A LEVER OR HOOK.
3. WHERE REQUIRED BY OSHA, PROVIDE A PORTABLE ENTRY LADDER MEETING OSHA REQUIREMENTS.
4. PROVIDE FIBER MANHOLE LIDS MARKED "CITY OF VALDEZ FIBER".
5. PROVIDE FIBER VAULTS WITH A HEAVY-DUTY NON-METALLIC CABLE STORAGE RACK SYSTEM. PROVIDE RACK ARMS OR STANCHIONS CAPABLE OF SUPPORTING A MINIMUM OF 250 LBS. INCLUDE A MINIMUM OF 36 INCH RACK STANCHIONS AND 4 RACK ARMS.
6. INSTALL CONDUITS INTO FIBER VAULTS AT THINWALL SECTIONS ONLY. CORE DRILL IN THE THINWALL SECTION TO CONDUIT SIZE PLUS ¼ INCH ALL AROUND. DO NOT "KNOCK OUT" THE THINWALL SECTION.
7. SEAL CONDUIT PENETRATIONS USING SIKA LEAKMASTER LV-1 OR APPROVED PRODUCT EQUIVALENT.
8. BOND AND GROUND ALL METALLIC COMPONENTS OF THE FIBER VAULT, INCLUDING RACK, FRAME AND LIDS.
9. PLUG CONDUITS ENDS TO EXCLUDE WATER UNTIL FIBER OPTIC CABLE IS INSTALLED.
10. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF VAULTS AND MANHOLES.
11. USE A SPLIT BOLT CONNECTOR TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
12. U.O.N., TOP OF FIBER VAULTS SHALL BE INSTALLED:
    A. FROM 0" TO 3/16" BELOW FINISHED GRADE WHEN LOCATED IN A SIDEWALK OR PATHWAY;
    B. 3/8" BELOW FINISHED GRADE WHEN LOCATED IN A PAVED PARKING LOT, MEDIAN, OR ROADWAY;
    C. OR AS DIRECTED BY THE ENGINEER.
13. DO NOT PLACE FIBER VAULTS IN THE BOTTOM OF DRAINAGE COLLECTION AREAS.
14. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH COV STANDARD SPECIFICATIONS, AND OSHA SAFETY STANDARDS AND

1 C-405 TYPE I 4'X4' FIBER OPTIC VAULT
NTS



2 C-405 FIBER OPTIC HANDHOLE VAULT
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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907-562-2000

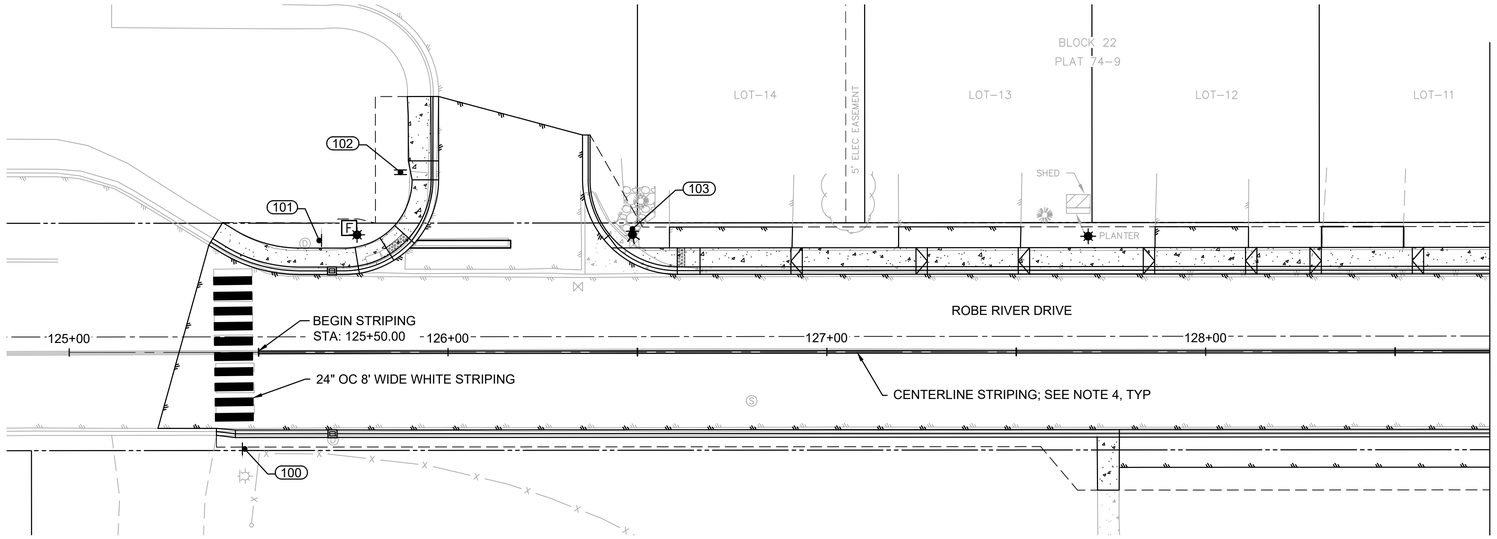
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-405



GENERAL NOTES

(206) SIGN POST

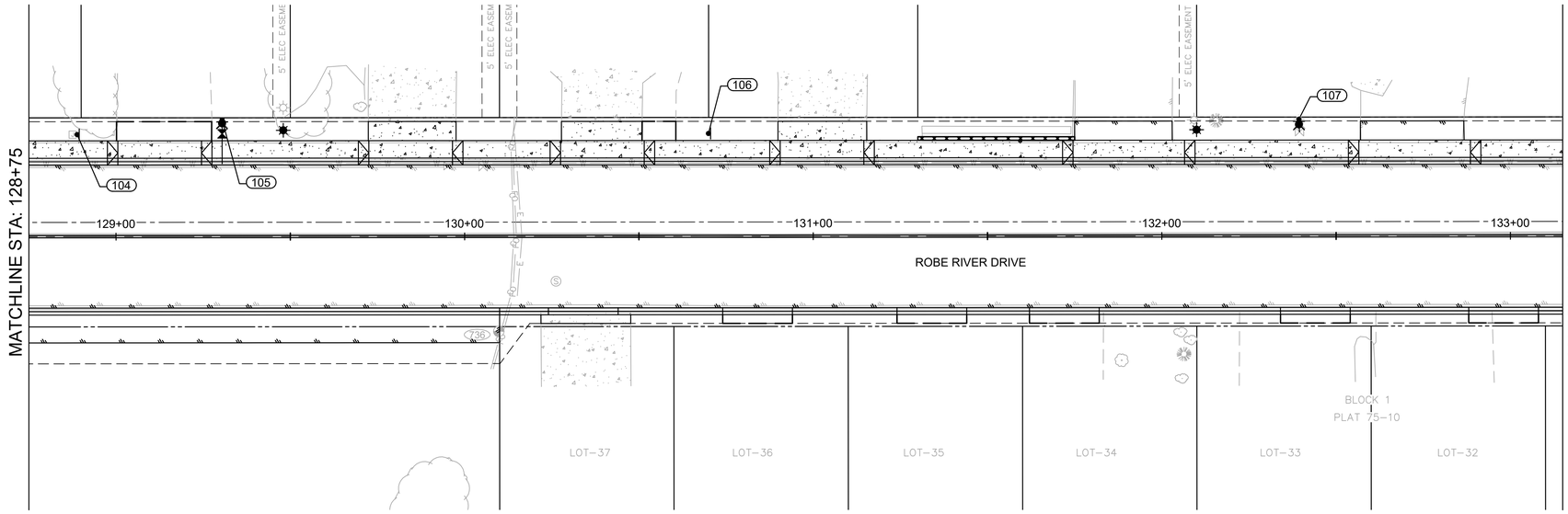
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-503.

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
100	RR-ML	125+46.30	25.50 R	S1-1	36"x36"	9	W	2.5"x2.5" PST	SCHOOL CROSSING
				W16-7P	30"x18"	3.75	W		DIRECTION ARROW
101	RR-ML	125+66.02	29.50 L	S1-1	36"x36"	9	E	2.5"x2.5" PST	SCHOOL CROSSING
				W16-7P	30"x18"	3.75	E		DIRECTION ARROW
102	RR-ML	125+87.49	47.50 L	R1-1	30"x30"	6.25	N	2.5"x2.5" PST	"STOP"
				CUSTOM	18"x18"	2.25	S		"EVACUATION SHELTER"
				R7P-X	12"x18"	1.5	S		"NO CAMPING VIOLATORS WILL BE TOWED"
					12"x18"	1.5	S		"NO CAMPING OR OVERNIGHT PARKING"
103	RR-ML	126+48.58	32.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "356"; NOTE 1

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
104	RR-ML	128+88.85	29.30 L	S5-1	24"x48"	8	E	EXISTING POST	"SCHOOL SPEED LIMIT 20" W/FLASHING LIGHTS
105	RR-ML	129+36.55	33.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "352"; NOTE 1
106	RR-ML	130+69.97	29.50 L	S1-1	36"x36"	9	E	2.5"x2.5" PST	SCHOOL CROSSING
				W16-9P	30"x18"	3.75	E		"AHEAD"
107	RR-ML	132+39.35	33.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "351"; NOTE 1



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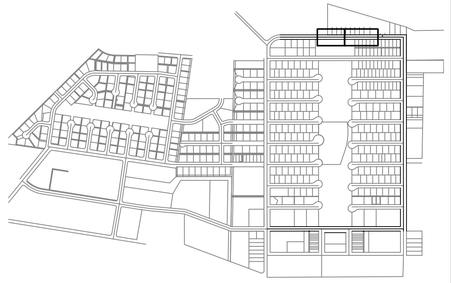
SCALE IN FEET



KEY MAP
SCALE 1"=1000'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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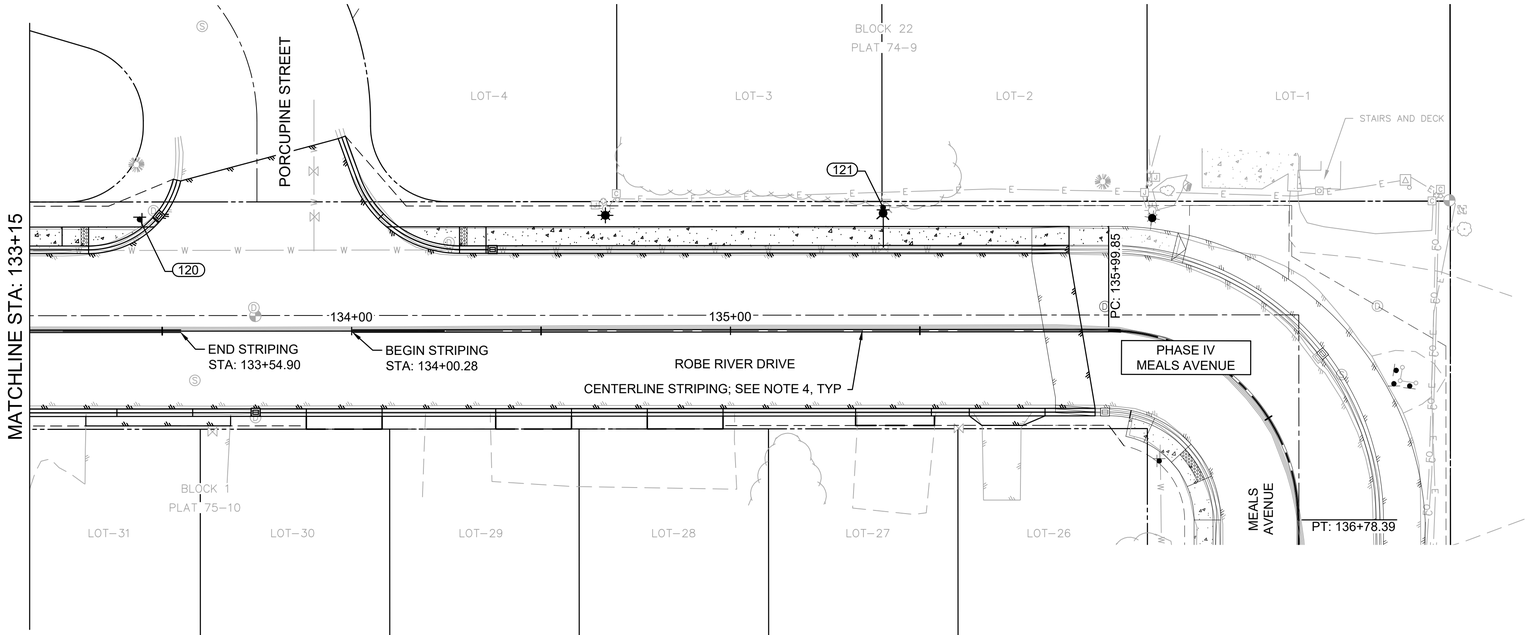
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-501



GENERAL NOTES

(206) SIGN POST

1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
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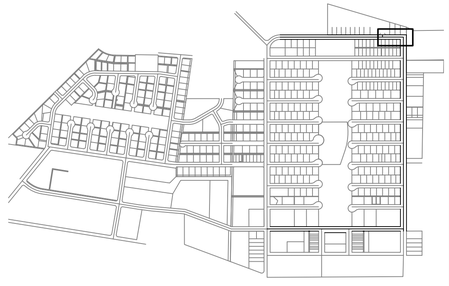
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-503.

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
120	RR-ML	133+44.08	29.50 L	D3-1	36"x8"	4	E/W	2.5"x2.5" PST	"PORCUPINE ST" (X2); NOTE 6
				D3-1	42"x8"	4.7	N/S		"ROBE RIVER DR" (X2); NOTE 6
				R1-1	30"x30"	6.25	N		"STOP"
121	RR-ML	135+40.31	32.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "360"; NOTE 1

20 0 20 40
SCALE IN FEET

N



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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01.16.2026
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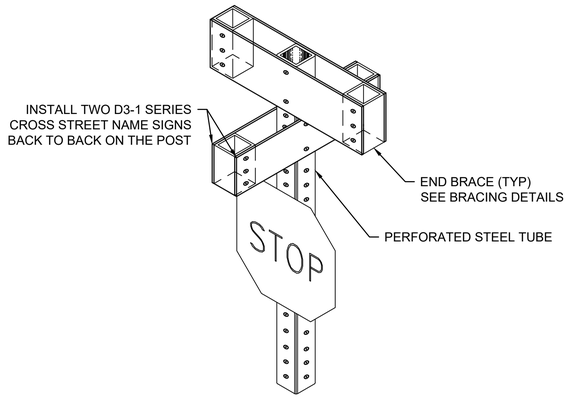
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SIGNING AND STRIPING

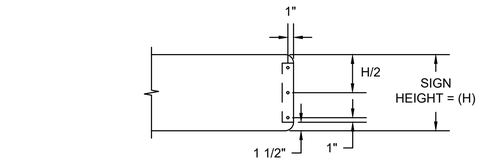
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

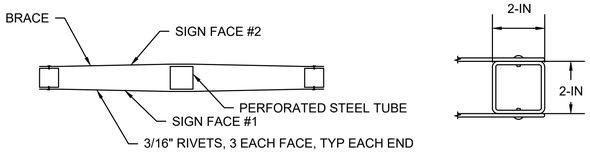
C-502



STREET NAME SIGN MOUNTING DETAIL



RIVET DETAIL ELEVATION VIEW



PLAN VIEW

END BRACE DETAIL

BRACING DETAILS

1 / C-503 STREET SIGN MOUNTING
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
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Jan 16, 2026

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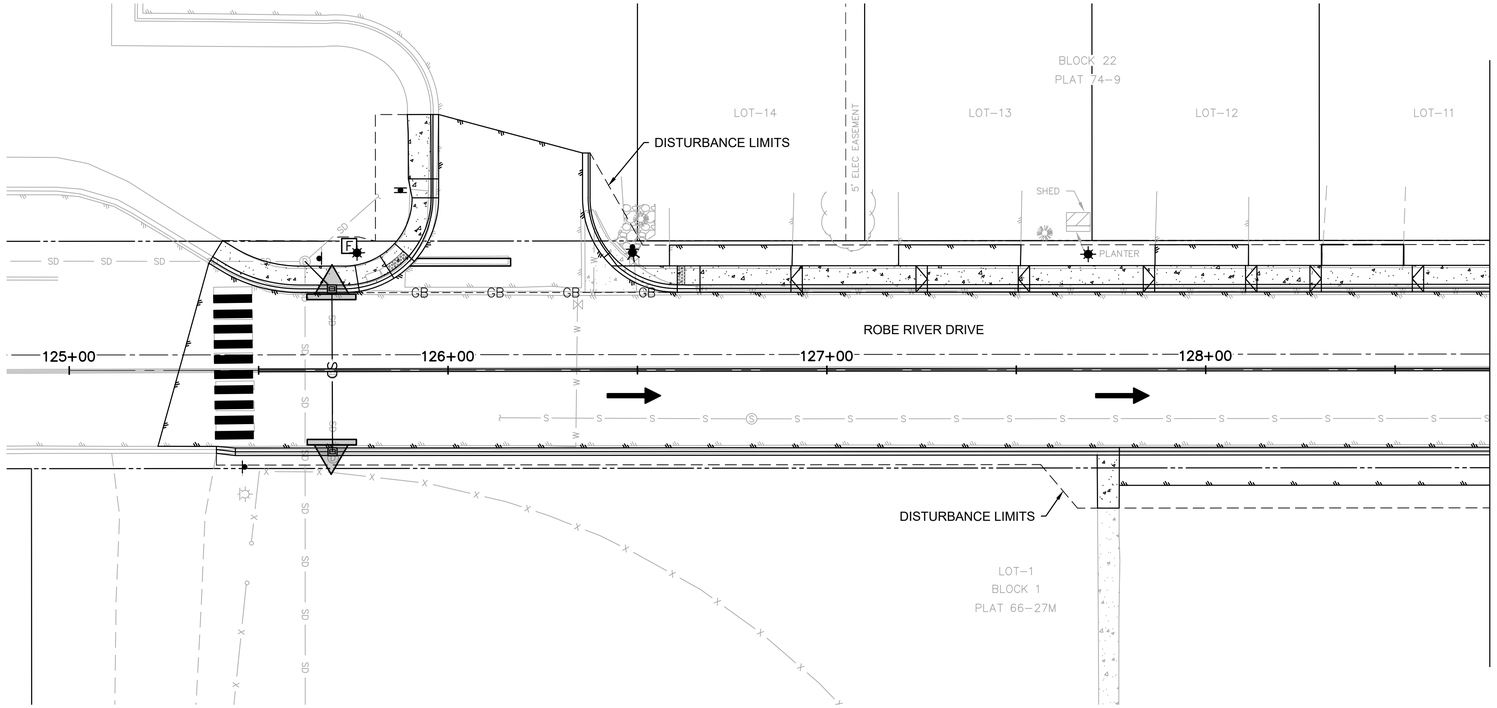
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

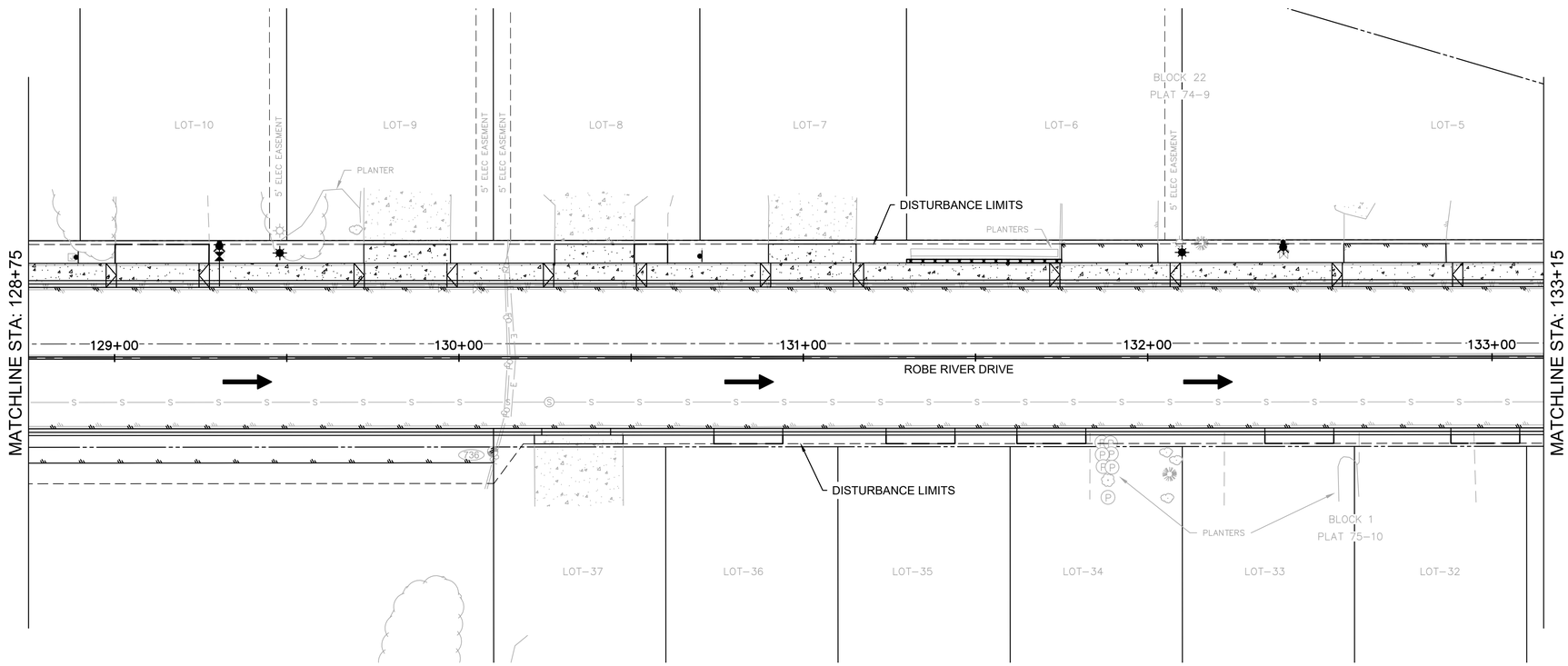
SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-503





GENERAL NOTES

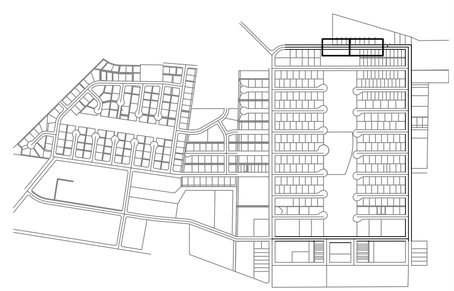
1. REFER TO CONTRACTOR SWPPP REPORT FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs).
2. CONTRACTOR SHALL UTILIZE BMPs MOST APPROPRIATE FOR CONDITIONS ON-SITE. IF INSPECTION REVEALS EROSION CONTROL MEASURES ARE INSUFFICIENT, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT CORRECTIVE ACTION, AS NECESSARY, TO CORRECT THE DEFICIENCY.
3. ALL DISTURBED AREAS FOR THIS PROJECT ARE LOCATED AMID THE PROPOSED WORK SHOWN ON SHEETS C-601 THROUGH C-602.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES TO ENSURE THAT CONSTRUCTION ACTIVITIES HAVE MINIMAL IMPACTS ON THE NATURAL BUFFER AREAS OF THE RECEIVING WATER BODY. DISTURBED AREAS ADJACENT TO DRAINAGE OR IN-WATER WORK SHALL BE RESTORED TO THEIR FUNCTIONAL CAPACITY OR PLANNED DESIGN, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
5. VEGETATION SHALL REMAIN UNDISTURBED TO THE FULLEST EXTENT POSSIBLE.
6. ALL DISTURBED AREAS NOT RECEIVING HMA PAVEMENT, PORTLAND CEMENT CONCRETE, OR RIPRAP, SHALL RECEIVE HYDROSEED WITH MULCH AS A FINAL STABILIZATION MEASURE, UNLESS OTHER TREATMENTS ARE REQUIRED BY PERMIT CONDITIONS.
7. ON-SITE DUST CONTROL, INCLUDING WATERING AND SWEEPING, SHALL BE PROVIDED BY THE CONTRACTOR TO MINIMIZE AIR-BORNE DUST WHEN NECESSARY OR DIRECTED BY THE ENGINEER. ROUTINE SWEEPING MAY BE PERFORMED IN LIEU OF UTILIZING A STABILIZED CONSTRUCTION EXIT UNLESS CONDITIONS NECESSITATE A MUD MAT.
8. ANY CONCRETE WASHOUT AREAS UTILIZED BY THE CONTRACTOR SHALL BE DESIGNATED, MAINTAINED, AND LOCATED, TO THE EXTENT PRACTICABLE, AWAY FROM WATER OF THE U.S. AND STORM WATER CONVEYANCE CHANNELS.
9. ALL DISCHARGE FROM EXCAVATION DEWATERING ACTIVITIES WILL BE TREATED WITH THE APPROPRIATE CONTROL MEASURES, UNTREATED WATER FROM CONSTRUCTION DEWATERING OPERATIONS SHALL NOT BE DISCHARGED TO ANY RECEIVING WATERS NOR SHALL UNTREATED WATER BE ALLOWED TO RUN OFF-SITE, UNLESS THE WATER IS NON-DISCHARGED.
10. PROVIDE INLET PROTECTION FOR EXISTING CATCH BASINS UNTIL STRUCTURE IS REMOVED, TYP. PROVIDE INLET PROTECTION FOR PROPOSED CATCH BASINS ONCE INSTALLED.

ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

20 0 20 40
SCALE IN FEET

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
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01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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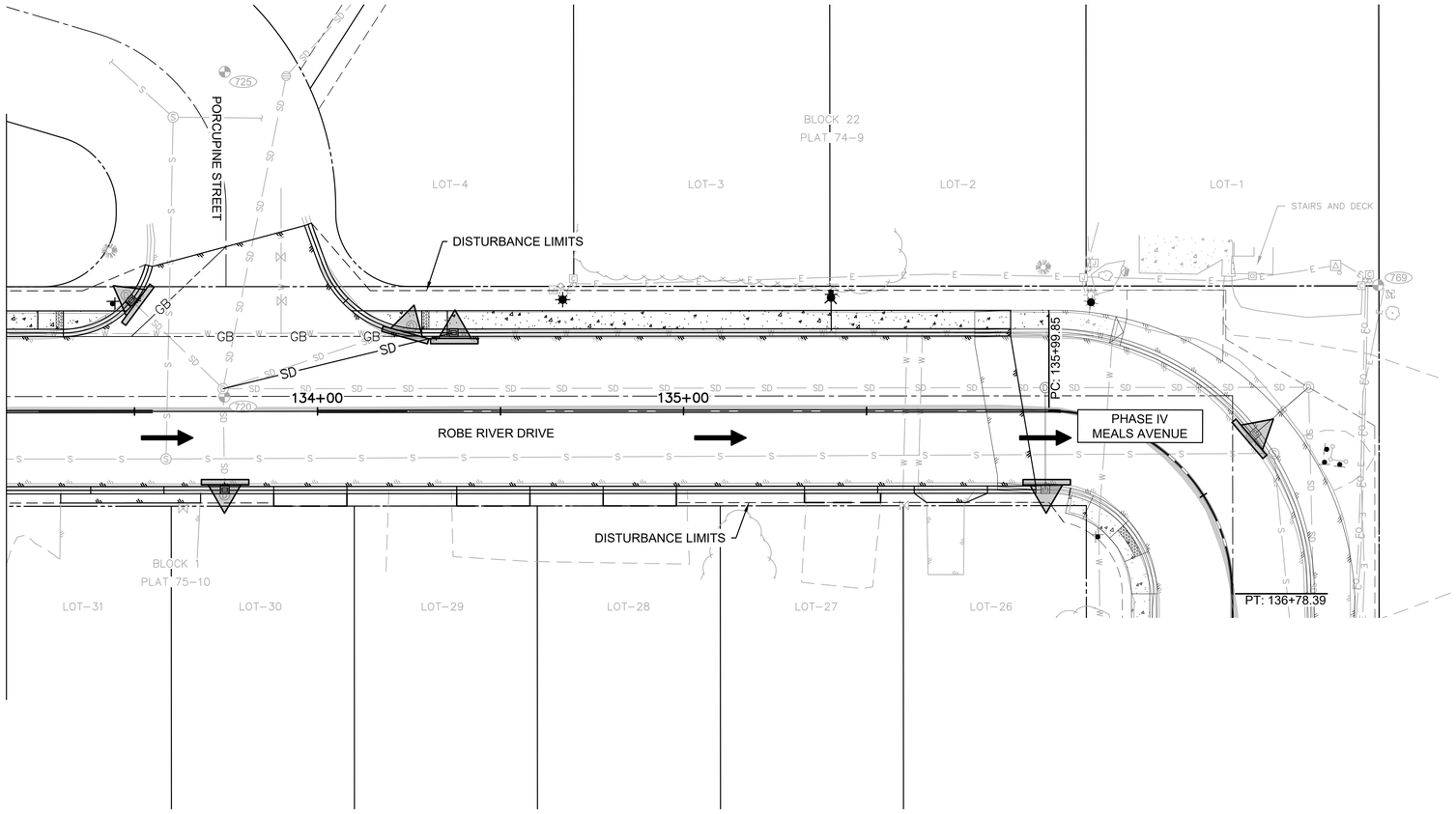
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4
EROSION AND SEDIMENT CONTROL PLAN
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-601

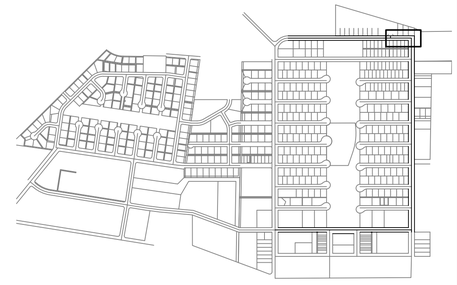


ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

20 0 20 40
SCALE IN FEET

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

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STATE OF ALASKA
49TH
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-602

J:\22\63461-01\65CAD\Sheet Files\Robe River Alt 4 Split\SC24-CS-ESCP-VALDEZ_PHASE_IV_RR4.dwg PLOT DATE 2026-1-16 17:30 SAVED DATE 2026-01-16 08:35 USER: wlows

LEGEND

	POLE MOUNTED AREA LIGHT – OUTDOORS, WEATHERPROOF
A	FIXTURE TAG (LETTER INDICATES TYPE)
$	SINGLE POLE SWITCH
P	PHOTOCELL
	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A–2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
—OH/E—	OVERHEAD ELECTRICAL LINE
—UG/E—	UNDERGROUND ELECTRICAL LINE
—UG/FO—	ADD ALT #6 UNDERGROUND FIBER OPTIC LINE (CONDUIT ONLY)
	PANEL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
J	JUNCTION BOX
	PADMOUNT UTILITY TRANSFORMER
	IN GRADE EXTERIOR JUNCTION BOX – TYPE 1A UON
	ADD ALT #6 IN GRADE EXTERIOR FIBER OPTIC HANDHOLE
	ADD ALT #6 IN GRADE EXTERIOR FIBER OPTIC VAULT
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRSC	GALVANIZED RIGID STEEL CONDUIT
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT (ADDITIVE ALTERNATE #3)
K	KELVIN
L#	LIGHT POLE NUMBER (IE L1)
LED	LIGHT EMITTING DIODE
LM	LUMENS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	AS SHOWN	CREE – QUANTITY (1) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	LED STREET LIGHT, ALUMINUM HOUSING, TYPE 2 MEDIUM DISTRIBUTION, 40 LED, BACKLIGHT SHIELD, AND SILVER COLOR. MOUNT ON 25' POLE WITH 6' MAST ARM.	POLE/MAST ARM	27'–6" AFG	6000LM 4000K	120/240/277V	66
A2	AS SHOWN	CREE – QUANTITY (2) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	SAME AS TYPE A1 EXCEPT TWO FIXTURES MOUNTED ON ONE POLE.	POLE/MAST ARM	27'–6' AFG	6000LM 4000K EACH	120/240/277V	66 EACH

Voltage Drop Calculation — RSA Engineering, Inc.

Job Name:	**Valdez Pavement Management Phase IV**
Job Number:	**M2078**
Feeder/Circuit From:	**Panel 'ML'**
Feeder/Circuit To:	**Furthest Light Pole L1**
Date:	**1/16/2026**

Circuit Description

Circuit Length(1-WAY):	**3700** ft.	Includes loops in JBs
Load Current:	**5.225** amps	
Voltage:	**240** volts	

Circuit Type **2**
1. 1 phase, 2 wire (120V or 277V)
2. 1 phase, 3 wire line to line (208V or 480V, 1 ph)
3. 1 phase, 3 wire line to neutral
4. 3 phase, 3 or 4 wire line to lin (208V or 480V, 3ph)
5. 3 phase, 3 or 4 wire line to neutral

Power Factor **1**
1. 100%
2. 90%
3. 80%
4. 70%
5. 60%

Conductor Size # **4** AWG

Conductor Type **1** Copper
1. Copper
2. Aluminum

Conduit Type **2** Non-Magnetic
1. Magnetic
2. Non-Magnetic

Number of Parallel Runs **1** Set

Total Voltage Drop	**11.97 Volts**
Voltage Drop Percentage	**4.99 %**

LIGHT POLE SCHEDULE

POLE #	ALGN	STATION	OFFSET	SIDE	CIRCUIT
L1	RR	125+76.00	31.00	L	ML-1,3
L2	RR	127+69.00	30.50	L	ML-1,3
L3	RR	129+48.00	30.50	L	ML-1,3
L4	RR	132+10.00	30.50	L	ML-1,3
L5	RR	134+67.00	30.50	L	ML-1,3

EXISTING LOADCENTER PANEL 'ML'

LIGHTING LOADCENTER — VOLTS: 120/240V,1PH,3W — ENCLOSURE: NEMA 3R — 100 A
TYPE: PANELBOARD — VOLT-AMPS — MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A	B	TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	20	**NEW ROBE & (E)MEALS LTG L1-L15**	LTG	**561** 462		LTG	(E)MEALS/PION. LTG L16-L25	20	2	2	b
a	3	2	20	^^	LTG		**561** 462	LTG	^^	20	2	4	b
	5	2	20	SPARE					SPARE	20	2	6	
	7	2		^^					^^		2	8	
	9	1	-	SPACE					SPACE	-	1	10	
	11	1	-	SPACE					SPACE	-	1	12	
				TOTAL V-A		1,023	1,023		2,046 VA				
				TOTAL AMPS		9	9		9 A				
				A.I.C. RATING: 10,000									

	LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	2.05	0.00	0.00	0.00	0.00	0.00	2.0 KVA	9 A
DEMAND LOAD IN KVA:	2.56	0.00	0.00	0.00	0.00	0.00	2.6 KVA	11 A

PANEL NOTES:
a DENOTES NEW & EXISTING LOADS ON EXISTING BREAKER.
b DENOTES EXISTING LOADS/BREAKER TO REMAIN.

PANEL OPTIONS:
MAIN LUGS ONLY

REVISIONS

REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE–13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spur Road, Suite 200
Anchorage, AK 99518
Phone (907) 276-0521
Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL LEGEND, SCHEDULES AND CALCULATIONS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-001

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE CITY OF VALDEZ STANDARD SPECIFICATIONS (CVSS), INCLUDING ALL STATE AND LOCAL AMENDMENTS. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION. IN THE ABSENCE OF CVSS PERTAINING TO STREET LIGHTING SYSTEMS, REFERENCES TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) HAVE BEEN ADDED TO THESE SPECIFICATIONS AND DRAWINGS TO ASSIST WITH SPECIFIC CRITERIA. A COPY OF THE MASS CAN BE FOUND ONLINE AT MUNI.ORG.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DRAWINGS. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT. WHERE ABANDONED CONDUIT ENTERS BELOW GRADE, CUT CONDUIT TO A MINIMUM OF 6" BELOW GRADE, CAP OFF, AND REPAIR SURFACE.

D. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT SURFACES AFTER DEMOLITION. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

E. CONTRACTOR TO FIELD VERIFY ELECTRICAL ITEMS TO BE DEMOLISHED PRIOR TO START OF WORK. DEMOLISH CONDUITS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE SCHEDULED FOR DEMOLITION. WHERE CIRCUITS ARE SHARED WITH EQUIPMENT THAT IS EXISTING TO REMAIN, PROVIDE ALL WORK NECESSARY (INCLUDING EXTENDING AND RE-ROUTING CONDUITS) TO MAINTAIN ACCESS AND PROVIDE ELECTRICAL CONTINUITY TO EXISTING SYSTEMS AND CIRCUITRY

26 05 19 – WIRE AND CABLE

B. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

C. MATERIALS:
1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG.

C. INSTALLATION:
1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/240V CONDUCTORS BLACK, RED, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN CONDUIT AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

26 05 26 – GROUNDING AND BONDING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.

B. MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.

C. INSTALLATION:
1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR 6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN 6 AWG.
3. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: EQUIPMENT SUPPORT CHANNEL SHALL BE CORROSION RESISTANT STAINLESS STEEL OR FIBERGLASS. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO RESIST LATERAL EARTHQUAKE FORCES. .

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS
1. RIGID STEEL CONDUIT: ANSI C80.1, GALVANIZED RIGID STEEL CONDUIT (GRSC). FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT. PROVIDE PVC COATED RIGID CONDUIT WHERE EXPOSED OUTDOORS, 40 MIL EXTERIOR COATING AND 2 MIL INTERIOR COATING. CONDUIT FITTINGS SHALL MATCH CONDUIT TYPE (IE PVC COATED RIGIDE FITTINGS WHERE PVC COATED RIGID IS REQUIRED).
2. ADDITIVE ALTERNATE #3 & #6 – HIGH DENSITY POLYETHYLENE CONDUIT (HDPE): NEMA TC 7, SCHEDULE 40, HDPE CONDUIT RATED FOR 90°C CABLE. FITTINGS AND CONDUIT BODIES: NEMA TC 7. HDPE TO HDPE COUPLINGS: UL LISTED, BUTT-FUSION, ELECTRO-FUSION, SELF-THREADING, OR DRIVE-ON TYPE. HDPE TO RIGID COUPLINGS: DURALINE #SHUR-LOCK II, OR EQUAL.
3. PROVIDE TYPE 1A CONCRETE JUNCTION BOXES IN-GRADE WHERE SHOWN ON DRAWINGS. TYPE 1A JUNCTION BOX CONSISTING OF REINFORCED CONCRETE RATED FOR A MINIMUM TEST LOAD OF 7500 POUNDS DISTRIBUTED OVER A 10"x10" AREA, LIGHT TRAFFIC RATED, CAST-IRON LID WITH "LIGHTING" LABEL, AND STAINLESS STEEL HARDWARE.
4. ADDITIVE ALTERNATE #6 – FIBER OPTIC VAULT: 48"x48"x48" CONCRETE VAULT WITH MANHOLE LID RATED FOR AASHTO HS-20-44 LOADING. SEE CIVIL DRAWINGS FOR DETAILS.

C. INSTALLATION:
1. INSTALL GALVANIZED RIGID STEEL CONDUIT UNDERGROUND AND ABOVE GRADE WHERE NOTE EXPOSED TO THE ELEMENTS (IE STUBBED UP UNDER EQUIPMENT), UNLESS OTHERWISE NOTED. PROVIDE PVC COATED RIGID STEEL CONDUIT WHERE EXPOSED OUTDOORS.
2. ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE CONDUIT APPROVED FOR USE IN UNDERGROUND APPLICATIONS ONLY.
3. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS
1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.
3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:
1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.
2. CONDUITS: LABEL CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

26 50 00 – LIGHTING FIXTURES

A. SUBMITTALS:
1. SUBMIT PRODUCT DATA ON LIGHT FIXTURES, POLES, ARMS, PILES, AND ALL ACCESSORIES FOR APPROVAL.
2. SUBMIT STRUCTURALLY ENGINEERED SHOP DRAWINGS AND CALCULATIONS, STAMPED AND SIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA, FOR LIGHT POLES/ARM ASSEMBLIES AND PILES. DRAWINGS AND CALCULATIONS SHALL STATE CONFORMANCE TO THE INTERNATIONAL BUILDING CODE (IBC), THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) REQUIREMENTS SPECIFIC TO THE PROJECT AREA.
3. FIXTURE SUBSTITUTIONS SHALL BE SUBMITTED WITH POINT-BY-POINT LIGHTING CALCULATIONS ON A 2'X2' GRID SHOWING COMPLIANCE WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) RECOMMENDED LIGHTING LEVELS AND UNIFORMITY THROUGHOUT THE PROJECT AREA. LIGHT FIXTURE SUBSTITUTIONS WILL NOT BE CONSIDERED WITHOUT THE REQUIRED LIGHTING CALCULATIONS. FIXTURE, POLE AND ARM APPROVED ALTERNATES WILL CONFORM TO THE SAME BASIC SHAPE/STYLE, TECHNICAL AND AESTHETIC CHARACTERISTICS, PROVIDE EQUAL OR BETTER ILLUMINATION/UNIFORMITY, CONSUME EQUAL OR LESS POWER, AND BE ACCOMPANIED BY AN EQUAL OR BETTER MANUFACTURER WARRANTY THAN THE SPECIFIED PRODUCTS.

B. MATERIALS:
1. LUMINAIRES: PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
2. LED DRIVERS: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT -40°F WHERE INSTALLED OUTDOORS.
3. LED LAMPS: UNLESS OTHERWISE SCHEDULED ON THE PLANS, PROVIDE NOMINAL 4000 K, WITH MINIMUM 75CRI AND A MINIMUM L70 LAMP LIFE OF 50,000 HOURS.
4. LIGHT POLES: POLES SHALL BE HOT-DIPPED GALVANIZED MEETING THE REQUIREMENTS OF MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) DETAIL 80-19, HEIGHT AS SHOWN ON THE FIXTURE SCHEDULE. MAST ARMS SHALL BE HOT-DIPPED GALVANIZED STEEL MEETING THE REQUIREMENTS OF MASS DETAIL 80-20, LENGTH AS SHOWN ON THE FIXTURE SCHEDULE. POLE BASES SHALL BE FIXED BASE PER MASS DETAIL 80-21. DRIVEN STEEL PILE FOUNDATIONS SHALL BE PER MASS DETAIL 80-13.

C. INSTALLATION:
1. LUMINAIRE POLES, MAST ARMS, AND BASES SHALL BE INSTALLED PER THE APPLICABLE PORTIONS OF THE MASS DIVISION 80, INCLUDING DETAILS 80-13, 80-19, 80-20, 80-21, AND 80-25.
2. PROVIDE LUMINAIRE DISCONNECTING MEANS IN DRIVER CHANNEL OF EACH LIGHT FIXTURE. WHERE THE LUMINAIRE IS FED FROM A MULTI-WIRE BRANCH CIRCUIT, PROVIDE MULTI-POLE DISCONNECT TO SIMULTANEOUSLY BREAK ALL SUPPLY CONDUCTORS TO THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR.

REVISIONS

REV	DATE	DESCRIPTION	BY

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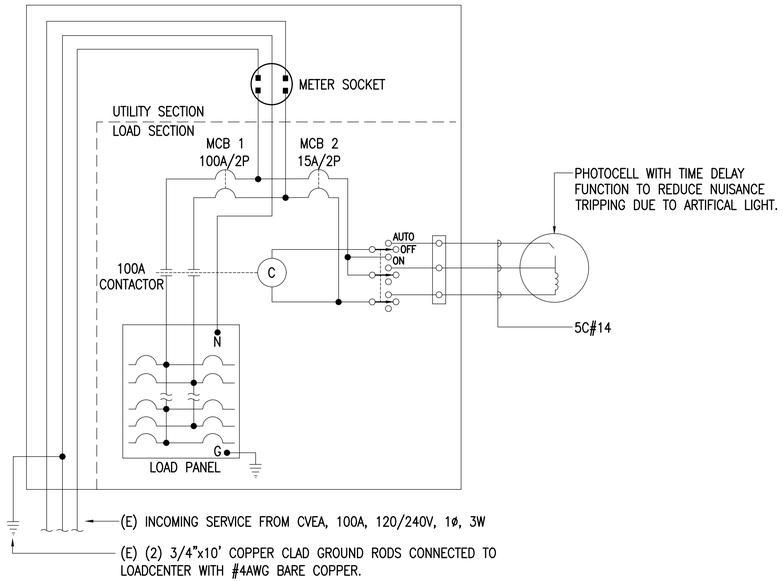
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL SPECIFICATIONS

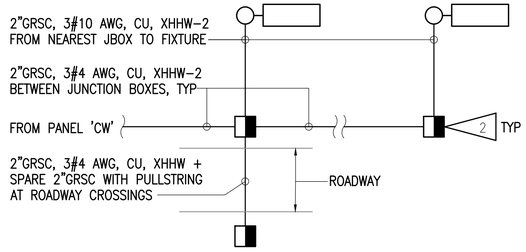
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-002

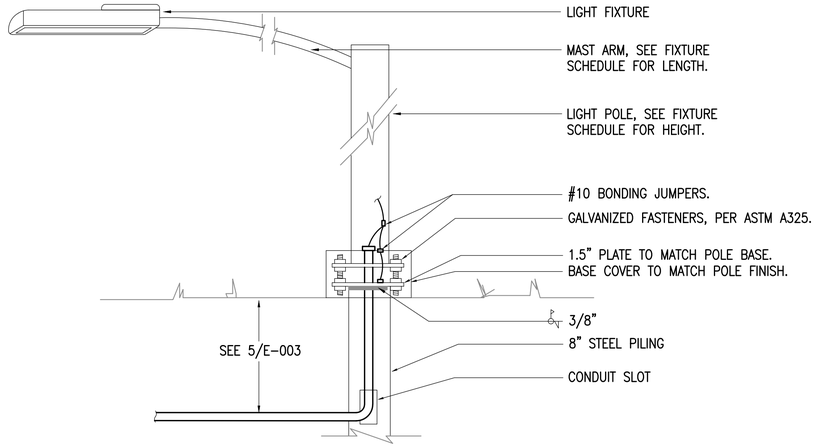


1 EXISTING LOADCENTER TYPICAL WIRING DIAGRAM
NO SCALE



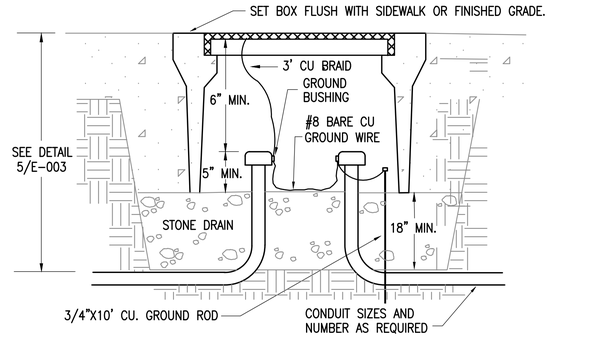
ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE MAY BE UTILIZED IN PLACE OF GRSC FOR UNDERGROUND APPLICATIONS ONLY.

3 STREET LIGHTING SCHEMATIC
NO SCALE

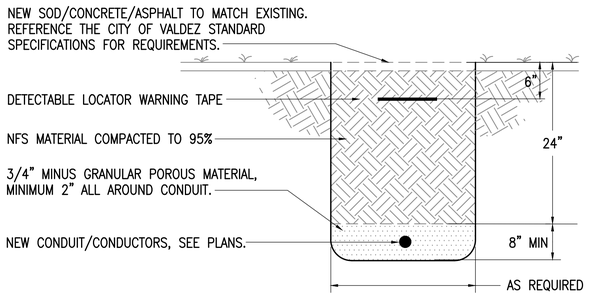


DETAIL NOTES FOR LIGHT POLE BASES:
1. REFERENCE SPECIFICATION SECTION 26 50 00 FOR LIGHT POLE, MAST ARM, AND DRIVEN PILE REQUIREMENTS.

2 TYPICAL LIGHT POLE BASE DETAIL
NTS



4 EXTERIOR TYPE 1A JUNCTION BOX 1
NO SCALE



5 TYPICAL TRENCHING DETAIL
NO SCALE

SHEET NOTES:
1. PROVIDE A 36" LOOP WITHIN THE STREET LIGHTING CONDUCTORS AT EACH JUNCTION BOX TO PROVIDE SLACK FOR FUTURE MAINTENANCE PURPOSES.

REVISIONS			
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VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL DETAILS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-003

1263

GENERAL NOTES:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

D. CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY LOCATES WITHIN THE VICINITY OF THEIR EXCAVATION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

E. REFERENCE THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR ALL REQUIREMENTS RELATED TO TRENCHING, EXCAVATION, BACKFILL, CONCRETE, ASPHALT, AND GRASS/SOD PRIOR TO BEGINNING WORK.

F. UNLESS OTHERWISE NOTED DEMOLISH LIGHT FIXTURES, POLES, BASES/PILES, AND ALL ASSOCIATED EXPOSED CONDUIT AND WIRE AS SHOWN. DEMOLISH UNDERGROUND WIRING WITHIN CONDUIT TO SOURCE. DEMOLISH UNDERGROUND CONDUIT AND/OR DIRECT BURIED CABLE TO EXTENT NECESSARY AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.

G. UNLESS OTHERWISE NOTED DEMOLISH LIGHT POLES AND BASES/PILES COMPLETE, AND BACKFILL AND COMPACT ALL HOLES.

H. UTILITY TRANSFORMERS POWERING THE EXISTING STREET LIGHTING ARE NOT SHOWN ON THESE SHEETS. ALL UTILITY TRANSFORMERS SHALL REMAIN. DEMOLISH STREET LIGHTING CONDUIT AND CONDUCTORS AS SHOWN/NOTED.

D. REFERENCE THE DETAILS ON SHEET E-003 FOR ADDITIONAL LIGHTING AND LIGHTING CONDUIT/WIRING REQUIREMENTS.

E. LOCATIONS OF NEW LIGHT POLES SHOWN ON E-001 SCHEDULE. LOCATIONS OF JUNCTION BOXES, AND UNDERGROUND CONDUIT ROUTING IS APPROXIMATE ONLY. ADJUST LOCATIONS IN THE FIELD TO AVOID EXISTING UNDERGROUND UTILITIES.

F. ADDITIVE ALTERNATE #6 – ALL UNDERGROUND FIBER OPTIC LINES SHOWN (UG/FO) SHALL BE (2) RUNS OF 2" HDPE CONDUIT. ONLY A SINGLE LINE IS SHOWN FOR CLARITY, BUT (2) SHALL BE PROVIDED. ROUTE CONDUIT IN COMMON TRENCH WITH THE NEW LIGHTING CONDUIT TO FURTHEST EXTENT PRACTICAL. COORDINATE THE FINAL LOCATION OF ALL HANDHOLES AND VAULTS WITH THE COV PRIOR TO EXCAVATION.

1 ELECTRICAL SITE PLAN AND OVERALL MAP
1"=200'

REVISIONS

REV	DATE	DESCRIPTION	BY

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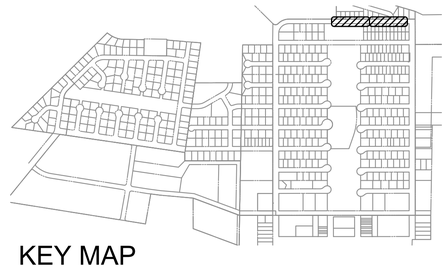
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL SITE PLAN AND OVERALL MAP

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-004



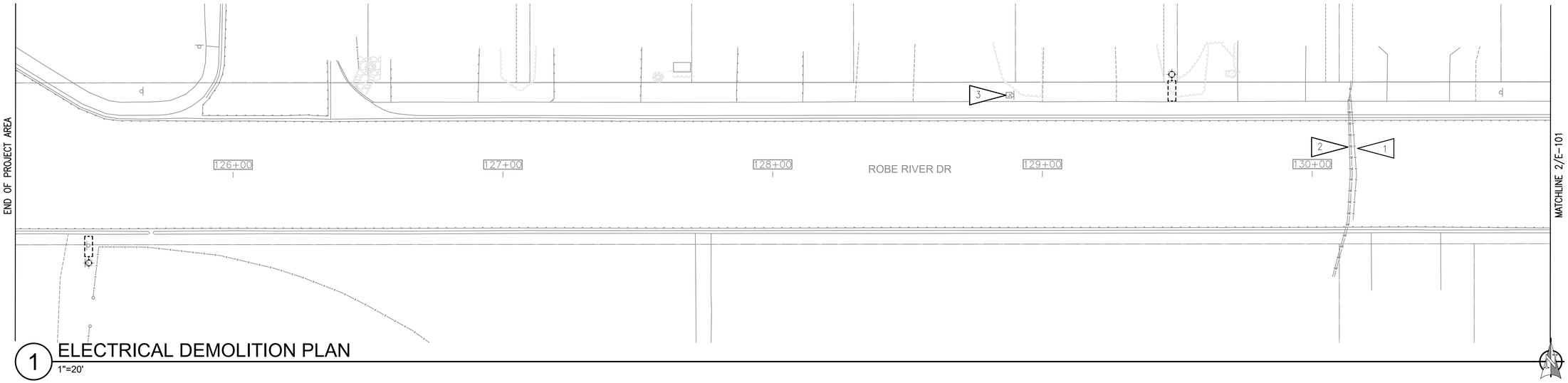
KEY MAP
1"=1000'

GENERAL NOTES:

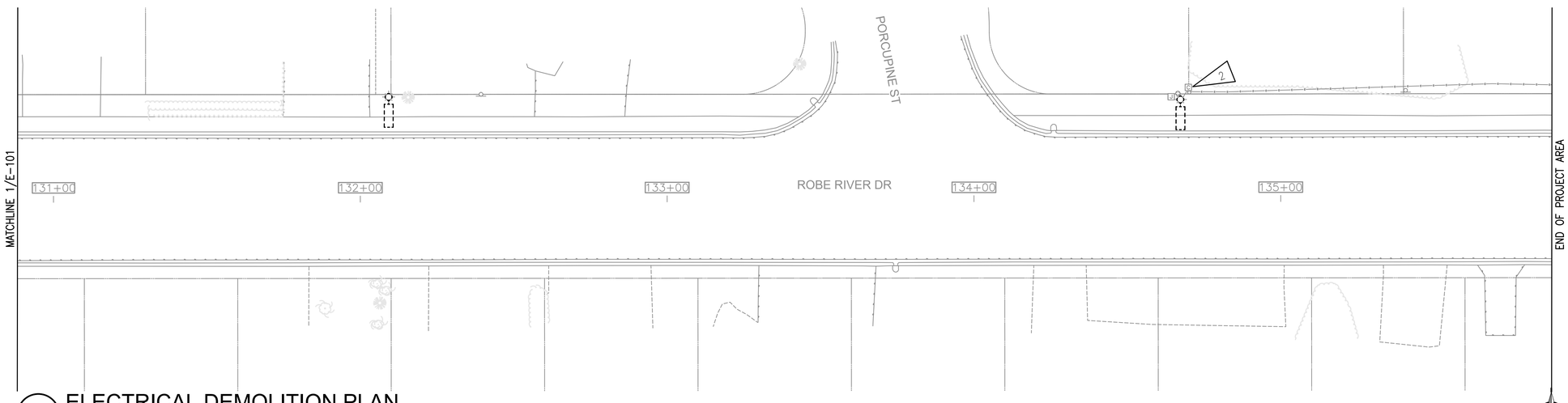
A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROTECT EXISTING FLASHING SCHOOL SIGN AND ASSOCIATED JUNCTION BOX, CONDUIT, AND WIRING DURING CONSTRUCTION.



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'

REV	DATE	DESCRIPTION	BY

REVISIONS

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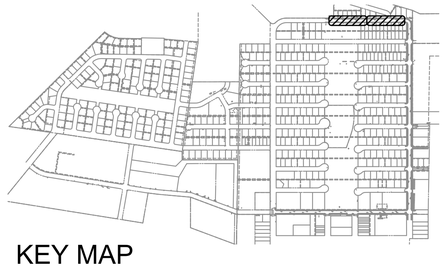
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL DEMOLITION PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-101



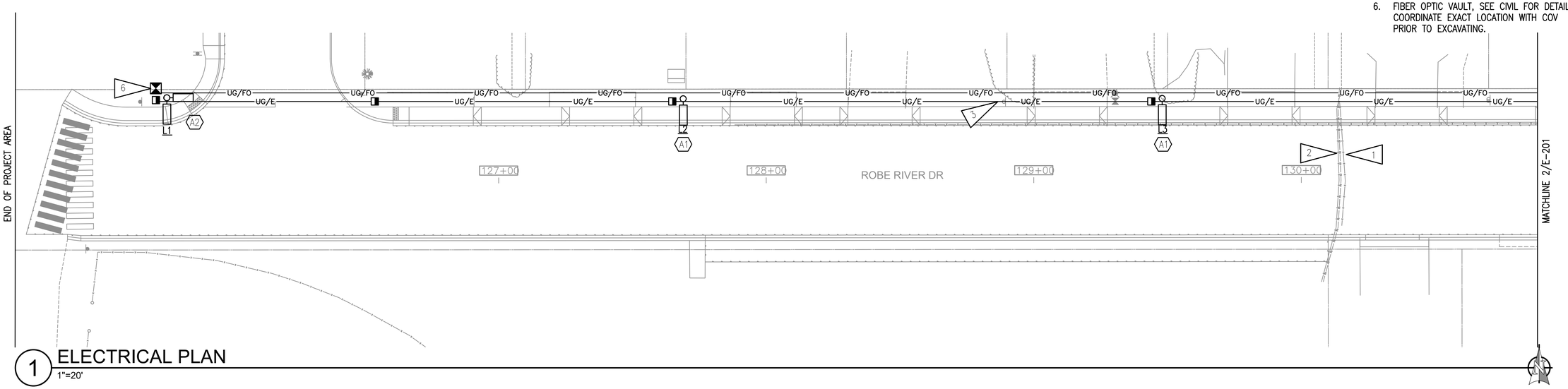
KEY MAP
1"=1000'

GENERAL NOTES:

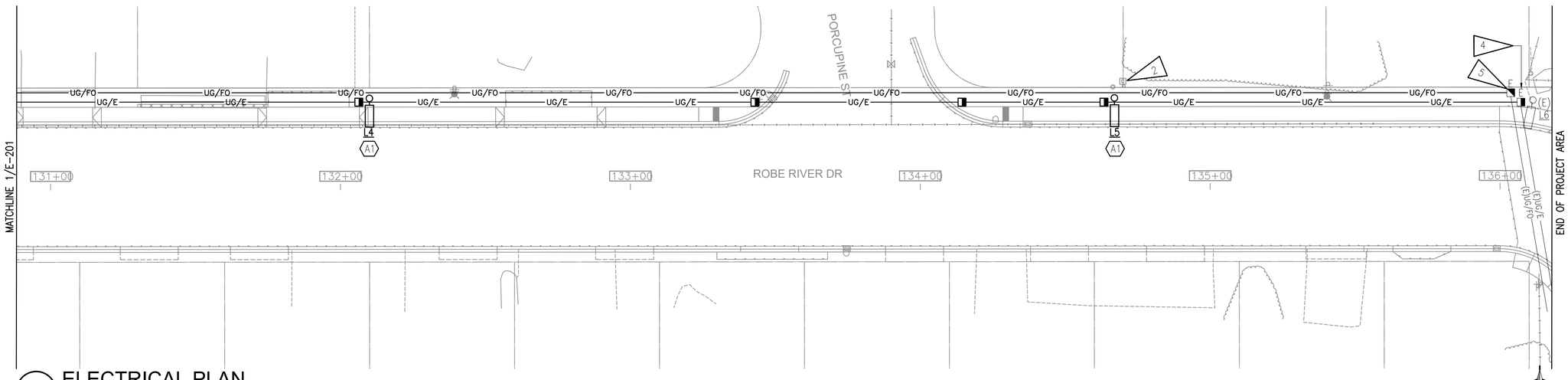
A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROTECT EXISTING FLASHING SCHOOL SIGN AND ASSOCIATED JUNCTION BOX, CONDUIT, AND WIRING DURING CONSTRUCTION.
4. EXTEND NEW CONDUIT/WIRING FROM EXISTING JUNCTION BOX INSTALLED UNDER THE PHASE IV MEALS PROJECT.
5. EXTEND NEW FIBER OPTIC CONDUITS FROM EXISTING FIBER OPTIC HANDHOLE.
6. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
DAVIN K. BLUBAUGH
E-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
810 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

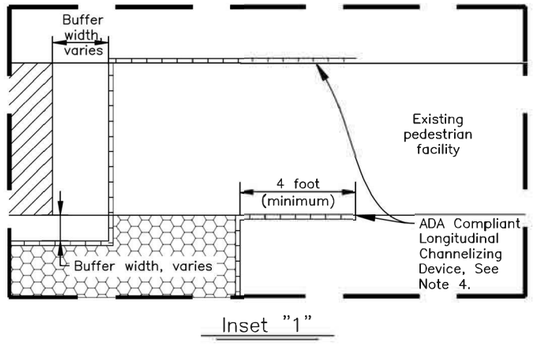
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-201



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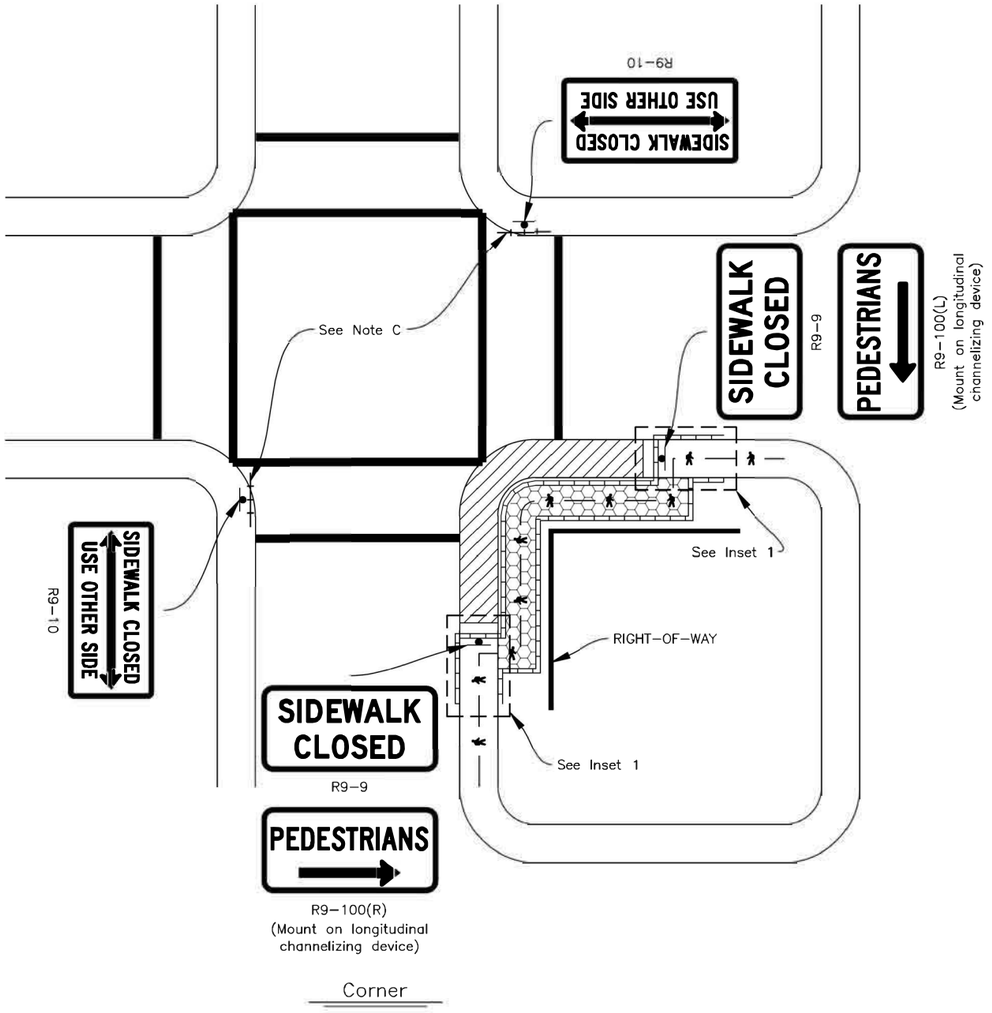
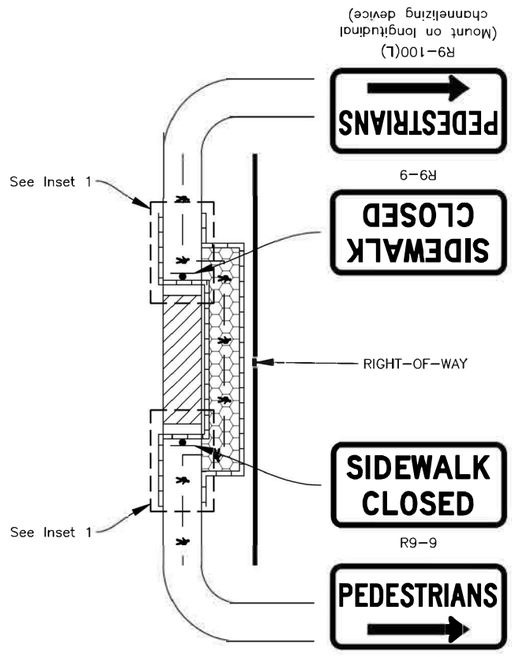


Corner



Mid-Block

SIDEWALK, PATHWAY, OR SHOULDER CLOSURE: DIVERSION AWAY FROM ROADWAY TYPICAL APPLICATION DETAILS

(If RIGHT-OF-WAY space available)

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DIVERSION AWAY FROM ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. Throughout the entire length of the TPAR diversion, maintain a minimum usable width of:
   i) 48 inches when the existing pedestrian facility width is 48 inches or more.
   ii) 36 inches when the existing pedestrian facility width is less than 48 inches.

   If the TPAR diversion width is less than 60 inches, provide a 60 x 60-inch passing space at least every 200 feet to allow individuals in wheelchairs to pass. When it is not possible to maintain a minimum passing space, use an alternate route.

   If the TPAR diversion grade exceeds 5%, construct a ramp as needed meeting the requirements of Section 405 of the 2006 ADA Standards for Transportation Facilities. The TPAR diversion when contained within the roadway right-of-way may have a grade exceeding 5% but must be less than or equal to the adjacent roadway grade.

B. When a crosswalk is closed at signalized intersections, cover corresponding pedestrian traffic signal display(s).

C. Where noted, install pedestrian signs on Type III barricades or longitudinal channelizing devices.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Type III Barricade

State of Alaska DOT&PF
ALASKA STANDARD PLAN

TEMPORARY PEDESTRIAN ACCESSIBLE ROUTES

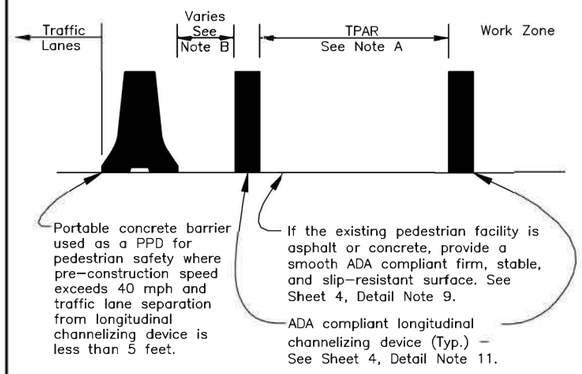
Adopted as an Alaska Standard Plan by:

Lauren Little, P.E.
Interim Chief Engineer

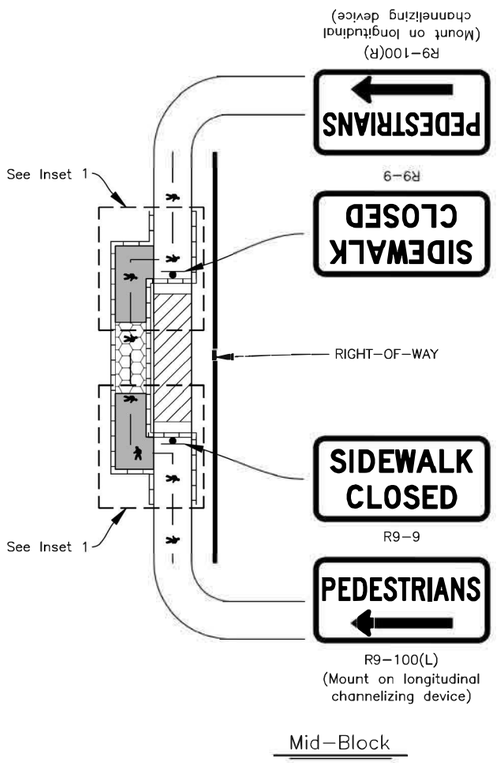
Adoption Date: 01/29/2024

Last Code and Stds. Review
By: ZSH Date: 12/18/2023

Next Code and Standards Review Date: 12/18/20



PEDESTRIAN DIVERSION TYPICAL SECTION



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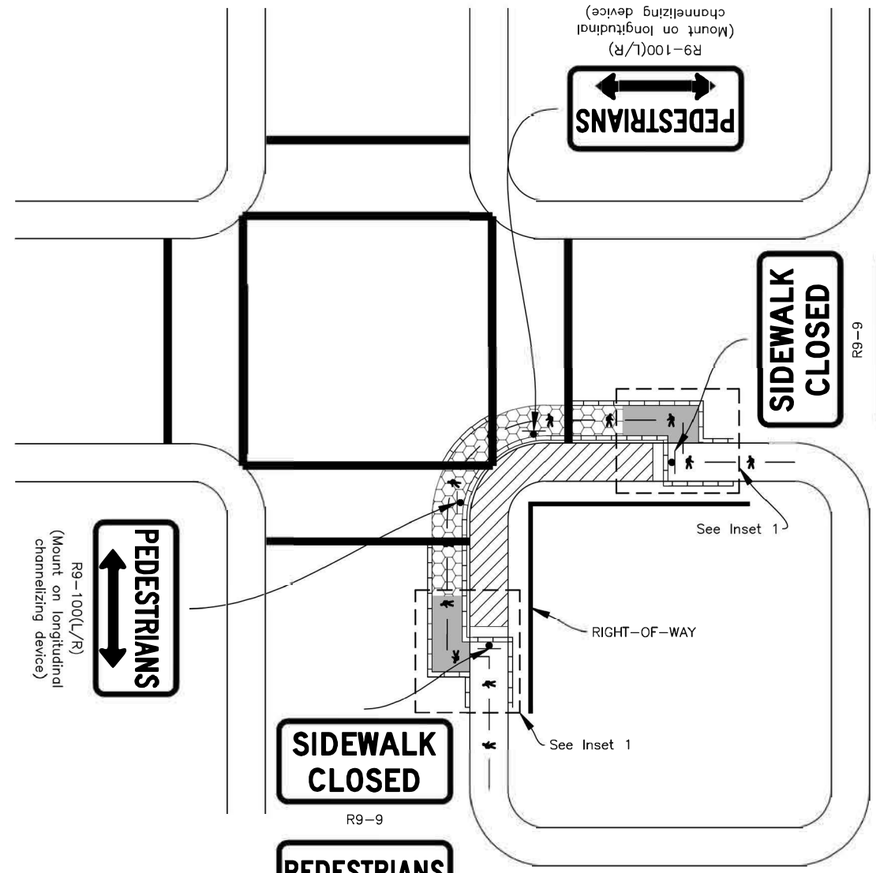
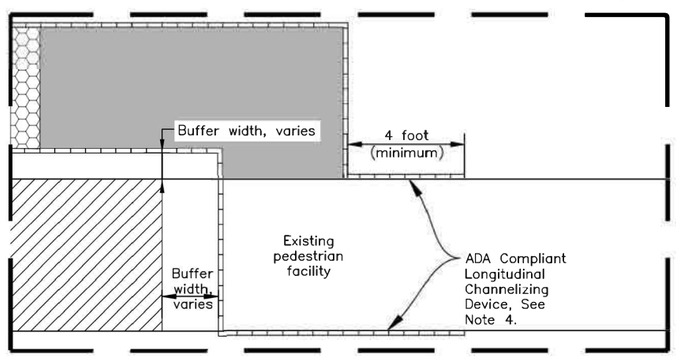


Corner



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SIDEWALK, PATHWAY, OR SHOULDER CLOSURE:
DIVERSION IN ROADWAY
TYPICAL APPLICATION DETAILS

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DIVERSION IN ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. Throughout the entire length of the TPAR diversion, maintain a minimum usable width of:
   i) 48 inches when the existing pedestrian facility width is 48 inches or more.
   ii) 36 inches when the existing pedestrian facility width is less than 48 inches.

   If the TPAR diversion width is less than 60 inches, provide a 60 x 60-inch passing space at least every 200 feet to allow individuals in wheelchairs to pass. When it is not possible to maintain a minimum passing space, use an alternate route.

   If the TPAR diversion grade exceeds 5%, construct a ramp as needed meeting the requirements of Section 405 of the 2006 ADA Standards for Transportation Facilities.

B. Where the pre-construction posted speed limit exceeds 40 mph, separate the longitudinal channelizing devices from the traffic lane by at least 5 feet. Where that is not feasible, install portable concrete barriers as a positive protection device (PPD) between the longitudinal channelizing devices and the traffic lane, meeting the deflection buffer requirements stated on Standard Plan G-47. See pedestrian diversion typical section.

C. Place or construct temporary curb ramp as needed. Curb ramp must meet ADA requirements, see Sheet 4.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Temporary Curb Ramp (See Note C)

State of Alaska DOT&PF
ALASKA STANDARD PLAN

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Interim Chief Engineer

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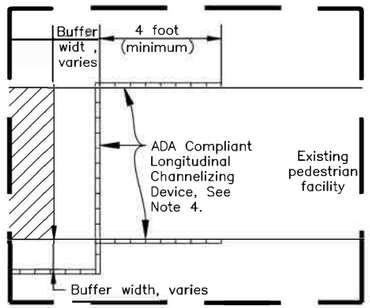

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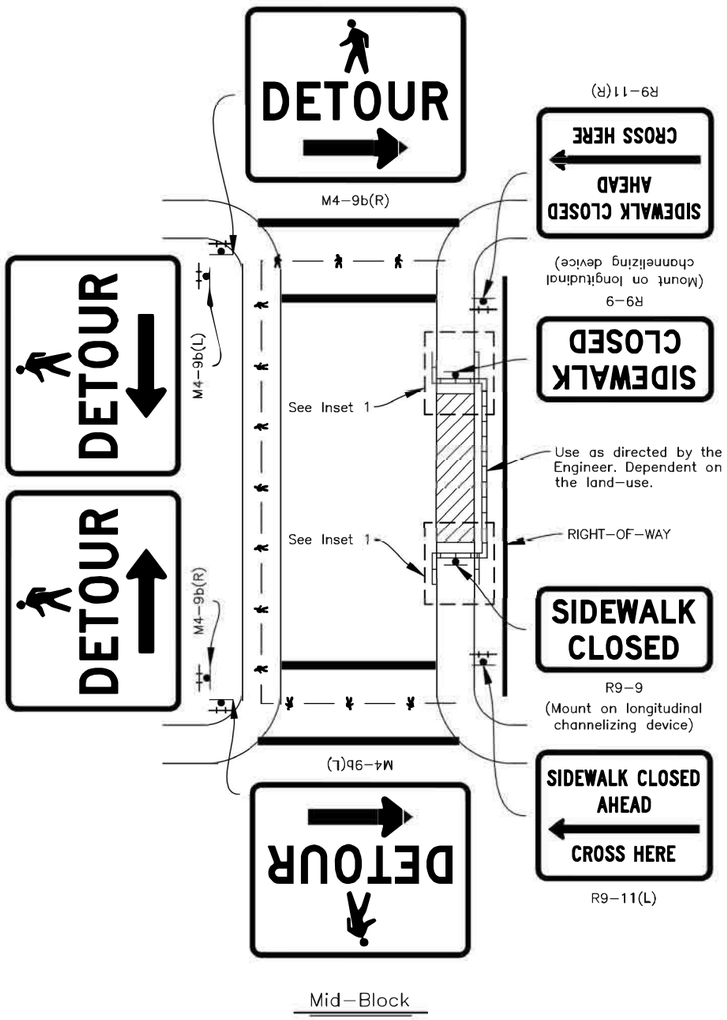

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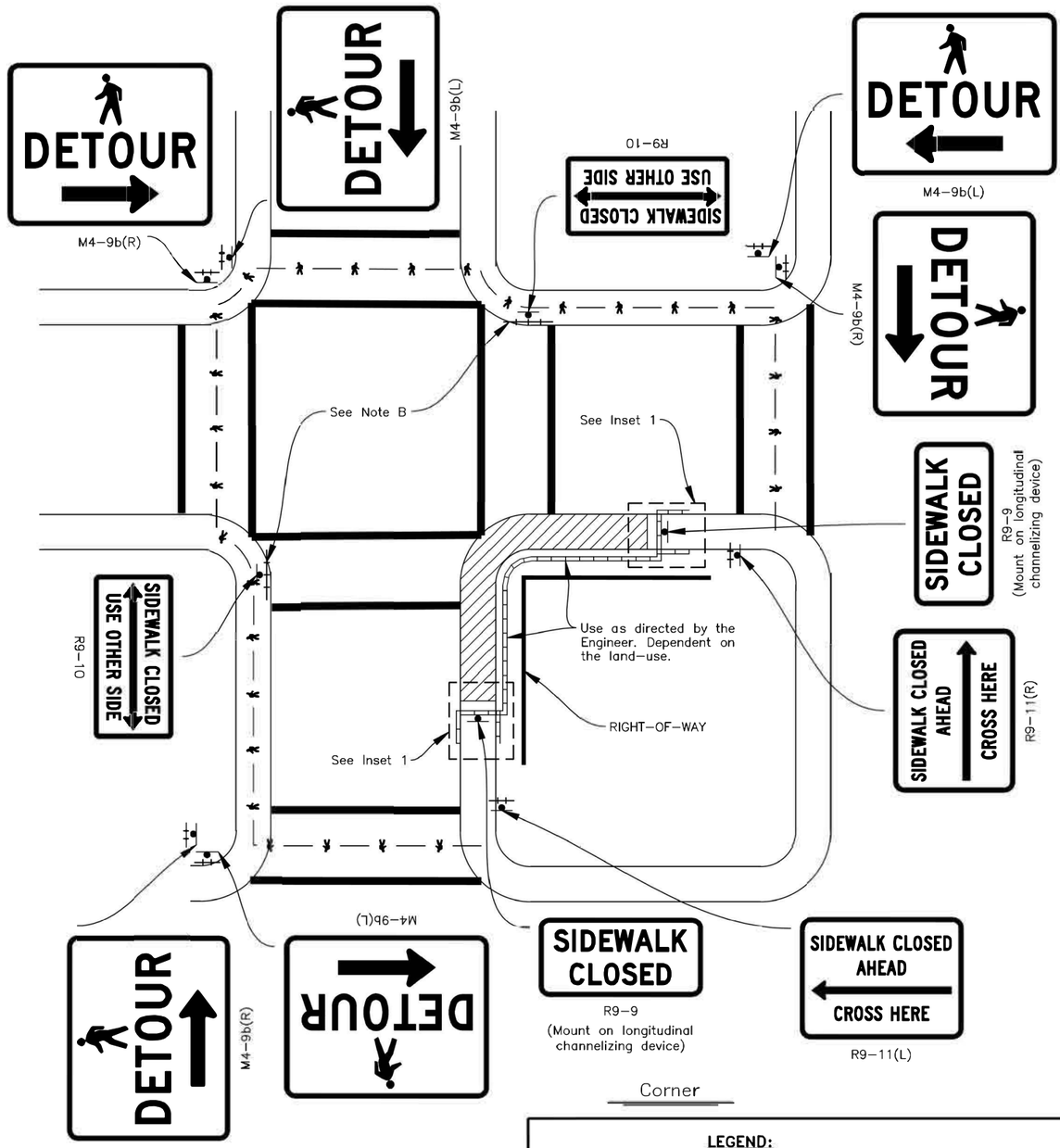

Corner

SIDEWALK, PATHWAY, OR SHOULDER CLOSURE:
DETOUR ACROSS ROADWAY
TYPICAL APPLICATION DETAILS

GENERAL NOTES FOR TYPICAL APPLICATION DETAILS:

1. Only traffic control devices (TCD) for pedestrians are shown. Other TCD may be necessary to control vehicular traffic.
2. Provide longitudinal channelizing devices when sidewalks or pathways are closed to pedestrians and where required by the Plans or Specifications. When pre-construction project conditions are disrupted, closed, or relocated in a temporary traffic control zone, the temporary pedestrian accessible route (TPAR) shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
3. Typical applications details depicted on Sheets 1 through 3 are in order of preference. Avoid unnecessary pedestrian routing detours. Use Sheet 3 details only when it is not practical to use Sheet 1 or 2 details.
4. Place 4 feet (minimum) of longitudinal channelizing devices along each side of existing sidewalk prior to the work zone or pedestrian diversion.
5. Within the TPAR, existing and proposed TCD placements shall meet Standard Plan S-05. Existing and proposed TCD features mounted lower than 7 feet above the finished surface shall not project more than 4 inches for a length of 24 inches (maximum) into the TPAR. Reduced width of the TPAR shall be separated by 48 inches long (minimum) and 36 inches wide (minimum) segments. Construction materials shall not protrude into the useable width of the TPAR. When necessary to meet these requirements, use an approved temporary sign support.
6. Refer to sign size table on Sheet 4.

DETOUR ACROSS ROADWAY TYPICAL APPLICATION DETAILS NOTES:

A. When a crosswalk is closed at signalized intersections, cover corresponding pedestrian traffic signal display(s).

B. Where noted, install pedestrian signs on Type III barricades or longitudinal channelizing devices.

C. Route pedestrians to the safest and closest crossing point near the work zone.

D. Limit work to one corner at a time to minimize pedestrian disruption and detour length.

LEGEND:

- ADA Compliant Longitudinal Channelizing Device
- Temporary Pedestrian Accessible Route Diversion
- Temporary Pedestrian Accessible Route
- Work Zone
- Sign
- Type II Barricade
- Type III Barricade

State of Alaska DOT&PF
ALASKA STANDARD PLAN

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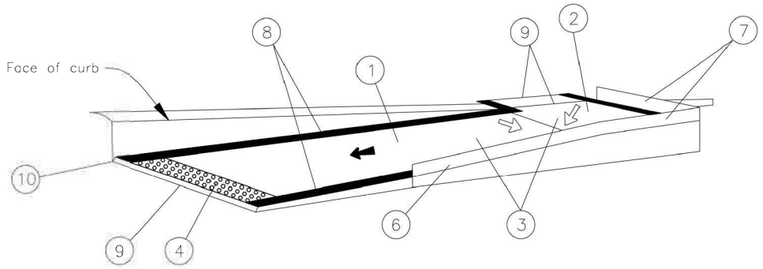
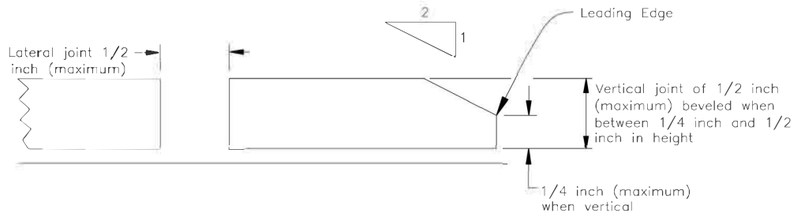
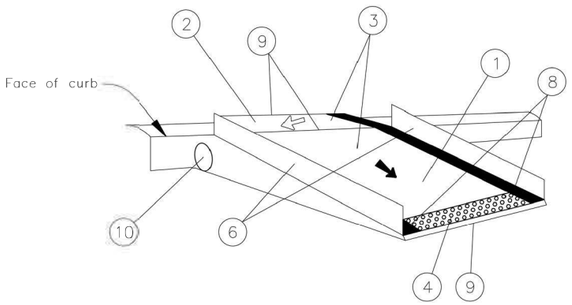


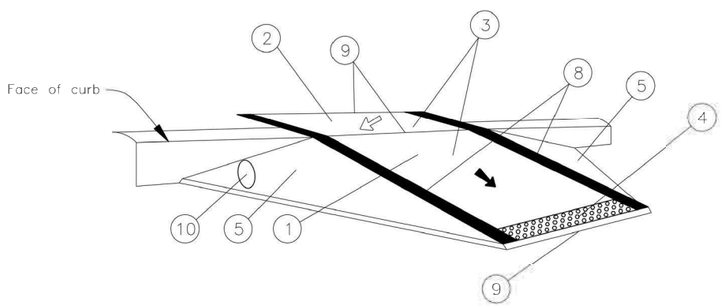
EXAMPLE TEMPORARY CURB RAMP, PARALLEL TO CURB



EDGE TREATMENT DETAIL



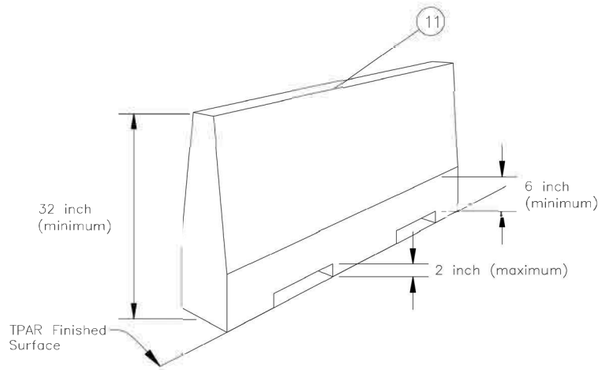
With Protective Edge



With Side Flares

Detectable edging are not required when meeting the requirements of Detail Note 6

EXAMPLE TEMPORARY CURB RAMP, PERPENDICULAR TO CURB



EXAMPLE LONGITUDINAL CHANNELIZING DEVICE DETAIL

SIGN SIZE TABLE			
ALASKA SIGN DESIGN SPECIFICATIONS CODE	SIZE H X V (INCHES)		
R9-9	24	X	12
R9-10	24	X	12
R9-100(L/R), R9-100(L), R9-100(R)	24	X	12
R9-11(L), R9-11(R)	24	X	18
M4-9b(L), M4-9b(R)	30	X	24

GENERAL NOTES:

1. The curb ramp shall be either self-ballasting or include an anchoring system capable of keeping the platform stationary under pedestrian traffic, including motorized wheelchairs.
2. The curb ramp platform shall be free of sharp, rough edges, or abrasive elements that may harm pedestrians.

DETAIL NOTES:

(1) Clear width per requirements stated in sheets 1 and 2, Note A.

(2) Landing shall be provided at the top of curb ramps. The landing clear length shall be 36 inches minimum. The landing clear width shall be at least as wide as the curb ramp (excluding flared sides, leading to the landing).

(3) Ramps shall have a running slope of 8.3% maximum (7.7% nominal) and cross slope of 2.0% maximum (1.5% nominal). If the landing functions as a turning space, slope in any direction (including diagonal) of the turning space shall be 2.0% maximum (1.5% nominal).

(4) Install detectable warning surface at pedestrian street crossings. The detectable warning shall extend the full width of the curb ramp (excluding flared sides) and shall be 24 inches (minimum) deep measured from the back of the curb on the ramp surface. Omit detectable warning surfaces at end of sidewalk transitions that are not at a crosswalk.

(5) Curb ramp flares where provided shall have 10% maximum (8.3% nominal) slope.

(6) Detectable edging with 6 inch (minimum) height shall be placed along the ramp run when there is a vertical drop exceeding 6 inches or is adjacent to a side slope exceeding 1:3 (vertical:horizontal).

(7) Detectable edging with 6 inch (minimum) height and contrasting color shall be placed on all turning spaces where the walkway changes direction.

(8) The curb ramp walkway edge shall be marked with a contrasting color, 4 inch wide stripe. The marking is optional where a contrasting detectable edging is used.

(9) See edge treatment detail for requirements on lateral and vertical joints or gaps between surfaces. Surface slopes that meet at a grade break shall be flush.

(10) Provide an approved means to maintain water flow along existing curb flow line and to prevent water from accumulating at the bottom of the ramp, or overflowing onto the ramp surface.

(11) Where longitudinal channelizing devices are used to delineate a TPAR, continuous detectable top and bottom surfaces in compliance with the Alaska Traffic Manual shall be provided such that pedestrians using a long cane can follow it. The top of the top surface shall be at least 32 inches above the TPAR surface. The bottom surface shall be at least 6 inches in height with a gap no greater than 2 inches above the TPAR surface. Longitudinal channelizing devices shall be interlocked and not have gaps that allow pedestrians to stray from the channelizing path.

LEGEND:

- Running slope
- Cross slope
- Detectable warning surface

State of Alaska DOT&PF
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C-03.30

CITY OF VALDEZ

PAVEMENT REHABILITATION

SPECIAL PROVISIONS

MODIFICATIONS TO CITY OF VALDEZ STANDARD SPECIFICATIONS

The following listed provisions of the C.V.S.S. are amended as hereinafter stated:

REPLACE

SECTION 70.15 TRAFFIC MAINTENANCE

Article 15.1 General

The Work under this section consists of performing all the necessary measures to protect and control traffic during the life of the project including but not limited to furnishing, erecting, maintaining, replacing, cleaning, moving and removing the traffic control devices required to safeguard the traveling public and all administrative responsibilities necessary to implement this Work.

The Contractor shall be liable for any damages or injuries suffered by reasons of their operations or their failure to provide adequate safeguarding services.

The Contractor shall maintain all roadways, and pedestrian and bicycle facilities affected by the work in a smooth and traversable condition. Construct and maintain such approaches, crossings, or intersections, and other features as may be necessary throughout the life of the Contract.

Traffic Control Plans (TCPs) are required for this project. The Contractor shall provide TCPs approved by the Engineer, and when the project limits include State right-of-way, the DOT&PF Regional Traffic Engineer prior to commencement of associated work activities.

The Contractor is required to have a Worksite Traffic Supervisor (WTS) on the job site during working hours for traffic control and implementation. The WTS shall be certified as a Traffic Control Supervisor by either the American Traffic Safety Services Association (ATSSA) or Laborers' International Union of North America (LIUNA), or be certified as a Work Zone Temporary Traffic Control Technician by the International Municipal Signal Association (IMSA).

All traffic channelization, detours, lane closures, and/or street closures shall conform to the approved TCP and Division 10, Section 10.04, Article 4.13 Street Closures.

Article 15.2 Traffic Control Plan

A TCP is a graphic/text plan that describes traffic control to be used to assist road and non-motorized facility users (drivers, bicyclists, and pedestrians) through a temporary traffic control zone. The TCP depicts the traffic control devices and their placement and times of use.

The degree of detail in the TCP depends on the nature of the project. The TCP includes but is not limited to signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the construction zone according to these specifications and the Alaska Traffic Manual (ATM).

These TCPs shall also address placement of traffic control devices including location, size, mounting height, and type. The details shown for signs shall include the code designation, size, and legend in accordance with the ATM and Alaska Sign Design Specifications (ASDS). The TCP shall also indicate the method of safely routing pedestrian and bicycle traffic through or around the construction zone.

Submit TCPs to the Engineer for approval. All TCPs shall include the following information:

1. Project name and number.
2. A designated TCP number and TCP name provided on each page.
3. For TCPs with multiple pages, each page must be numbered.
4. The posted speed for each roadway.
5. Existing striping width, lane width, and road surfacing.
6. Construction lane widths, striping layout, and temporary pavement marker layout.
7. Provisions for pedestrian, bicycle, and ADA travel through the work zone.
8. Dates and times the TCP will be in effect and why it is being used.
9. TCP preparer’s signature certifying the TCP conforms to the ATM and the Contract.
10. Project Superintendent’s signature confirming the TCP is compatible with work plan.

11. The name of the WTS and his/her 24-hour telephone number.
12. Signs to be used and the ASDS designation number and size.
13. Locations and spacing of all devices and signs.
14. A plan to address any possible slopes, drop offs, paving joints, or similar temporary features that may occur during use of the TCP.

Allow 7 days for review of each TCP submittal. All required modifications to a TCP require a new submission and an additional 7 days for review. A minor revision to a previously approved TCP requires 48 hours for review and Engineer approval.

For road closures and major traffic events, the Contractor shall submit a written request with planned road closure TCPs 21 days prior to the proposed event.

No Work shall occur within rights-of-way or easements until the Contractor has implemented an approved TCP for the Work proposed.

The TCPs, Plans, and Alaska Standard Plan C-03.30 Temporary Pedestrian Accessible Routes show the minimum required number of traffic control devices. If unsafe conditions occur, the Engineer may require additional traffic control signage or devices.

Article 15.3 Pedestrian Traffic

The Contractor shall provide pedestrian access in accordance with the requirements of Division 10, Section 10.04, Article 4.10 Protection of Persons and Property, the current Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), and Alaska Standard Plan C-03.30.

The Contractor shall provide and maintain a pedestrian traffic route through and/or around the Project for its duration or until a permanent pedestrian walkway has been completed. 4-ft high construction orange safety fencing shall be required along the pedestrian route as necessary to separate work zone from the pedestrian route.

Article 15.4 Worksite Traffic Supervisor

The Contractor shall provide a Worksite Traffic Supervisor (WTS) responsible for maintaining 24-hour traffic operations. The Worksite Traffic Supervisor shall meet the following minimum requirements:

1. Is currently certified as a Traffic Control Supervisor by ATSSA; or
2. Is currently certified as a Traffic Control Supervisor by LIUNA; or
3. Is currently certified as a Work Zone Temporary Traffic Control Technician by IMSA

The Work Site Traffic Supervisor's duties shall include the following:

1. Understand the requirements of the ATM, the Drawings, and the Specifications.
2. Prepare the TCPs and public notices and coordinate traffic maintenance operations with the Engineer.
3. Physically inspect the condition and position of all traffic control devices in use on the Project and ensure that all traffic control devices are in proper working order, clean, visible, and conform to the approved TCP in use. The inspection shall occur daily at a minimum.
4. Supervise the repair or replacement of damaged or missing traffic control devices.
5. Review and anticipate traffic control needs. Make available proper traffic control devices necessary for safe and efficient traffic movement.
6. Review work areas, equipment storage, and traffic-safety material handling and storage.
7. Supervise all traffic control workers and flaggers.
8. Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Engineer to these meetings.

Article 15.5 Materials

Materials for traffic control devices shall conform to the requirements set forth below:

1. Signs. Permanent Construction Signs, Construction Signs, and Special Construction Signs including sign supports shall conform to the ATM, ADOT&PF Standard Specifications for Highway Construction, and the ASDS.
2. Portable Sign Supports. Contractor shall provide portable sign supports that are wind resistant with no external ballasting and capable of supporting a forty-eight by forty-eight inch (48" x 48") traffic control sign such that the height of the sign above the adjacent roadway surface conforms to the ATM. The sign support shall support the traffic control sign vertically.
3. Barricades and Vertical Panels. Contractor shall provide barricades and vertical panels that are constructed of wood, metal, or plastic, and conform to the requirements of the ATM. Type III barricades shall have a minimum width of eight feet (8’). Contractor shall equip barricades with warning lights.

4. Warning Lights. Contractor shall provide Type A (low intensity flashing), Type B (high intensity flashing), or Type C (steady burn) warning lights conforming to the requirements of the ATM.
5. Drums. Contractor shall provide plastic drums conforming to the requirements of the ATM.
6. Traffic Cones. Contractor shall provide traffic cones and/or tubular markers conforming to the requirements of the ATM. The minimum height is twenty-eight inches (28”). All cones and tubular markers shall be reflectorized.
7. Plastic Safety Fence. Use 4 foot high construction orange fence.
8. Portable Changeable Message Board Signs. Contractor shall provide portable, truck- or trailer-mounted, changeable message board signs with a self-contained power supply for the sign that has the following features:
    a. Message sign panel large enough to display three lines of nine inch (9”) high characters.
    b. Eight-character display per message line.
    c. Message modules containing at least 36 different preprogrammed messages (three line displays) to be selected by the Engineer.
    d. The capacity to create, preview, and display new messages and message sequences
    e. A waterproof, lockable cover for the controller keyboard.
    f. An operator's manual, a service manual, and wiring diagram.
    g. Quick release attachments on display panel cover.
    h. Variable flash and sequence rates.
    i. Manual and automatic dimming capability on lamp bulb matrix models.
    j. Variable mounting height of at least seven feet (7’) from the pavement to the bottom of the message sign panel.
    k. The capacity to operate with a battery pack for two hours under full load.
9. Portable Concrete Barriers. Portable concrete barriers shall conform to the requirements of Alaska Standard Plan G-47.00. Portable concrete barriers shall be equipped with warning lights.
10. Work Zone Pavement Markings. Work zone pavement markings shall be either painted with glass beads or preformed marking tape (removable or non-removable).
11. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:

a. Use plywood at least 1/2-inch thick for areas continuously supported by subgrade. Use plywood at least 1 inch thick for areas that are not continuously supported.

b. Do not use unsupported 1-inch plywood longer than 30 inches.

c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 1/2-inch. Bevel overlap joints so the maximum slope of the overlapping edge is 2 horizontal to 1 vertical.

d. Fasten so wind and traffic will not displace temporary surfacing.

Article 15.6 Public Notice

The Worksite Traffic Supervisor shall give notice at least 3 days before major changes, delays, or lane restrictions, or road closures to the following local officials and transportation organizations, including but not limited to:

1. Alaska Trucking Association
2. Alaska State Troopers
3. Alaska Court System
4. Valdez Police Department
5. Valdez Fire Department
6. U.S. Postal Service
7. Local Emergency Medical Services
8. Local Schools and Universities
9. COV Parks and Recreation Department
10. COV Solid Waste Department
11. Major Tour and Cruise Ship Operators

The Contractor shall also provide the Alaska State Troopers, Valdez Police Department, and Valdez Fire Department with a list of radio frequencies and cellular telephone numbers used on the project, and the 24-hour telephone numbers of the WTS and the project Superintendent. This contact information shall be for alerting the Contractor of emergencies which will require passage of vehicles through the project. When so notified, the Contractor shall use all equipment and effort necessary to expedite rapid passage.

Article 15.7 Traffic Control Devices

Prior to the start of construction operations, the Contractor shall erect such permanent and temporary traffic control devices as may be required by the approved Traffic Control Plan (TCP). Traffic control devices shall be operated only

when they are needed and only those devices that apply to conditions that exist shall be used.

Use only one type of traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary traffic control devices. If sign panels are post mounted and cannot be readily removed, cover the panels with either metal or plywood sheeting.

Contractor shall keep clean reflective sheeting on signs, drums, barricades, and other devices. Contractor shall promptly replace any devices with scratches, rips, or tears in the sheeting deemed unacceptable by the Engineer at no additional expense to the Owner.

Furnish trained and competent flaggers and all necessary equipment, including lighting of the flagging position during nighttime operations, to control traffic through the traffic control zone. The Engineer will approve each flagging operation before it begins and will direct adjustments as conditions change.

Flaggers must be certified as one of the following:

1. Flagger by ATSSA
2. Flagging Instructor by ATSSA
3. Flagger by LIUNA
4. Traffic Control Technician by LIUNA
5. Work Zone Temporary Traffic Control Technician by IMSA

Flaggers must maintain their assigned flagging location at all times, unless another qualified flagger relieves them, or the approved traffic control plan terminates the flagging requirements. Keep the flaggers' area free of encumbrances. Keep the flagger's vehicle well off the roadway and away from the flagging operation so the flagger can easily be seen. Remove, fully cover, or lay down flagger signs when no flagger is present.

Provide approved equipment for two-way radio communications between the flaggers when flaggers are not in plain, unobstructed view of each other.

Article 15.8 Authority of the Engineer

When, in the opinion of the Engineer, conditions are such that the safety and/or convenience of the traveling public are adversely affected, the Engineer will immediately notify the Contractor in writing. The notice will state the defects, the corrective actions required, and the time required to complete such actions. In no case shall this time exceed 24 hours.

In the event that the Contractor fails to take the corrective actions within the specified time, (a) the Engineer will immediately direct that the offending operations cease until the defects are corrected, and (b) the Engineer reserves the right to order the corrective actions be accomplished by outside forces.

The Engineer will deduct the cost of Work by outside forces from any moneys due or that may become due under the terms of this Contract.

Article 15.9 Execution

The Contractor shall maintain traffic control in accordance with the approved TCP. The Contractor shall submit a new TCP each time traffic control is revised. Approval of each new TCP is required.

The Contractor shall protect and adequately delineate open trenches, ditches, pavement edge drop-offs, and other excavations and hazardous areas with barricades as required by OSHA.

Unless otherwise provided hereinafter, the Contractor shall maintain all roadways open to traffic. Temporary closure of residential, commercial, or street approaches require prior approval of the Engineer.

The Contractor shall provide access through and around the project for emergency vehicles.

The Contractor shall properly sign and/or flag all locations requiring redirection or stopping of the traveling public.

The Contractor shall provide flagger(s) any time Work operations may affect safety, or as directed by the Engineer. Unless approved by the Engineer on the TCP, flagger(s) are required at all times when one-lane traffic is in effect. All flagging operations shall conform to the procedures outlined in the ATM.

Article 15.10 Measurement

The work will be measured according to Division 10, Article 7.1 Method of Measurement, as directed by the Engineer as follows:

a. Lump Sum. No measurement of quantities will be made.
b. Contingent Sum. The pay unit is measured by the number of approved hours, supported by certified payroll.

Article 15.11 Payment

Pay items include all necessary personnel, equipment, transportation, and supplies to accomplish the work described in the Contract, or as directed by the Engineer.

1. Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, and the maintenance of all roadways, approaches, crossings, intersections, and pedestrian & bicycle facilities, as required.
2. Traffic Control. The contract price encompasses all Contractor traffic control work described in the Contract, including the preparation and implementation of all temporary traffic control plans, detours, and permits within the project limits. This work also includes all necessary permanent construction signs.
3. Flagging. The contract price includes all required labor, vehicles, radios, flagger paddles, and transportation to and from the worksite. The Engineer will pay this item on a contingent sum basis at the rate of $82.00/hour.

Payment will be made under:

ITEM	UNITS
Traffic Maintenance	Lump Sum
Traffic Control	Lump Sum
Flagging	Contingent Sum

Title 36
Public Contracts

Wage and Hour Administration Pamphlet 400

Statutes
Regulations

January 2021

Alaska Department of Labor
and Workforce Development
Labor Standards and Safety Division

ALASKA DEPARTMENT OF LABOR
& WORKFORCE DEVELOPMENT

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If you would like to receive Wage and Hour Administration **regulation notices** or **publications information**, they are available via electronic mail, by signing up in the GovDelivery System, https://public.govdelivery.com/accounts/AKDOL/subscriber/new and selecting topics *LSS – Wage and Hour – Forms and Publications* or *LSS – Wage and Hour Regulations*.

Publications are also available online at http://labor.alaska.gov/lss/home.htm

The Alaska Department of Labor and Workforce Development is focused on putting Alaskans to work. An important part of that mission is to ensure that working conditions and wage payment practices are legal. This publication, *Pamphlet 400, Title 36, Public Contracts*, is designed to assist employers and employees by providing the applicable laws and regulations.

This pamphlet is set out in two sections. The first section contains the Alaska Statutes (pages 1-9), and the second section contains the Alaska Administrative Code or regulations (pages 10-23). The index of topics on page 24 should provide assistance in locating all of the places a particular topic is referenced.

When reviewing the subjects contained in this pamphlet, keep in mind that the statutes carry the greater weight. The regulations have been established to further clarify and interpret language used in the statutes.

Many wage and hour issues are complex. Please take advantage of the Wage and Hour Administration's cost-free counseling services to answer your questions regarding this pamphlet and Alaska's labor laws. You may call or come in to the nearest Wage and Hour Administration office, Monday through Friday, during regular business hours and a wage and hour investigator will be happy to assist you. Addresses and phone numbers for these offices are listed on the first page of this pamphlet.

For additional copies of this pamphlet, contact the nearest Wage and Hour Administration office in Anchorage, Juneau, or Fairbanks, or you may download and print this pamphlet from our internet site at: http://labor.alaska.gov/lss/forms/Pam400.pdf

TITLE 36. Public Contracts

Wage and Hour Administration

Pamphlet 400 - Statutes and Regulations

January 2021

State of Alaska

Alaska Department of Labor and Workforce Development

Labor Standards and Safety Division

Table of Contents

Disclaimer:

Note to Readers: The statutes and administrative regulations listed in this publication were taken from the official codes, as of the effective date of the publication. However, there may be errors or omissions that have not been identified and changes that occurred after the publication was printed. **This publication is intended as an informational guide only and is not intended to serve as a precise statement of the statutes and regulations of the State of Alaska. To be certain of the current laws and regulations, please refer to the official codes.**

ALASKA STATUTES
TITLE 36. PUBLIC CONTRACTS

CHAPTER 05. WAGES AND HOURS OF LABOR.

Section:

This chapter was modeled after the federal Davis-Bacon Act. 40 U.S.C. § 276a et seq. *Fowler v. City of Anchorage*, Sup. Ct. Op. No. 1699 (File No. 3586), 583 p.2d 817 (1978).

Sec. 36.05.005. Applicability.
This chapter applies only to a public construction contract that exceeds $25,000.
(§ 1 ch 28 SLA 2011)

Sec. 36.05.010. Wage rates on public construction.
A contractor or subcontractor who performs work on a public construction contract in the state shall pay not less than the current prevailing rate of wages for work of a similar nature in the region in which the work is done. The current prevailing rate of wages is that contained in the latest determination of prevailing rate of wages issued by the Department of Labor and Workforce Development at least 10 days before the final date for submission of bids for the contract. The rate shall remain in effect for the life of the contract or for 24 calendar months, whichever is shorter. At the end of the initial 24-month period, if new wage determinations have been issued by the department, the latest wage determination shall become effective for the next 24-month period or until the contract is completed whichever occurs first. This process shall be repeated until the contract is completed.
(§ 14-2-1 ACLA 1949; am § 1 ch 142 SLA 1972; am § 1 ch 89 SLA 1976; am § 1 ch 69 SLA 1993; am § 1 ch 28 SLA 2011)

Sec. 36.05.020. Basis for determining wage.
A subcontract that is performed on public construction may be reduced to a basis of day labor for the purpose of determining whether or not the subcontractor or contractors have paid at not less than the prevailing scale of wage.
(§ 14-2-2 ACLA 1949)

Sec. 36.05.030. Authority; investigations; hearings; regulations; enforcement.
(a) The Department of Labor and Workforce Development has the authority to determine the prevailing wage, and whether or not this chapter is being violated. The department may when necessary for the enforcement of this chapter
(1) conduct investigations and hold hearings concerning wages;
(2) compel the attendance of witnesses and the production of books, papers and documents;
(3) adopt regulations.
(b) If a person violates this chapter the attorney general shall, when requested by the Department of Labor and Workforce Development, enforce these provisions.
(§ 14-2-3 ACLA 1949; am § 2 ch 142 SLA 1972)

Sec. 36.05.035. Notification of contract awards.
Upon awarding a public construction contract, the state or a political subdivision of the state shall
(1) immediately notify the commissioner of labor and workforce development of the amount of the contract, the effective date of the contract, the identity of the contractor and all subcontractors, the site or sites of construction and provide a project description; and
(2) verify that the bonding requirements of AS 36.25 have been met and that the requirements of AS 08.18 have been met.
(§ 3 ch 142 SLA 1972)

Sec. 36.05.040. Filing schedule of employees, wages paid, and other information.
All contractors or subcontractors who perform work on a public construction contract for the state or for a political subdivision of the state shall, before the Friday of every second week, file with the Department of Labor and Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor and Workforce Development.
(§ 14-2-4 ACLA 1949; am § 4 ch 142 SLA 1972; am § 1 ch 111 SLA 2003)

Sec. 36.05.045. Notice of work and completion; withholding of payment.

(a) Before commencing work on a public construction contract, the person entering into the contract with a contracting agency shall designate a primary contractor for purposes of this section. Before work commences, the primary contractor shall file a notice of work with the Department of Labor and Workforce Development. The notice of work must list work to be performed under the public construction contract by each contractor who will perform any portion of work on the contract and the contract price being paid to each contractor. The primary contractor shall pay all filing fees for each contractor performing work on the contract, including a filing fee based on the contract price being paid for work performed by the primary contractor's employees. The filing fee payable shall be the sum of all fees calculated for each contractor. The filing fee shall be one percent of each contractor's contract price. The total filing fee payable by the primary contractor under this subsection may not exceed $5,000. In this subsection, "contractor" means an employer who is using employees to perform work on the public construction contract under the contract or a subcontract.

(b) Upon completion of all work on the public construction contract, the primary contractor shall file with the Department of Labor and Workforce Development a notice of completion together with payment of any additional filing fees owed due to increased contract amounts. Within 30 days after the department's receipt of the primary contractor's notice of completion, the department shall inform the contracting agency of the amount, if any, to be withheld from the final payment.

(c) A contracting agency

(1) may release final payment on a public construction contract to the extent that the agency has received verification from the Department of Labor and Workforce Development that

(A) the primary contractor has complied with (a) and (b) of this section;

(B) the Department of Labor and Workforce Development is not conducting an investigation under this title; and

(C) the Department of Labor and Workforce Development has not issued a notice of a violation of this chapter to the primary contractor or any other contractors working on the public construction contract; and

(2) shall withhold from the final payment an amount sufficient to pay the department's estimate of what may be needed to compensate the employees of any contractors under investigation on this construction contract, and any unpaid filing fees.

(d) The notice and filing fee required under (a) of this section may be filed after work has begun if

(1) the public construction contract is for work undertaken in immediate response to an emergency; and

(2) the notice and fees are filed not later than 14 days after the work has begun.

(e) A false statement made on a notice required by this section is punishable under AS 11.56.210.

(§ 2 ch 111 SLA 2003; am § 1 ch 28 SLA 2011)

Sec. 36.05.050. Hours to constitute day's work. *[Repealed by § 1 ch 3 SLA 1973.]*

Sec. 36.05.060. Penalty for violation of this chapter.

A contractor who violates this chapter is guilty of a misdemeanor, and upon conviction is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment for not less than 10 days nor more than 90 days, or by both. Each day a violation exists constitutes a separate offense.

(§ 14-2-6 ACLA 1949; am § 6 ch 142 SLA 1972)

Sec. 36.05.070. Wage rates in specifications and contracts for public works.

(a) The advertised specifications for a public construction contract that requires or involves the employment of mechanics, laborers, or field surveyors must contain a provision stating the minimum wages to be paid various classes of laborers, mechanics, or field surveyors and that the rate of wages shall be adjusted to the wage rate under AS 36.05.010.

(b) *Repealed by § 17 ch 142 SLA 1972.*

(c) A public construction contract under (a) of this section must contain provisions that

(1) the contractor or subcontractors of the contractor shall pay all employees unconditionally and not less than once a week;

(2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the contractor or subcontractors and laborers, mechanics, or field surveyors;

(3) the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;

(4) the state or a political subdivision shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the contractor or subcontractors the difference between

(A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and

(B) the rates of wages in fact received by laborers, mechanics or field surveyors.

(§ 1 ch 52 SLA 1959; am §§ 7, 8, 17 ch 142 SLA 1972; am § 2 ch 89 SLA 1976; am § 1 ch 28 SLA 2011)

Sec. 36.05.080. Failure to pay agreed wages.

Every contract within the scope of AS 36.05.070 shall contain a provision that if it is found that a laborer, mechanic, or field surveyor employed by the contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the state or its political subdivision may, by written notice to the contractor, terminate the contractor's right to

proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the contractor and the contractor's sureties are liable to the state or its political subdivision for excess costs for completing the work.
(§2 Ch 52 SLA 1959)

Sec. 36.05.090. Payment of wages from withheld payments and listing contractors who violate contracts.

(a) The state disbursing officer in the case of a state public construction contract and the local fiscal officer in the case of a political subdivision public construction contract shall pay directly to laborers, mechanics, or field surveyors from accrued payments withheld under the terms of the contract the wages due laborers, mechanics, or field surveyors under AS 36.05.070.

(b) The state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees. A person appearing on this list and a firm, corporation, partnership or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision of the state until three years after the date of publication of the list. If the accrued payments withheld under the contract are insufficient to reimburse all the laborers, mechanics, or field surveyors with respect to whom there has been a failure to pay the wages required under AS 36.05.070, the laborers, the mechanics or field surveyors have the right of action or intervention or both against the contractor and the contractor's sureties conferred by law upon persons furnishing labor or materials, and in the proceedings it is not a defense that the laborers, mechanics or field surveyors accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.
(§ 3 ch 52 SLA 1959; am § 9 ch 142 SLA 1972; am § 1 ch 28 SLA 2011)

Sec. 36.05.100. Effect of AS 36.05.070 - 36.05.110 on other laws.
AS 36.05.070 - 36.05.110 do not supersede or impair authority granted by state law to provide for the establishment of specific wage rates.
(§ 4 ch 52 SLA 1959; am § 10 ch 142 SLA 1972)

Sec. 36.05.110. Contracts entered into without advertising.
The fact that a public construction contract authorized by law is entered into upon a cost-plus-a-fixed-fee basis or otherwise, without advertising for proposals, does not make AS 36.05.070 - 36.05.110 inapplicable if those sections are otherwise applicable to the contract.
(§ 5 ch 52 SLA 1959; am § 1 ch 28 SLA 2011)

Sec. 36.05.120. Regulations governing contractors.
[Repealed by § 17 ch 142 SLA 1972.]

ARTICLE 2. GENERAL PROVISIONS

Section:
900. Definition

Sec. 36.05.900. Definition.
In this chapter, “contracting agency” means the state or a political subdivision of the state that has entered into a public construction contract with a contractor.
(§ 3 ch 111 SLA 2003)

CHAPTER 10. EMPLOYMENT PREFERENCE

Section:

Sec. 36.10.005. Legislative findings.

(a) The legislature finds that

(1) because of its unique climate and its distance from the contiguous states, the state has historically suffered from unique social, seasonal, geographic, and economic conditions that result in an unstable economy;

(2) the unstable economy is a hardship on the residents of the state and is aggravated by the large numbers of seasonal and transient nonresident workers;

(3) the rate of unemployment among residents of the state is one of the highest in the nation;

(4) the state has one of the highest ratios of nonresident to resident workers in the nation;

(5) the state has a compelling interest in reducing the level of unemployment among its residents;

(6) the construction industry in the state accounts for a substantial percentage of the available employment;

(7) construction workers receive a greater percentage of all unemployment benefits paid by the state than is typical of other states;

(8) historically, the rate of unemployment in the construction industry in the state is higher than the rate of unemployment in other industries in the state;

(9) it is appropriate for the state to consider the welfare of its residents when it funds construction activity;

(10) it is in the public interest for the state to allocate public funds for capital projects in order to reduce unemployment among its resident construction workers;

(11) the influx of nonresident construction workers contributes to or causes the high unemployment rate among resident construction workers because nonresident workers compete with residents for the limited number of available construction jobs;

(12) nonresident workers displace a substantial number of qualified, available, and unemployed Alaska workers on jobs on state funded public works projects;

(13) the state has a special interest in seeing that the benefits of state construction spending accrue to its residents;

(14) the natural resources of land owned by the state belong to the citizens of the state;

(15) Alaskans have chosen to use the majority of the royalties derived from the state's natural resources to fund state government;

(16) the vast majority of the state's revenue is derived from natural resource income rather than from other forms of taxation;

(17) because the state has no personal income tax or sales tax, nonresident workers use services provided by the state but do not contribute fairly to the costs of those services; and

(18) Alaskans, more than the residents of other states, suffer economically when nonresidents displace qualified residents since resident workers contribute local taxes as well as their share of the royalties from natural resources.

(b) The legislature further finds that

(1) the state and its political subdivisions, when acting as a market participant in funding public works projects, should give Alaska residents an employment preference to promote a more stable economy;

(2) the state and its political subdivisions have a duty of loyalty to their citizens and should fulfill this duty by giving residents preference for employment on public works projects they fund;

(3) there is a legitimate and compelling governmental interest and that the public health and welfare will suffer if state residents are not afforded employment preference in state funded construction related work.

(c) The legislature finds that the following factors are reasonable but not exclusive indicators of the ratio of nonresident to resident employees in the state:

(1) the ratio of applicants for unemployment insurance who list out-of-state residences to applicants who list residences in the state;

(2) the ratio of employees who are subject to unemployment insurance coverage and who did not apply for or were denied a permanent fund dividend to employees who were found eligible for a dividend.

(d) The legislature finds that

(1) the number of state residents who are unable to find work is considerably higher than is reflected by unemployment rates based on nationally accepted measures;

(2) many rural state residents who wish to work do not seek employment as frequently as necessary to meet federal definitions of unemployment because of continuing lack of employment opportunities in rural areas of the state.

(§ 1 ch 69 SLA 1985; am § 2 ch 33 SLA 1986)

Sec. 36.10.006. Statement of purpose.
[Repealed § 16 ch 20 SLA 2002.]

Sec. 36.10.007. State policy.
It is the policy of this state that, to fulfill the duty of loyalty owed to its citizens and to remedy social or economic problems, the state will grant an employment preference to residents when the state is acting as a market participant.
(§ 1 ch 69 SLA 1985)

Sec. 36.10.010. Employment preference.
[Repealed § 11 ch 33 SLA 1986.]

Sec. 36.10.020. Apprentices.
Apprentices must be properly registered apprentices in their particular craft.
(§ 1c ch 177 SLA 1960)

Sec. 36.10.030. Reduction of work force.
When a work force is reduced, resident workers, except supervisory personnel, shall be terminated last.
(§ 1d ch 177 SLA 1960)

Sec. 36.10.040. Application to contracts involving federal funds.
In a contract involving expenditure of federal aid funds, this chapter may not be enforced in a manner that conflicts with federal statutes giving preference to veterans or prohibiting other preferences or discriminations among United States citizens.
(§ 2 ch 177 SLA 1960)

Sec. 36.10.050. Employment of aliens.
[Repealed by § 17 ch 142 SLA 1972.]

Sec. 36.10.060. Employment of prisoners.
[Repealed by § 6 ch 53 SLA 1982.]

Sec. 36.10.070. Unavailability of preferred workers.

(a) An employer subject to hiring requirements under this chapter may request the Department of Labor and Workforce Development to assist in locating qualified, eligible employees. After receiving a request for assistance, the department shall refer qualified, eligible, available residents to the employer to fill the employer's hiring needs. The employer shall cooperate with the department.

(b) If the department is unable to refer a sufficient number of qualified, eligible, available residents able to perform the work, the commissioner of labor may approve the hiring of residents who are not eligible for preference and nonresidents for the balance of the request.

(§ 5 ch 177 SLA 1960; am § 2 ch 208 SLA 1972; am § 3 ch 33 SLA 1986)

Sec. 36.10.075. Regulations.

(a) The commissioner of labor and workforce development shall adopt regulations necessary to carry out the provisions of this chapter including but not limited to the method, time and content of reporting by employers covered by this chapter and reporting provisions permitting on-going supervision by the Department of Labor and Workforce Development on all public works projects covered by this chapter.

(b) The commissioner of labor and workforce development shall adopt regulations to encourage and require the hiring of residents to the maximum extent permitted by law.

(§ 3 ch 208 SLA 1972; am § 4 ch 33 SLA 1986)

Sec. 36.10.076. Notifications by state or political subdivision.

An agency or political subdivision of the state covered by the provisions of this chapter shall notify the Department of Labor and Workforce Development periodically regarding planned public works. Notification shall be in the form and manner prescribed by the Department of Labor and Workforce Development.

(§ 3 ch 208 SLA 1972)

Sec. 36.10.080. Chapter incorporated in contracts.

The provisions of this chapter are considered to be a part of every public works contract.

(§ 6 ch 177 SLA 1960; am § 16 ch 9 SLA 2014)

Sec. 36.10.090. Publication of list of violators.

(a) The commissioner of labor and workforce development shall distribute to all departments and agencies of the state government and to all political subdivisions of the state a list of the names of persons or firms convicted of a violation of this chapter. A person appearing on the list or a firm, corporation, partnership or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision until after three years from the date of publication of the list.

(b) A local government or school district covered by the provisions of this chapter that is found to be in violation of these provisions may be required to forfeit all or part of the state aid made available for the project in which the violation occurs and in addition may be denied up to 12 months of state community assistance or public school funding. A state department or agency head found to be in violation of this chapter may be required to forfeit the position of the department or agency head.

(c) A person or governmental entity covered by the provisions of (b) of this section who is not satisfied by a decision of the Department of Labor and Workforce Development may, as the final administrative process, appeal the decision to a committee consisting of the commissioners of transportation and public facilities, labor, and workforce development, and administration.

The commissioner of transportation and public facilities is the chairman of the committee. A quorum for conducting business is three members and any decision made must be supported by a majority of the committee members. The committee may, upon a showing of hardship, waive all or any part of the penalty provisions of this chapter.

(§ 7 ch 177 SLA 1960; am § 12 ch 142 SLA 1972; am § 4 ch 208 SLA 1972; am E.O. No. 39, § 11 (1977); am § 35 ch 83 SLA 1998; am § 13 ch 44 SLA 2016)

Sec. 36.10.100. Retainage and Penalty.

(a) A contractor who violates a provision of this chapter shall have deducted from amounts due to the contractor under the contract the prevailing wages that should have been paid to a displaced resident, and these amounts shall be retained by the contracting agency.

(b) A contractor or the agent of a contractor who violates a provision of this chapter is guilty of a misdemeanor, and upon conviction is punishable by a fine of not more than $500, or by imprisonment for not more than 90 days, or by both. (§ 8 ch 177 SLA 1960)

Sec. 36.10.110. Definitions.

[Repealed by § 17 ch 142 SLA 1972.]

Sec. 36.10.120. Investigations and hearings.

The Department of Labor and Workforce Development may, when necessary to enforce this chapter,

(1) conduct investigations and hold hearings relating to employment preference;

(2) compel the attendance of witnesses and the production of books, papers and documents;

(§ 13 ch 142 SLA 1972; am § 46 ch 53 SLA 1973)

Sec. 36.10.125. Enforcement.

(a) The attorney general shall, when requested by the Department of Labor and Workforce Development, enforce the provisions of this chapter. The attorney general may obtain a court order prohibiting a contractor or subcontractor violating this chapter from continuing to work on existing public construction contracts of the state or a political subdivision of the state. The state or political subdivision of the state may prosecute the work to

completion by contract or otherwise, and the contractor or subcontractor and the sureties of the contractor or subcontractor are liable for excess costs for completing the work.

(b) A private person is entitled to bring an action in the superior court to enforce the provisions of this chapter if that private person first gives at least 20 days notice to the commissioner of labor and workforce development. The notice must set out

(1) the intent of the private person to bring an action under this subsection;

(2) the specific violation complained of; and

(3) the name of the person accused of the violation.

(c) In an action brought under (b) of this section, the court may, in its discretion, order denial of state community assistance, revenue sharing, or public school funding, forfeiture of office or position, or injunctive or other relief. If the court finds for the plaintiff in an action brought under (b) of this section, it may award the plaintiff an amount equal to the actual costs and attorney fees incurred by the plaintiff.

(§ 13 ch 142 SLA 1972; am § 1 ch 183 SLA 1976; am § 36 ch 83 SLA 1998; am § 14 ch 44 SLA 2016)

Sec. 36.10.130. Resident hire report.

The attorney general and the commissioner of labor and workforce development shall report annually to the governor on the status of employment in the state, the effect of nonresident employment on the employment of residents in the state, and methods to increase resident hire. The report shall be submitted by January 31 of each year, and the governor shall notify the legislature that the report is available.

(§ 5 ch 33 SLA 1986; am § 55 ch 21 SLA 1995)

Sec. 36.10.140. Eligibility for preference; approval of job-training programs.

(a) A person is eligible for an employment preference under this chapter if the person certifies eligibility as required by the Department of Labor and Workforce Development, is a resident, and

(1) is receiving unemployment benefits under AS 23.20 or would be eligible to receive benefits but has exhausted them;

(2) is not working and has registered to find work with a public or private employment agency or a local hiring hall;

(3) is underemployed or marginally employed as defined by the department; or

(4) has completed a job-training program approved by the department and is either not employed or is engaged in employment that does not use the skills acquired in the job-training program.

(b) In approving job-training programs under (a) of this section, the department shall use information and findings from other state and federal agencies as much as possible.

(c) An employer subject to a resident hiring requirement under this chapter shall certify that persons employed as residents under the preference were eligible for the preference at the time of hiring.

(d) A labor organization that dispatches members for work on a public works project under a collective bargaining agreement shall certify that persons dispatched as residents to meet a preference were eligible for the preference at the time of dispatch.

(e) An employer or labor organization may request assistance from the Department of Labor and Workforce Development in verifying the eligibility of an applicant for a hiring preference under this chapter.

(§ 5 ch 33 SLA 1986)

Sec. 36.10.150. Determination of zone of underemployment.

(a) Immediately following a determination by the commissioner of labor and workforce development that a zone of underemployment exists, and for the next two fiscal years after the determination, qualified residents of the zone who are eligible under AS 36.10.140 shall be given preference in hiring for work on each project under AS 36.10.180 that is wholly or partially sited within the zone. The preference applies on a craft-by-craft or occupational basis.

(b) The commissioner of labor and workforce development shall determine the amount of work that must be performed under this section by qualified residents who are eligible for an employment preference under AS 36.10.140. In making this determination, the commissioner shall consider the nature of the work, the classification of workers, availability of eligible residents, and the willingness of eligible residents to perform the work.

(c) The commissioner shall determine that a zone of underemployment exists if the commissioner finds that

(1) the rate of unemployment within the zone is substantially higher than the national rate of unemployment;

(2) a substantial number of residents in the zone have experience or training in occupations that would be employed on a public works project;

(3) the lack of employment opportunities in the zone has substantially contributed to serious social or economic problems in the zone; and

(4) employment of workers who are not residents is a peculiar source of the unemployment of residents of the zone. (§ 5 ch 33 SLA 1986)

Sec. 36.10.180. Projects subject to preference.

(a) The preferences established in AS 36.10.150 - 36.10.175 apply to work performed

(1) under a contract for construction, repair, preliminary surveys, engineering studies, consulting, maintenance work, or any other retention of services necessary to complete a given project that is let by the state or any agency of the state, a department, office, state board, commission, public corporation, or other organizational unit of or created under the executive, legislative or judicial branch of state government,

including the University of Alaska and the Alaska Railroad Corporation, or by a political subdivision of the state including a regional school board with respect to an educational facility under AS 14.11.020;

(2) on a public works project under a grant to a municipality under AS 37.05.315 or AS 37.06.010;

(3) on a public works project under a grant to a named recipient under AS 37.05.316;

(4) on a public works project under a grant to an unincorporated community under AS 37.05.317 or AS 37.06.020; and

(5) on any other public works project or construction project that is funded in whole or in part by state money.

(b) If the governor has declared an area to be an area impacted by an economic disaster under AS 44.33.285, then the preference for residents of the area established under AS 44.33.285 - 44.33.310 supersedes the preference under AS 36.10.150 - 36.10.175 for contracts awarded by the state.

(c) The commissioner shall define the boundaries of a zone within which a preference applies.
(§ 5 ch 33 SLA 1986; am § 2 ch 80 SLA 1993)

Sec. 36.10.190. Reporting provisions.
An employer obligated to meet resident hire requirements under this chapter shall comply with the reporting provisions that the commissioner of labor and workforce development determines are reasonably necessary to carry out this chapter. Except for statistical data, all information regarding specific employees is confidential and may not be released by the Department of Labor and Workforce Development. However, confidential employee information may be shared between departments for purposes of this chapter.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.200. Criminal penalties.

(a) A person who makes a false sworn statement in connection with a certification of eligibility for an employment preference under this chapter is subject to criminal prosecution for perjury as provided in AS 11.56.200.

(b) A person who makes an unsworn falsification, with the intent to mislead a public servant in the performance of a duty, in connection with a certification of eligibility for an employment preference under this chapter, is subject to criminal prosecution as provided in AS 11.56.210.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.210. Civil penalties.

(a) In addition to any criminal penalties imposed, after a hearing the department may impose a civil penalty on a person who, in connection with certification of eligibility for an employment preference under this chapter,

(1) made a false sworn statement; or

(2) made an unsworn falsification with intent to mislead a public servant in the performance of a duty.

(b) The amount of the civil penalty under (a) of this section for a person who falsely certifies that the person is eligible for an employment preference under this chapter is not more than $400 for each false certification.

(c) The amount of the civil penalty under (a) of this section for an employer who falsely certifies that employees are residents eligible for a preference under this chapter is not more than $2,000 for each of the first five false certifications. The penalty for the sixth false certification made by an employer and for each false certification thereafter is at least $2,000 and not more than $4,000.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.900. Severability.
If a provision of this chapter, or the application of a provision to a person or circumstance, is held invalid, the remainder of this chapter and the application to other persons or circumstances shall not be affected by the holding. The remainder shall be enforced to the greatest extent constitutionally permissible under the constitutions of the United States and the State of Alaska.
(§ 5 ch 33 SLA 1986)

Sec. 36.10.990. Definitions.
In this chapter

(1) "qualified" means possesses the requisite education, training, skills, or experience to perform the work;

(2) "zone" includes a census area in the state, an economic region of the state, and the state as a whole.
(§ 5 ch 33 SLA 1986)

CHAPTER 15. ALASKA PRODUCT PREFERENCES.

ARTICLE 1. FOREST PRODUCTS PREFERENCE

Section:

Sec. 36.15.010. Use of local forest products required in projects financed by public money.
In a project financed by state money in which the use of timber, lumber, and manufactured lumber products is required, only timber, lumber and manufactured lumber projects originating in this state from local forests shall be used wherever practicable. (§ 14-3-1 ACLA 1949)

Sec. 36.15.020. Insertion of clause in calls for bids and in contracts.
A clause containing the substance of AS 36.15.010 shall be inserted in all calls for bids and in all contracts awarded. (§ 14-3-2 ACLA 1949)

CHAPTER 25. CONTRACTORS' BONDS.

Section:

Sec. 36.25.010. Bonds of contractors for public buildings or works.

(a) Except as provided in AS 44.33.300, before a contract exceeding $100,000 for the construction, alteration, or repair of a public building or public work of the state or a political subdivision of the state is awarded to a general or specialty contractor, the contractor shall furnish to the state or a political subdivision of the state the following bonds, which become binding upon the award of the contract to that contractor:

(1) a performance bond with a corporate surety qualified to do business in the state, or at least two individual sureties who shall each justify in a sum equal to the amount of the bond; the amount of the performance bond shall be equivalent to the amount of the payment bond;

(2) a payment bond with a corporate surety qualified to do business in the state, or at least two individual sureties who shall each justify in a sum equal to the amount of the bond for the protection of all persons who supply labor and material in the prosecution of the work provided for in the contract; when the total amount payable by the terms of the contract is not more than $1,000,000, the payment bond shall be in a sum of one-half the total amount payable by the terms of the contract; when the total amount payable by the terms of the contract is more than $1,000,000 and not more than $5,000,000, the payment bond shall be in a sum of 40 percent of the total amount payable by the terms of the contract; when the total amount payable by the terms of the contract is more than $5,000,000, the payment bond shall be in sum of $2,500,000.

(b) This section does not limit the authority of the contracting officer to require a performance bond or other security in addition to those, or in cases other than the cases specified in (a) of this section.

(c) When no payment bond has been furnished, the contracting department may not approve final payments to the contractor until the contractor files a written certification that all persons who supplied labor or material in the prosecution of the work provided for in the contract have been paid.

(§ 1 ch 49 SLA 1953; am § 1 ch 77 SLA 1964; am § 14 ch 142 SLA 1972; am §§ 1, 2 ch 180 SLA 1976; am § 8 ch 277 SLA 1976; am 34 ch 108 SLA 1982)

Sec. 36.25.020. Rights of persons furnishing labor or material.

(a) A person who furnishes labor or material in the prosecution of the work provided for in the contract for which a payment bond is furnished under AS 36.25.010 and who is not paid in full before the expiration of 90 days after the last day on which the labor is performed or material is furnished for which the claim is made, may sue on the payment bond for the amount unpaid at the time of the suit.

(b) However, a person having direct contractual relationships with a subcontractor but no contractual relationship express or implied with the contractor furnishing the payment bond has a right of action on the payment bond upon giving written notice to the contractor within 90 days from the last date on which the person performed labor or furnished material for which the claim is made. The notice must state with substantial accuracy the amount claimed and the name of the person to whom the material was furnished or for whom the labor was performed. The notice shall be served by mailing it by registered mail, postage prepaid, in an envelope addressed to the contractor at any place where the contractor maintains an office or conducts business, or the contractor's residence, or in any manner in which a peace officer is authorized to serve summons.

(c) A suit brought under this section shall be brought in the name of the state or the political subdivision of the state for the use of the person suing in the court with jurisdiction. A suit under this section is subject to AS 08.18.151. A suit may not be started after the expiration of one year after the date of final settlement of the contract. The state or political subdivision of the state is not liable for costs or expenses of the suit.

(§ 2 ch 49 SLA 1953; am § 15 ch 142 SLA 1972 am §58 ch 14 SLA 1987)

Sec. 36.25.025. Optional municipal exemption.

A municipality, by ordinance adopted by its governing body, may exempt contractors from compliance with the provisions as AS 36.25.010(a) if the estimated cost of the project does not exceed $400,000, and

(1) the contractor is, and for two years immediately preceding the award of the contract has been, a licensed contractor having its principal office in the state;

(2) the contractor certifies that it has not defaulted on a contract awarded to the contractor during the period of three years preceding the award of a contract for which a bid is submitted;

(3) the contractor submits a financial statement, prepared within a period of nine months preceding the submission of a bid for the contract and certified by a public accountant or a certified public accountant licensed under AS 08.04, demonstrating that the contractor has a net worth of not less than 20 percent of the amount of the contract for which a bid is submitted; and

(4) the total amount of all contracts that the contractor anticipates performing during the term of performance of the contract for which a bid is submitted does not exceed the net worth of the contractor reported in the certified financial statement prepared and submitted under (3) of this section by more than seven times.

(§ 1 ch 81 SLA 1978)

CHAPTER 95. GENERAL PROVISIONS

Section:
10. Definitions

Sec. 36.95.010. Definitions.
In this title, unless the context requires otherwise,

(1) "contractor" means the contractor including subcontractors performing work necessary to facilitate public construction;

(2) "laborer, mechanic, or field surveyor" means a person who engages in work which is basically physical or unskilled in nature; or who engages in work, requiring the use of tools or machines, which basically consists of the shaping and working of materials into some type of structure, machine or other object; or who engages in outdoor tasks related to the operation of findings and delineating contour, dimensions, position, topography, as of any part of the earth's surface, by preparation of measured plan or description of any area or other portion of country or of road or line through any area or other portion of country;

(3) "public construction" or "public works" means the on-site field surveying, erection, rehabilitation, alteration, extension or repair, including painting or redecorating of buildings, highways or other improvements to real property under contract for the state, a political subdivision of the state, or a regional school board;

(4) "resident" means a person who establishes residency under AS 01.10.055;

(5) "retainage" means money withheld from a contractor until completion of a contract or satisfaction of other contingency as evidenced by approval of the applicable pay estimate;

(6) "state or a political subdivision of the state" means any state department, state agency, state university, borough, city, village, school district or other state subdivision;

(7) "wages" includes fringe benefits.

(§ 16 ch 142 SLA 1972; am § 3 ch 89 SLA 1976; am § 16 ch 147 SLA 1978; am § 2 ch 85 SLA 1982; am § 92 ch 6 SLA 1984; am §§ 6, 11 ch 33 SLA 1986)

ALASKA ADMINISTRATIVE CODE
TITLE 8. LABOR

PART 2. RESIDENT EMPLOYMENT

CHAPTER 30. PUBLIC CONTRACTS.

Article:

ARTICLE 1. WAGES AND HOURS.

Section:

8 AAC 30.010. Notification of Contract Awards.

(a) Within 20 days of awarding a public contract, the state or political subdivision of the state shall notify the commissioner in writing that the contract has been awarded. The writing shall conform to the requirements of AS 36.05.035.

(b) Verification of contractors bonding requirements shall be by certified statement furnished to the commissioner by the state or political subdivision of the state which awarded the contract.

(Eff. 7/8/73, Register 47)

Authority: AS 36.05.030 AS 36.05.035

8 AAC 30.020. Certified Payroll.

(a) Before Friday of every second week, each contractor, subcontractor, or owner/operator who performs work on a public construction contract for the state or political subdivision of the state shall file with the department a certified payroll (Form 07-6058) that covers the preceding reporting period.

(b) The certified payroll shall be submitted to the department's regional office in the judicial district in which the work is performed:

1st Judicial District - Department of Labor and Workforce Development, Juneau
3rd Judicial District - Department of Labor and Workforce Development, Anchorage
2nd and 4th Judicial Districts - Department of Labor and Workforce Development, Fairbanks

(c) Instead of submitting Form 07-6058, a contractor may submit the contractor's payroll form. However, the payroll form must contain the same information and statement of compliance required by Form 07-6058.

(d) Owner/operators who perform duties as laborers, mechanics, or field surveyors while working as contractors or subcontractors on a public work project shall be included on their certified payrolls in the same manner as any other laborer, mechanic or field surveyor. However, an owner/operator who performs duties as a laborer, mechanic, field surveyor is not required to pay themselves each reporting period, but shall report hours worked and actual payments received under the terms of the contract and the period covered by each payment. After deducting operating expenses, the actual payment received by an owner/operator performing duties as a laborer, mechanic, or field surveyor must meet or exceed the minimum prevailing rate of pay in the applicable classification for each hour worked on a public construction project.

(e) If a contractor is under contract to provide trucks on a public construction project and leases a truck to an individual truck driver or dispatches an owner/operator working on that same project, the contractor shall pay no less than the prevailing wage for each hour worked each certified payroll reporting period to that driver.

(Eff. 7/8/73, Register 47; am 7/30/82, Register 83; am 8/9/01; Register 159; am 3/2/2008, Register 185)

Authority: AS 36.05.030 AS 36.05.040
AS 36.10.075

Editor's Note:

As of Register 151 (October 1999), the regulations attorney made technical revisions under AS 44.62.125 (b)(6) to reflect the name change of the Department of Labor to the Department of Labor and Workforce Development made by ch. 58, SLA 1999 and the corresponding title change of the commissioner of labor.

Form 07-6058 (payroll form) required in 8 AAC 30.020 may be obtained from the Department of Labor and Workforce Development, Wage and Hour Administration, 1251 Muldoon Road, Suite 113, Anchorage, AK 99504; telephone: (907) 269-4900. The form is also available on the department's website at:
http://labor.alaska.gov/lss/lssforms.htm

8 AAC 30.025. Fringe Benefit Contributions.

(a) Employers must remit contributions to union trusts, approved private pension plans, or other approved fringe benefit plans by the 15th of the month following the accrual of the contribution. If the plan itself has a more stringent remittance deadline, the plan deadline shall prevail. A copy of the actual deposit or other satisfactory proof shall be provided the department upon request.

(b) A private pension plan or other fringe benefit plan as referenced in (a) of this section must meet the following conditions in order to be approved as an offset against the prevailing wage rate requirement for fringe benefits:

(1) plan contributions must be

(A) irrevocable;

(B) deposited on a regular basis, not less than monthly, to a trustee or third-party administrator;

(C) free of administrative expense charges to employees, except reasonable and customary administrative fees charged to the plan as a whole, subject to approval of the plan trustee;

(D) non-discretionary;

(E) factored across all work performed by an employee in public construction and non-public construction with the exception of an automatic vesting 401(k) plan;

(2) plan contributions may not be made on behalf of employees who are not eligible to participate in the plan;

(3) except for an automatic vesting 401(k) plan, plan contributions must not be funded solely through hours worked on public construction projects.

(c) Except for an automatic vesting 401(k) plan which allows the actual hourly amount contributed to the plan during the public construction project to be directly credited against fringe benefit payment requirements, to establish an hourly rate for credit against prevailing wage requirements, the amount paid by the employer for the benefit shall be divided by the hours worked by the employee under the plan during the interval under which payments are due to the plan administrator. To allow for seasonal variations, the plan costs may be calculated on an annual basis.

(d) If the hourly rate established under (c) of this section does not meet the prevailing fringe benefit rate, the remainder must be paid to the employee.

(e) If a pension plan meets the requirements under 29 U.S.C. 1001 – 1461 (Employee Retirement Income Security Act of 1974) and includes a minimum vesting requirement, any forfeited amounts must remain in the trust, subject to the authority of the trustee and may not revert to the employer.

(f) The department may disallow an employer from taking credit for fringe benefit contributions as an offset to prevailing wage requirements if the provisions of this section are not met. Upon request, the employer shall provide the following to the department:

(1) a copy of the plan;

(2) a copy of the plan adoption agreement;

(3) the name, address, and telephone number of the plan broker;

(4) the name, address, and telephone number of the plan administrator;

(5) the United States Internal Revenue Service approval letter;

(6) the calculations of the hourly cost equivalent for the plan.

(g) An apprentice shall receive 100 percent of the prevailing fringe benefit rate established in the applicable *Laborers' and Mechanics' Minimum Rates of Pay*, unless a bona fide fringe benefit plan is specified in the applicable Standards of Apprenticeship approved by the United States Department of Labor, Office of Apprenticeship.

(h) In this section, "automatic vesting 401(k) plan," means a 401(k) plan maintained in compliance with 29 U.S.C. 1001 – 1461 (Employee Retirement Income Security Act of 1974) that allows for immediate vesting in the plan to ensure that the employee will not be subject to any forfeiture of amounts contributed to the plan since it has no vesting requirements.

(Eff. 1/2/91, Register 116; am 3/2/2008, Register 185; am 8/12/2018, Register 227)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.070

8 AAC 30.027. Notice of violation requiring withholding.

When the department determines, under the authority of AS 36.05.030, that a violation has occurred, it shall notify the contracting agency as to the nature and estimated amount of the violation so that the contracting agency can fulfill its obligation to withhold funds under AS 36.05.070 (4). (Eff. 1/2/91, Register 116)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.070

8 AAC 30.030. Notification of withholding accrued payments.

(a) If the state or a political subdivision of the state withholds accrued payments under those provisions of its contracts required by AS 36.05.070(c)(4), the state or political subdivision shall notify the commissioner within three working days.

(b) Notification shall be in writing and contain the following information:

(1) name of state agency or political subdivision of the state that awarded the contract;

(2) name of state agency or political subdivision of the state that is withholding accrued payments;

(3) contractor's name and address;

(4) address of construction site;

(5) job classification being underpaid;

(6) wage rate required by contract; and

(7) wage rate actually being paid.

(Eff. 7/8/73, Register 47)

Authority: AS 36.05.030 AS 36.05.070

8 AAC 30.040. Notification of Termination of Contract.

(a) If the state or a political subdivision of the state terminates a contract under those provisions of its contract required under AS 36.05.080, the state or political subdivision of the state shall notify the department within three working days.

(b) Notification shall be in writing and contain the following information:

(1) name of state agency or political subdivision of the state that awarded the contract;

(2) name of state agency or political subdivision of the state that is terminating the contract;

(3) contractor's name and address;

(4) address of construction site;

(5) job classification being underpaid;

(6) wage rate required by contract;

(7) wage rate actually being paid; and

(8) proposed action to be taken to complete construction.

(Eff. 7/8/73, Register 47)

Authority AS 36.05.030 AS 36.05.080

ARTICLE 2. WAGE SCALE.

Section:

50. Wage Scale

8 AAC 30.050. Wage Scale.

(a) The department will determine the prevailing wage rate to be paid laborers, mechanics, and field surveyors. The department will publish this determination in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*. The department will periodically revise the prevailing wage rates, on a regional basis, to correspond with the prevailing wage rate for similar work.

(b) The prevailing wage will be determined on a regional basis for two geographic regions of the state, north of North 63 degrees latitude and south of North 63 degrees latitude. A region may be subdivided into zones if the commissioner determines that the prevailing wage rate has local variations within the region. In determining the prevailing wage rate for a region or zone, the department will consider the prevailing wage that represents majority penetration for each work classification. If there is no majority penetration the department may set the prevailing wage rate in the following manner:

(1) If less than a majority of the persons employed at a particular skill level in a particular job class receive the same wage, the prevailing wage rate will be determined by taking the arithmetic mean (average) of the wages in the survey for the job class being considered.

(2) Prior to calculating the arithmetic mean, the survey will be adjusted by eliminating five percent of the extreme wage rates.

(3) For example, in a survey consisting of 75 different pay rates the rates will be arrayed in order of size. Five percent at both ends of the scale, the four highest and four lowest, will be eliminated. The remaining 67 rates will be the final survey from which the arithmetic mean will be determined to be the prevailing rate of pay.

(4) In determining the prevailing wage rate for a region or zone, the department will consider the prevailing union wage, local practice, and any other standard considered by the department to be appropriate.

(c) Special prevailing wage rate determinations may be requested for special projects or special worker classifications, if the work to be performed does not conform to traditional public construction for which a prevailing wage rate has been established under (a) of this section. Requests for special wage rate determinations must be in writing and filed with the commissioner at least 30 days before the award of the contract. An applicant for a special wage rate determination shall have the responsibility to support the necessity for the special rate. An application for a special wage rate determination filed under this section must contain

(1) a specification of the contract or project on which the special rates will apply and a description of the work to be performed;

(2) a brief narrative explaining why special wage rates are necessary;

(3) the job class or classes involved;

(4) the special wage rates the applicant is requesting, including survey or other relevant wage data to support the requested rates;

(5) the approximate number of employees who will be affected; and

(6) any other information which might be helpful in determining if special wage rates are appropriate.

(d) The prevailing wage rate established in (a) of this section shall be considered the minimum wage rate that shall be paid to various classes of laborers, mechanics, and field surveyors.

(e) This section shall be made part of every contract that falls within the scope of AS 36.05.010 and 36.05.070(a).

(Eff. 7/8/73, Register 47; am 7/30/82, Register 83; am 8/9/2001, Register 159; am 3/2/2008, Register 185; am 11/25/2018, Register 228)

Authority: AS 36.05.010 AS 36.05.030
AS 36.05.070

Editor's note:

The pamphlet titled *Laborers' and Mechanics' Minimum Rates of Pay* may be obtained from the Department of Labor and Workforce Development, 1251 Muldoon Road, Suite 113, Anchorage, AK 99504; telephone: (907) 269-4900. The pamphlet is also available on the department's website at: http://labor.alaska.gov/lss/lssforms.htm.

8 AAC 30.051. Purpose.

The purpose of 8 AAC 30.052 – 8 AAC 30.056 is to ensure that wages paid to laborers, mechanics, and field surveyors do not fall below the prevailing rate of pay.

8 AAC 30.052. Board and lodging; remote sites.

(a) A contractor on a public construction project located 65 or more road miles from the international airport closest to the project area in either Fairbanks, Juneau, or Anchorage, or that is inaccessible by road in a two-wheel drive vehicle, shall provide adequate board and lodging to each laborer, mechanic, or field surveyor while the person is employed on the project. If commercial lodging facilities are not available, the contractor shall provide temporary lodging facilities. Lodging facilities must comply with all applicable state and federal laws. For a highway project, the location of the project is measured from the midpoint of the project.

(b) A contractor is not required to provide board and lodging:

(1) to a laborer, mechanic, or field surveyor who is a domiciled resident of the project area; or

(2) on a laborer, mechanic, or field surveyor's scheduled days off, when the person can reasonable travel between the project and the person's permanent residence; for the purposes of this paragraph, "scheduled day off" means a day in which a person does not perform work on-site, is not required to remain at or near the job location for the benefit of the contractor, and is informed of the day off at least seven days before the day off.

(c) Upon a contractor's written request, the commissioner may waive the requirements of (a) of this section where:

(1) the project is inaccessible by road in a two-wheel drive vehicle, but the laborer, mechanic, or field surveyor can reasonable travel between the project and the person's permanent residence within one hour; or

(2) a laborer, mechanic, or field surveyor is not a domiciled resident of the project area, but has established permanent residence, with the intent to remain indefinitely, within 65 road miles of the project, or for a highway project, the mid-point of the project.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.030
AS 36.10.075 AS 36.05.010

8 AAC 30.054. Per diem instead of board and lodging.

(a) A contractor may pay a laborer, mechanic, or field surveyor per diem instead of providing board and lodging, when the following conditions are met

(1) the department determines that per diem instead of board and lodging is an established practice for the work classification; the department shall publish and periodically revise its determinations in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*;

(2) the contractor pays each laborer, mechanic, or field surveyor the appropriate per diem rate as published and periodically revised in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*; and

(3) the contractor pays the per diem to each laborer, mechanic, or field surveyor on the same day that wages are paid.

(b) A contractor may not pay per diem instead of board and lodging on a highway project located

(1) west of Livengood on the Elliot Highway, AK-2;

(2) on the Dalton Highway, AK-11;

(3) north of milepost 20 on the Taylor Highway, AK-5;

(4) each of Chicken on the Top of the World Highway; or

(5) south of Tetlin Junction to the Alaska-Canada border on the Alaska Highway, AK-2.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.010 AS 36.10.075

8 AAC 30.056. Alternative arrangement.

Upon a contractor's written request, the commissioner may approve an alternative board and lodging or per diem arrangement, provided

(1) the arrangement does not reduce the laborer, mechanic, or field surveyor's wages below the prevailing wage rate; and

(2) the laborer, mechanic, or field surveyor voluntarily enters into and signs the written arrangement; a labor organization representing laborers, mechanics, or field surveyors may enter into the written agreement on their behalf.

(Eff. 11/25/2018, Register 228)

Authority: AS 23.05.060 AS 36.05.010
AS 36.05.030 AS 36.10.075

ARTICLE 3. Employment Preference.

Section:

8 AAC 30.060. Resident Hiring.
[Repealed 9/27/87]

8 AAC 30.061. Contracting agency reporting requirements.

(a) Within 20 days after awarding a contract or grant covered by AS 36.10.180, a state agency or political subdivision of the state shall file with the department a notice containing

(1) the name and address of the state agency or political subdivision awarding the contract or grant;

(2) the name of the head of the state agency or political subdivision awarding the contract or grant;

(3) the date of the contract or grant award;

(4) the total amount of the contract or grant;

(5) the location of the project; and

(6) the name and address of each contractor and subcontractor performing work on the project.

(b) A state agency or political subdivision of the state shall report immediately to the department any changes or additions regarding the notice required in (a) of this section which involve either

(1) a change in the identity of a contractor or subcontractor performing work on the project; or

(2) a change in the total amount of the contract if the change exceeds $10,000.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.076

8 AAC 30.062. Employer reporting requirements.

(a) Upon request by the department, an employer required to file a quarterly report of employment and wages under AS 23.20.105 - 23.20.535 shall include in its quarterly report the following information for each employee:

(1) either the occupational title or the four-digit standard occupational classification code for the last position held by the employee; and

(2) the two-digit geographic area code of the employee's primary work location.

(b) The department will provide each employer required to submit information under (a) of this section with a list of occupational codes and titles applicable to its industry and a map showing the boundaries and code for each geographic area of the state.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.190

8 AAC 30.064. Hiring preference for residents of zone of underemployment.

(a) For purposes of AS 36.10.150, the commissioner will determine that an area is a zone of underemployment if

(1) the rate of unemployment within the area is at least 10 percent greater than the average national unemployment rate for the most recent 12-month period for which unemployment insurance figures are available, or a longer period determined appropriate by the commissioner to take into account unemployment trends exceeding a one-year period; for example, if the national unemployment rate is seven percent, the rate of unemployment in the area must be at least 7.7 percent for the area to be a zone of underemployment;

(2) at least 10 percent of the jobs in a particular craft or occupation that would be used on a particular public-funded project could be filled by residents of the area who are trained or experienced in that craft or occupation; a determination under this paragraph will be based on data for the quarter of highest employment for the most recent calendar year for which data is available;

(3) the lack of employment opportunities has substantially contributed to serious social or economic problems in the area, as determined under 8 AAC 30.068; and

(4) the employment of nonresidents is a peculiar source of unemployment for residents of the area, as determined under 8 AAC 30.069.

(b) For a public-funded project, the percentage of positions which must be reserved under AS 36.10.150 for eligible residents, in a craft or occupation subject to a hiring preference, is the percentage that would result in a determination under (a) of this section that the area was not a zone of underemployment. The department will compute the percentage for an occupation or craft and announce it after the determination under (a) of this section is made.

(Eff. 9/27/87, Register 103; am 6/8/11, Register 198)
Authority AS 36.10.075 AS 36.10.150

8 AAC 30.065. Hiring Preference for Residents of Economically Distressed Zone.
[Repealed 8/9/2001]

8 AAC 30.066. Hiring Preference for Economically Disadvantaged Minority Residents.
[Repealed 8/9/2001]

8 AAC 30.067. Hiring Preference for Economically Disadvantaged Female Residents.
[Repealed 8/9/2001]

8 AAC 30.068. Determination that lack of employment opportunities has substantially contributed to serious social or economic problems.

For purposes of AS 36.10.150 - 36.10.175 and this chapter, the lack of employment opportunities has substantially contributed to serious social or economic problems if changes in indicators of social and economic problems are linked to changes in the number of people who want to work and are unable to obtain work. The commissioner will use correlation analysis, testimony, professional studies, or other evidence to establish the relationship between unemployment and social or economic problems.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.160
AS 36.10.175 AS 36.10.150
AS 36.10.170

8 AAC 30.069. Determination of peculiar source of unemployment.

For purposes of AS 36.10.150 - 36.10.175, and 8 AAC 30.064, the commissioner will determine that employment of nonresidents is a peculiar source of unemployment if more than 10 percent of the residents of an area who are trained or experienced in a craft or

occupation are unemployed and more than 10 percent of the total number of workers employed in that area in that craft or occupation are not residents of the area.
(Eff. 9/27/87, Register 103; am 08/9/01; Register 159)
Authority: AS 36.10.075 AS 36.10.160
AS 36.10.175 AS 36.10.150
AS 36.10.170

8 AAC 30.070. Annual Report by Agency or Political Subdivision of the State.
[Repealed 9/27/87.]

8 AAC 30.071. Determination of Past Economic Discrimination.
[Repealed.]
(Eff. 9/27/87, Register 103; repealed 08/9/01; Register 159)

8 AAC 30.072. Determining residency.
The department will consider the following information in determining whether a person is a resident:

(1) where the person, the person's spouse, and the person's dependent children maintain their principal place of abode;

(2) where the person's dependent children are enrolled in school;

(3) the person's address on driver's licenses;

(4) the person's address on motor vehicle registrations;

(5) where the person's bank, credit union, or other financial accounts are maintained;

(6) the person's address on hunting, fishing, trapping, or other licenses;

(7) where the person is registered to vote;

(8) the person's address as shown on Department of Revenue permanent fund dividend records; and

(9) any other relevant facts.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.14
AS 36.95.010(4)

8 AAC 30.073. Determination of resident hiring preferences.

(a) The commissioner will, at least biennially, determine whether an area is a zone of preference under AS 36.10 and this chapter if enough data is available to make that determination.

(b) The commissioner will include, in the annual resident hire report required under AS 36.10.130, all resident preference determinations made during the previous calendar year.

(c) When an area has been determined to be a resident hiring zone of preference, the department will notify all contractors of record who are or will be performing work on public-funded projects in the zone, and will notify all state agencies and political subdivisions that have public-funded projects in the zone.

(d) Upon notification under (c) of this section, the resident hiring preference requirements are effective immediately and apply to all public-funded projects in the zone.
(Eff. 9/27/87, Register 103; am 3/2/2008, Register 185)
Authority: AS 36.10.075

8 AAC 30.078. Resident hiring preferences in overlapping or multiple zones.

(a) If two areas are determined to be zones of preference under AS 36.10 and this chapter for the same resident hiring preference, and one of the zones is located entirely within the other, the preference requirements will apply to the larger zone.

(b) As provided in AS 36.10.150 - 36.10.175, if a public-funded project is located in more than one zone, the entire project is subject to the resident hiring preferences in effect in those zones.
(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075

8 AAC 30.080.
[Repealed 12/4/76]

8 AAC 30.081. Compliance with preference requirements.

(a) To comply with AS 36.10.150 - 36.10.175, an employer subject to a resident hiring reference shall meet the relevant resident hire percentage, prescribed under this chapter, for each separate workweek. If an area has been determined to be a zone of preference for more than one type of resident hiring preference, the requirements of each preference apply. An employer may count the hire of an eligible resident toward satisfaction of each preference for which the resident qualifies.

(b) An employer subject to a resident hiring preference shall certify that each person hired as a resident under the preference was eligible for the preference at the time of hiring. The employer's certification must be provided on the weekly certified payroll form filed with the department (Form 07-6058); must include the name and residence address of each employee on the project, including supervisory employees; and must include a statement of compliance with all resident hiring preferences in effect.

(c) A labor organization that dispatches members for work on a public-funded project subject to a resident hiring preference shall certify to the employer at the time of dispatch that each person dispatched as a resident to meet a preference was eligible for the preference at the time of dispatch. The labor organization's certification must be in writing and must include the name and residence address of each person dispatched to the project.

(d) An employer subject to a resident hiring preference who is unable to find enough eligible residents may request from the department a waiver to hire an ineligible person for a specific job. The waiver request must be submitted to the department at least seven calendar days before the waiver is required to be considered for approval. Within three working days, the

department shall determine whether the contractor's proposed minimum qualifications for the position covered by the waiver request are acceptable. The employer must place an advertisement using at least one public form of statewide advertising, such as a newspaper with statewide circulation, and must request that the Alaska Employment Service post a statewide facilitated recruitment job order through the Alaska Job Center Network. The advertisement and the job order must run for at least three calendar days, and both must

(1) state that the purpose of the request is to satisfy employment preference requirements of this state under AS 36.10 and that applicants must be residents of this state;

(2) list the job title and minimum qualifications as accepted by the department;

(3) identify the rate of pay including fringe benefits and other compensation, such as travel or room and board;

(4) identify the job location, expected duration of the job, and the number of expected daily and weekly work hours; and

(5) specify that all job seekers apply through the Alaska Job Center Network.

(e) An employer subject to a resident hiring preference who is unable to find enough eligible residents from either private sources or from the applicants referred by the state employment center under (d) of this section may request from the department a waiver to hire an ineligible person for a specific job. A request for a waiver under this subsection must contain

(1) a description of the job for which a waiver is requested, to include the wages, benefits, expected start date, work schedule, and job duration;

(2) the required qualifications for the job for which a waiver is requested;

(3) the qualifications of the person for whom the waiver is requested;

(4) the name and residence address of the person for whom the waiver is requested;

(5) a description of the employer's efforts to obtain an eligible resident from private sources for the job for which a waiver is requested;

(6) a copy of the recruitment report from the Alaska Job Center Network containing the following information and documentation;

(A) a copy of the job order, a listing of all applicants from the job order and other private recruitment efforts, and the listing of the applicants referred to the employer;

(B) the recruitment result report to show the number of individuals interviewed, hired or not hired;

(C) and, a statement from the Alaska Job Center Network that the employer did or did not comply with the recruitment requirements;

(7) the name and location of the project for which the waiver is requested; and

(8) an explanation of why each applicant referred was not hired.

(f) The department will grant a waiver to employ an ineligible person if the employer establishes, to the department's satisfaction, that there are no qualified eligible residents for a specific job. A waiver granted by the department expires six months from the approval date, at the completion of the specific job for which the ineligible person was hired, or at the time the ineligible person terminates, whichever occurs first. The department will either grant or deny the waiver within 20 working days after receiving the request for a waiver and the supporting evidence required under (e) of this section.

(g) A waiver granted under this section will be determined invalid unless the same benefits provided to the ineligible nonresident, such as housing and transportation to the work site, are also offered and provided to eligible resident applicants.

(Eff. 9/27/87, Register 103; am 3/2/2008, Register 185)

Authority: AS 36.10.070 AS 36.10.140 AS 36.180
AS 36.10.190 AS 36.10.075

8 AAC 30.082. Department determination of eligibility for preference.

(a) Following a determination under this chapter that an area is a zone of preference, the department's assistance may be requested in determining a person's eligibility for a resident hiring preference in a craft or occupation on a public-funded project. Application for an eligibility determination must be made on a form available from the division or from any state employment center. An applicant may mail or deliver the completed application to the division or to any state employment center.

(b) A person will be determined to be eligible for a resident hiring preference if the person establishes, to the department's satisfaction, that he or she meets the eligibility criteria in AS 36.10.140 and 36.10.150 - 36.10.175. An applicant will be notified of the department's determination.

(c) The department will, in its discretion, request that an applicant provide additional information to the department. The additional information will be made a part of the application, and will, in the department's discretion, be used in determining the applicant's eligibility.

(d) If a person is determined under this section to be ineligible, a new application may be submitted if there are new or previously undisclosed facts bearing upon eligibility. The applicant shall note that the application is not an initial application and shall set out the new or previously undisclosed facts.

(e) An employer may rely on the department's determination of eligibility under this section in meeting the requirements of AS 36.10.140(c) and 36.10.150 - 36.10.175.

(Eff. 9/27/87, Register 103)

Authority: AS 36.10.070 AS 36.10.075
AS 36.10.140

8 AAC 30.084. Appeals of eligibility determinations.

(a) A determination by the department under 8 AAC 30.082 that a person is not eligible for a resident hiring preference is final unless the applicant, or the applicant's representative, files a written appeal with the department within 20 days after receipt of the determination.

(b) An appeal must contain the name and mailing address of the applicant, the reasons for the appeal, and any arguments or information in support of the appeal.

(c) The department will, in its discretion, consider any relevant evidence in deciding an appeal even if the evidence is not admissible under Alaska rules of evidence. The department will, in its discretion, request additional information from the applicant. The applicant must respond in writing to a request for additional information within 10 days after receipt of the request. The department will, in its discretion, grant an extension of time to an applicant for good cause shown.

(d) Any notices or other documents in connection with an appeal will be mailed to the last address furnished by the applicant.

(e) The department will issue a written decision on the appeal within 30 days after receipt of the appeal or within 30 days after the submission of additional information requested under (c) of this section. The decision will include findings of fact and conclusions of law, and will be served on all parties to the appeal. The decision under this subsection is the final decision of the department.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.140

8 AAC 30.086. Approval of job training programs.

(a) For the purposes of AS 36.10.140(a)(4), the following types of job training programs are approved:

(1) a program approved by the Alaska Commission on Postsecondary Education, or by an equivalent agency in another state if the program is located in another state; or

(2) a program approved by the United States Department of Labor, Office of Apprenticeship.

(b) For the purposes of AS 36.10.140(a)(4), the following types of training programs will, in the department's discretion, be approved:

(1) a program sponsored or conducted by an employer or union; or

(2) a program approved under the Workforce Innovation and Opportunity Act (WIOA) 2014, Pub. L. No 113-138).

(Eff. 9/27/87, Register 103; am 8/12/2018, Register 227)
Authority: AS 36.10.140

8 AAC 30.088. Computations regarding hiring preference requirements.

Computing the number of workers or positions for resident employment preference under AS 36.10 and this chapter might result in a number that contains a fraction. In such cases, the fraction is to be dropped. For example, a result of 4.8 workers should be shown as 4 workers.

(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075

ARTICLE 4. INVESTIGATIONS AND HEARINGS.

Section:

8 AAC 30.090. Investigations, conference, and persuasion.

(a) The division will investigate potential violations of AS 36 (Public Contracts), on its own motion or on the complaint of any person.

(b) If, after preliminary investigation, the division finds that probably cause exists to believe that a violation of AS 36.05 or AS 36.10 has occurred, the division will provide the respondent believed to have violated AS 36.05 or AS 36.10 a copy of the complaint or a description of the alleged violation by personal service or certified mail to the last known address of the respondent and to the respondent's registered agent, if any. If respondent is a subcontractor, the division will also provide the prime contractor with a copy of the complaint or a description of the alleged violation by personal service or certified mail to the prime contractor's registered agent.

(c) The division will attempt to eliminate the alleged violation through conference and persuasion by providing the respondent and prime contractor an opportunity for an information conference to discuss the matter and attempt to eliminate the alleged violations.

(d) If an alleged violation is not rectified by the informal conference, or if the respondent or prime contractor fails to attend the conference without good cause, the division will notify the respondent and the prime contractor in writing of the failure of the informal conference. The division will include in its notification a summary of the division's investigative findings.

(e) The respondent or the prime contractor may request a hearing by sending the division a written request postmarked not later than 30 days of the date of the division's notification of the failure of the informal conference under (d) of this section. The hearing request must identify any investigative findings in dispute and the basis for the dispute, including any affirmative defenses. Upon receipt of a request for a hearing, the division will refer the case for hearing. Hearings under this section will be conducted in accordance with 8 AAC 30.100.

(f) If no timely request for hearing is received, the division's investigative findings will be final.

(Eff. 12/4/76, Register 60; am 7/30/82, Register 83; am 1/2/91, Register 116; am 8/9/01, Register 159; am 3/2/2008, Register 185; am 8/12/2018, Register 227)
Authority: AS 23.05.060 AS 36.10.075
AS 36.10.120 AS 36.05.030

8 AAC 30.100. Hearings.

(a) Both respondent and complainant may be represented by counsel. If counsel for a party notifies the division, in writing, that counsel is appearing in the matter on behalf of the party, service of notices, memoranda, recommendations, or other papers will be considered sufficient if made on counsel.

(b) The division will give notice to the respondent and to the complainant, if any, of the time and place of the hearing on an alleged violation of AS 36.05 or AS 36.10 by certified mail, or by personal service at least 15 days before the hearing. Mailing to the last known address or the address listed with the division of occupational licensing for construction contractors shall be considered valid service. The notice will contain a copy of the complaint and a description of the alleged violation which will be considered at the hearing.

(c) The location of the hearing will be designated by the division with due regard for the convenience of all persons involved. All hearings are public.

(d) The director will appoint a wage and hour investigator or contract with an attorney licensed in this state to serve as hearing officer, to preside over the hearing, and to make findings of fact and conclusions of law to be used as a basis for the director's decision. An investigator who has investigated the alleged violations or taken part in the informal conference under 8 AAC 30.090 will not be appointed hearing officer.

(e) The hearing officer has full authority to control the procedure of the hearing and to rule on all motions and objections.

(f) The hearing officer may admit any relevant evidence, regardless of the existence of any common law or statutory or court rule which might make improper the admission of such evidence over objection in civil actions, if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs. Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but will not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions.

(g) Oral evidence must be given under oath or affirmation. A record of the proceedings will be kept.

(h) The hearing officer, respondent, and complainant may

(1) call and examine witnesses;

(2) cross-examine opposing witnesses on any matter relevant to the issue at hand even though that matter was not covered in direct examination; and

(3) introduce exhibits.

(i) If the respondent or complainant does not testify in that person’s own behalf, that person may be called and examined as if under cross-examination.

(j) The hearing officer may, for good cause shown, continue a hearing from day to day or recess it to a later date or to a different place by announcement at the hearing or by notice.

(Eff. 12/4/76, Register 60; am 1/2/91, Register 116; am 8/9/01; Register 159)

Authority: AS 23.05.060 AS 36.10.075
AS 36.10.120 AS 36.05.030

8 AAC 30.110. Decisions.

(a) The hearing officer will prepare a written recommendation to the director containing findings of fact and conclusions of law. A copy of the recommendations will be mailed or otherwise delivered to the respondent and to the complainant, if any. The director will act upon the hearing officer's recommendation and render a final decision within 30 days.

(b) Upon making a decision, the director will serve it upon the respondent and complainant, if any, by personal service or certified mail, return receipt requested. If the director determines that the respondent has violated AS 36.05 or AS 36.10, the decision may contain such cease and desist orders and other orders and relief, including a recommendation that the respondent be placed on a list of violators who are barred from performing public contracts as provided under AS 36.05.090 and AS 36.10.090, as the director considers appropriate to correct the unlawful conduct. If, after the director's decision finding the respondent in violation of AS 36.05 or AS 36.10 is served on the respondent, the director determines that the respondent has not ceased or has failed to correct the unlawful conduct, the director will refer the matter to the attorney general for enforcement.

(Eff. 12/4/76, Register 60; am 8/9/01, Register 159)

Authority: AS 23.05.060 AS 36.10.075
AS 36.10.125 AS 36.05.030
AS 36.10.120

ARTICLE 5. DEBARMENT.

Section:

8 AAC 30.200. Review and Recommendations.

(a) Contractors or subcontractors who have disregarded their obligations to employees as defined in 8 AAC 30.900 may be subject to debarment for three years.

(b) Debarment will be considered in those cases in which a contractor or subcontractor has committed willful, aggravated or repeated violations of the provisions of AS 36.05.

(c) The standards to be considered in determining if the contractor's or subcontractor's violations merit recommendation for debarment are

(1) falsification or concealment of records;

(2) refusal to pay prevailing wages;

(3) failure to pay prevailing wages;

(4) extent and seriousness of the violations; or

(5) three or more violations on the same or separate contracts within a five-year period.

(d) A prime contractor may be considered for debarment in cases where the violations are committed by its subcontractors. Criteria considered in determining whether a prime should be debarred are:

(1) a history of subcontractors violating under that prime;

(2) failure of the prime contractor to notify its subcontractors of the requirements of AS 36.05; and

(3) informing subcontractors how not to comply, or assisting a subcontractor in not complying with AS 36.05.

(e) At the completion of an enforcement action against a contractor or subcontractor for a violation of AS 36.05, the investigator will review the file to determine if a recommendation for debarment is warranted in accordance with (c) or (d) of this section. If it is determined that a recommendation for debarment is proper, the investigator will forward the recommendation citing specific statutes through his or her supervisor to the director. The director will review the recommendation of the investigator and determine if the case will be referred for hearing.

(f) When, as a result of an investigation conducted by the department, the director finds reasonable cause to believe that a contractor or subcontractor has committed willful or aggravated violations of AS 36.05 which constitute a disregard of its obligations to employees under that chapter, the director shall notify by personal service or certified mail to the last known address, the contractor or subcontractor and its responsible officers, of the finding. The director shall afford the contractor or subcontractor and any other parties notified an opportunity for a hearing as to whether debarment action should be taken under AS 36.05.090. The director will furnish to those notified a summary of the investigative findings. If the contractor or subcontractor or any other parties notified request a hearing, the request must be made by letter postmarked within 30 days of the date of the letter from the director. The request must set forth any findings which are in dispute and the reasons therefore, including any affirmative defenses to be raised. Upon receipt of a request for a hearing, the director shall refer the case for hearing to determine the facts in dispute.

(g) Hearings under this section shall be conducted in accordance with 8 AAC 30.210. If no hearing is requested within 30 days of the date of the director's letter, the director's findings shall be final.

(Eff. 1/2/91, Register 116)

Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.210. Hearings.

(a) The respondent may be represented by counsel. If counsel for a party notifies the division, in writing, that counsel is appearing in the matter on behalf of the party, service of notices, memoranda, recommendations, or other papers will be considered sufficient if made on counsel.

(b) The division will give notice to the respondent of the time and place of the hearing on an alleged violation of AS 36.05 by certified mail or by personal service at least 15 days before the hearing. The notice will contain a summary of investigative findings that will be considered at the hearing. Service on the address a contractor or subcontractor has provided to the division of occupational licensing for the purpose of obtaining a contractor's license, or the last known address furnished by the contractor or subcontractor, shall be considered valid service.

(c) The location of the hearing will be designated by the division with due regard for the convenience of all persons involved. All hearings are public.

(d) The director will appoint a wage and hour investigator or contract with an attorney licensed in this state to serve as hearing officer to preside over the hearing and to make findings of fact and conclusions of law to be used as a basis for the director's decision. An investigator who has investigated the alleged violations or taken part in the informal conference under 8 AAC 30.090 will not be appointed hearing officer.

(e) The hearing officer has full authority to control the procedure of the hearing and to rule on all motions and objections.

(f) The hearing officer may admit any relevant evidence, regardless of the existence of any common law or statutory or court rule that might make improper the admission of such evidence over objection in civil actions, if the evidence is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs. Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but is not sufficient in itself to support a finding unless the hearsay evidence would be admissible over objection in civil actions. The hearing officer may issue subpoenas at the request of either party or on the hearing officer’s own motion.

(g) Oral evidence must be given under oath or affirmation. A record of the proceedings will be kept.

(h) The hearing officer, respondent, and complainant may

(1) call and examine witnesses;

(2) cross-examine opposing witnesses on any matter relevant to the issue at hand even though that matter was not covered in direct examination; and

(3) introduce exhibits.

(i) If the respondent does not testify in the respondent’s own behalf, that person may be called and examined as if under cross-examination.

(j) The hearing officer may, for good cause shown, continue a hearing from day to day or recess it to a later date or to a different place by announcement at the hearing or by notice.

(k) The department has the burden of proving that the alleged violations have occurred. The standard of proof required is by a preponderance of the evidence.

(Eff. 1/2/91, Register 116; am 8/9/01, Register 159)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.220. Decisions.

(a) Within 90 days of concluding a hearing, the hearing officer will prepare a written recommendation to the director containing findings of fact and conclusions of law. A copy of the recommendations will be mailed or otherwise delivered to the respondent and to the complainant, if any. The director may accept the recommendations, in part or in whole, or may remand the matter for further hearing. The director must act upon the hearing officer's recommendation and render a decision within 30 days.

(b) Upon making a decision, the director will serve it upon the respondent by personal service or certified mail. If the director determines that the respondent has disregarded its obligations to employees under AS 36.05, the decision will order that the respondent be placed on a list of violators who are barred from performing public contracts as provided under AS 36.05.090.

(c) In the absence of or in addition to action of a state disbursing officer or local fiscal officer, the department will distribute a list reflecting the names of debarred contractors and the effective period of the debarment.

(Eff. 1/2/91, Register 116; am 3/2/2008, Register 185)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.230. Appeals.

The director's decision is final. Appeals must be filed in superior court in accordance with Alaska court Rules of Appellate Procedure.

(Eff. 1/2/91, Register 116)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

8 AAC 30.240. Request for Removal.

Any person or firm debarred under AS 36.05.090 and 8 AAC 30.220 may, in writing, request removal from the debarment list after six months from the date the debarment took effect. All requests should be directed to the director of labor standards and safety and must contain a full explanation of the reasons why such person or firm should be removed from the debarred list. In cases where the contractor or subcontractor failed to make full restitution of wages and fringe benefit contributions to all underpaid employees, a request for removal will not be considered until all underpayments, including appropriate interest, are made. In other cases, the director will examine the facts and circumstances surrounding the violative practices which caused the debarment and issue a decision as to whether or not the person or firm has demonstrated a current responsibility to comply with AS 36.05 and therefore should be removed from the ineligible list.

(Eff. 1/2/91, Register 116)
Authority: AS 23.05.060 AS 36.05.030
AS 36.05.090

ARTICLE 6. GENERAL PROVISIONS.

Section:

8 AAC 30.900. General Definitions.

In this chapter and in AS 36

(1) "commissioner" means the commissioner of labor and workforce development;

(2) "crafts" and "occupations" mean the occupations identified in the *Standard Occupational Classification Manual* (2018 edition);

(3) "debar" or "debarment" means being placed on a list of persons who are barred from performing public contracts under AS 36.05.090;

(4) "department" means the Alaska Department of Labor and Workforce Development;

(5) "director" means the director of the labor standards and safety division of the department;

(6) "disregarded their obligations to employees" (or a grammatical variant) as used in AS 36.05.090 and this chapter includes any of the following:

(A) failure or refusal to pay basic prevailing wages;

(B) failure or refusal to pay fringe benefits into the appropriate union trust, approved private pension plan, or other approved fringe benefit plan within applicable time limits;

(C) failure to pay at least once a week;

(D) failure to pay unconditionally; or

(E) failure to report wage payments to employees accurately and timely as required by AS 36.05.040;

(7) "division" means the labor standards and safety division of the department;

(8) "eligible resident" means a person who meets the requirements of AS 36.10.140(a) and AS 01.10.055 and who, under 8 AAC 30.072, would be determined to be a resident of an area that has been determined by the department under this chapter to be a resident hiring zone of preference;

(9) "hire" and its derivatives mean engaging an individual to work on a public-funded project, and includes the transfer of an existing employee from one location to another or from one craft or occupation to another;

(10) "interest" as used in AS 36.05.090 means more than five percent investment in a partnership or association, more than ten percent share in stock in a corporation, or holding any elected or appointed office in the business entity;

(11) "majority penetration" means that the majority of qualified laborers, mechanics, and field surveyors working at a particular skill level in a particular job class, as indicated by response to a department survey, receive a particular wage;

(12) "marginally employed" means that a person is employed for fewer than 30 hours a week and the person wishes to work 30 hours or more a week;

(13) "owner/operator" as used in 8 AAC 30.020(d) means those independent contractors who by virtue of the duties they perform, or the manner in which they perform them, cannot be considered employees of the person or entity who has contracted for their services; in this paragraph, “independent contractor” means a person who

(A) has an express contract to perform the services;

(B) is free from direction and control over the means and manner of providing services, subject only to the right of the individual for whom, or entity for which, the services are provided to specify the desired results, completion schedule, or range of work hours, or to monitor the work for compliance with contract plans and specifications, or federal, state, or municipal law;

(C) incurs most of the expenses for tools, labor, and other operational costs necessary to perform the services;

(D) has the opportunity for profit and loss as a result of the services performed for the other individual or entity; and

(E) is free to hire and fire employees to help perform the services for the contracted work;

(14) [repealed 8/9/2001;]

(15) "person" and "persons" as used in AS 36.05.090 means a person as that term is defined in AS 01.10.060 (8);

(16) "prevailing wage rate" means the total of the basic hourly rate, health and welfare, pension, legal service, apprentice training payments and other fringe benefits which inure to the benefit of the worker, as published by the department;

(17) "public-funded project" means a project described in AS 36.10.180 and AS 36.95.010 (3);

(18) "qualified" means having the education, training and experience necessary to perform the duties and satisfy the terms and conditions which are usual for the industry or profession or having the status specified in AS 36.95.010 (4);

(19) "state agency" means a state agency described in AS 36.10.180 (a)(1);

(20) "state employment centers" means those offices maintained by the department whose functions are to aid the unemployed in finding employment;

(21) "underemployed" means employed in a job that requires less skill or training than a job for which the employee is trained and qualified.

(22) “domiciled resident” means a person living within 65 road miles of a public construction project, or in the case of a highway project, the mid-point of the project, for at least 12 consecutive months prior to the award of the public construction project;

(23) “employed on the project” means the time period from the date the laborer, mechanic, or field surveyor first reports on-site to the project through the final date the person reports on-site to the project.

(Eff. 7/8/73, Register 47; am 12/4/76, Register 60; am 7/30/82, Register 83; am 9/27/87, Register 103; am 1/2/91, Register 116; am 8/9/01, Register 159; am 8/12/2018, Register 227; am 11/25/2018, Register 228; am 1/10/2021, Register 273)

Authority: AS 23.05.060 AS 36.10.075
AS 36.95.010 AS 36.05.030
AS 36.10.140

Editor's note:

Copies of the Standard Occupational Classification Manual adopted by reference in 8 AAC 30.900(2) are available for review at the Anchorage, Fairbanks, and Juneau offices of the department.

As of Register 151 (October 1999), the regulations attorney made technical revisions under AS 44.62.125 (b)(6) to reflect the name change of the Department of Labor to the Department of Labor and Workforce Development made by ch. 58, SLA 1999 and the corresponding title change of the commissioner of labor.

8 AAC 30.910. Definition of "on-site."

(a) In AS 36.95.010(3), "on-site" means at the physical place where the construction called for in a contract will remain when work on it has been completed and at other property used by the contractor or subcontractor in the construction which can reasonably be said to be included in the site because of proximity. The scope of “on-site”

(1) has the following exceptions:

(A) for a truck driver employee or truck driver owner/operator working for a contractor or subcontractor on the project, “on-site” encompasses all round-trip truck driving activity associated with delivering or hauling away materials, equipment, or supplies for the purposes of completing a public construction contract;

(B) for a truck driver employee or truck driver owner/operator who is working for a contractor or subcontractor on the project, and who, for the purposes of completing a public construction contract, hauls materials, equipment, or supplies away from a public construction project footprint, but does not return to the public construction project, “on-site” encompasses the haul-away activities until the truck is offloaded;

(C) a truck driver performing delivery as an employee of a bona fide material supplier or common carrier is not “on-site” when delivering materials from a location that is not “on-site,” including that material supplier’s home yard or warehouse, if that location is not dedicated exclusively or nearly so to performance of one or more public construction projects;

(2) is extensive for larger projects, including airports, dams and roads, and includes the whole area in which the contract construction activity will take place; work areas separate from the physical footprint of the construction activity, including fabrication plants, mobile factories, batch plants, borrow pits, rock quarries, job headquarters, tool yards, and similar work areas, are “on-

site" if they are in close proximity and are dedicated exclusively or nearly so to performance of one or more public construction projects during the period of contract construction activity;

(3) for smaller projects, normally includes no more than the building itself and its grounds and other land or structures that are "down the block" or "across the street" that the contractor or subcontractor uses in performance of a particular public construction project.

(b) Laborers, mechanics, or field surveyors who perform duties within the limits of "on-site" are subject to the department's wage decision for all hours spent working "on-site." Workers who, under this subsection, are subject to the department's wage decision include

(1) flaggers;

(2) barricade suppliers who set up or move barricades or other traffic control devices;

(3) employees of bona fide material suppliers or common carriers who perform work "on-site," other than mere delivery, including drivers or delivery workers assisting in specific placement of asphalt or concrete during construction operations, stocking materials in rooms or on floors, or otherwise performing work in construction;

(4) workers who perform mobilization or demobilization activities;

(5) workers contracted or employed by material or equipment suppliers who erect, clean, repair, construct, or perform operational checks, other than contractually obligated warranty work, on equipment or material located "on-site"; and

(6) laborers, mechanics, or field surveyors who are engaged by a person or business that is hired or contracted by a prime construction contractor or subcontractor to provide services that are integral and necessary to the construction project; workers who are subject to this paragraph

(A) shall be considered to be "on-site" in the performance of those duties that the contractor or subcontractor was required to perform;

(B) include a trucking firm other than a common carrier whose services are engaged by a construction contractor or subcontractor on a public works job to pick up materials from a supplier's delivery point and transport them to the job site.

(c) Not included in "on-site" are permanent home offices, branch plants, fabrication plants, tool yards, and other establishments of a contractor or subcontractor whose locations and continuance are governed by its general business operations. This is so even though mechanics, laborers, and field surveyors working at these establishments may repair or maintain machinery used in contract performance or make doors, windows, frames, or forms called for by the contract while continuing normal commercial work. Regardless of the activities performed at these establishments, the department's wage decision does not apply, because they are not "on-site." However, if mechanics, laborers, or field surveyors are required to go to a place that is "on-site" to perform activities on the contract, the department's wage decision is applicable for the actual time so spent, not including travel.

(d) For purposes of this section, a location or work area, or the existence or continuing operation of an enterprise, is dedicated exclusively or nearly so to one or more public construction projects if

(1) the location, work area, or enterprise is established in conjunction with one or more public construction projects; and

(2) during the year before a public construction project and during the life of a public construction project, less than 10 percent of documented sales or other uses are attributed to non-public construction projects.

(e) For purposes of this section, a site is in proximity to a public construction project if it is nearby the public construction project footprint and used on a regular and recurring basis to complete the public construction contract. The department will determine whether a site is in proximity to a public construction project on a project-by-project basis, taking into account

(1) the type of project;

(2) whether the use of a nearby site is required for completion of the project;

(3) whether the area of contract operations is developed or undeveloped; and

(4) the geographical lay of the land.

(f) In this section,

(1) "bona fide material supplier"

(A) means a commercial enterprise that holds itself out to the public as offering to supply sand, gravel, ready-mixed concrete, hot asphalt, or other construction materials to multiple clients for both public and private jobs; does not include a commercial enterprise whose existence or continuing operation is dedicated exclusively or nearly so to one or more public construction projects;

(2) "common carrier"

(A) means a commercial enterprise that holds itself out to the public as offering to transport freight or passengers and delivers multiple types of materials to multiple clients for both public and private jobs on a recurrent basis over established routes; in this subparagraph, "freight"

(i) means materials, supplies, and equipment, other than materials described in (ii) of this subparagraph;

(ii) does not include dirt, sand, gravel, rock, or other naturally occurring earth materials;

(B) does not include a commercial enterprise whose existence or continuing operation is dedicated exclusively or nearly so to one or more public construction projects.

(Eff. 7/30/82, Register 83; am 1/2/91, Register 116; am 8/9/2001, Register 159; am 3/24/2011, Register 197)

Authority: AS 23.05.060 AS 36.05.030
AS 36.10.075

8 AAC 30.920. Definition of "Economic Region."
In AS 36.10, "economic region" means a geographic area of the state sharing similar economic or demographic characteristics.
(Eff. 9/27/87, Register 103)
Authority: AS 36.10.075 AS 36.10.990

Editor's note:
Forms and any other assistance needed for compliance with 8 AAC 30 may be obtained by contacting any state employment center or the Department of Labor and Workforce Development, Wage and Hour Administration, 1251 Muldoon Road, Suite 113, Anchorage, Alaska 99504.

PAMPHLET NO. 400 - INDEX
TITLE 36 - PUBLIC CONTRACTS

MINIMUM RATES OF PAY
For Laborers and Mechanics

Effective Sept. 1, 2025 Issue 51

PAMPHLET No. 600

Title 36. Public Contracts
AS 36.05

DEPARTMENT OF LABOR
AND WORKFORCE DEVELOPMENT
Wage and Hour

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Labor and Workforce Development

Office of the Commissioner

Post Office Box 111149
Juneau, Alaska 99811
Main: 907.465.2700
fax: 907.465-2784

September 1, 2025

TO ALL CONTRACTING AGENCIES:

At the Alaska Department of Labor and Workforce Development our goal is putting Alaskans to work. This pamphlet is designed to help contractors awarded public construction contracts understand the most significant laws of the State of Alaska pertaining to prevailing wages.

This pamphlet identifies current prevailing wage rates for public construction contracts (any construction projects awarded for the State of Alaska or its political subdivisions, such as local governments and certain non-profit organizations). Because these rates may change in a subsequent determination, please be sure you are using the appropriate rates. The rates published in this edition become effective September 1, 2025.

The prevailing wage rates contained in this pamphlet are applicable to public construction projects with a final bid date of September 11, 2025, or later. As the law now provides, these rates will remain stable during the life of a contract or for 24 calendar months, whichever is shorter. **On the date the prime contract is awarded, the 24-month period begins.** Upon expiration of this period, the latest wage rates issued by the department shall become effective for a subsequent 24-month period or until the original contract is completed, whichever occurs first. This process shall be repeated until the original contract is completed.

The term "original contract" means the signed contract that resulted from the original bid and any amendments, including changes of work scope, additions, extensions, change orders, and other instruments agreed to by the parties that have not been subject to subsequent open bid procedures. If a higher federal rate is required due to partial federal funding or other federal participation, the higher rate must be paid.

Effective July 1, 2025, Alaska Statutes 23.10.066–23.10.069 (Alaska's Paid Sick Leave Requirements) take effect. Accordingly, for all projects bid after this date, contractors must comply with the paid sick leave provisions. When calculating the regular rate for sick time, contractors are required to include prevailing wages, specifically the base hourly rate (BHR), for all hours worked on site in accordance with the applicable pamphlet.

For additional copies of this pamphlet go to: http://labor.state.ak.us/lss/pamp600.htm and for questions regarding prevailing wage or employment preference requirements, please contact the nearest Wage and Hour office. These offices are listed on Page x.

Sincerely,

Catherine Muñoz
Commissioner

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On the cover: Travis Jones fixes a tug luggage tractor, photo by Kim Unzicker

Note to Readers: The statutes and administrative regulations listed in this publication were taken from the official codes, as of the effective date of the publication. However, there may be errors or omissions that have not been identified and changes that occurred after the publication was printed. This publication is intended as an informational guide only and is not intended to serve as a precise statement of the statutes and regulations of the State of Alaska. To be certain of current laws and regulations, please refer to the official codes.

EXCERPTS FROM ALASKA LAW

Sec. 36.05.005. Applicability.
This chapter applies only to a public construction contract that exceeds $25,000.

Sec. 36.05.010. Wage rates on public construction.
A contractor or subcontractor who performs work on a public construction contract in the state shall pay not less than the current prevailing rate of wages for work of a similar nature in the region in which the work is done. The current prevailing rate of wages is that contained in the latest determination of prevailing rate of wages issued by the Department of Labor and Workforce Development at least 10 days before the final date for submission of bids for the contract. The rate shall remain in effect for the life of the contract or for 24 calendar months, whichever is shorter. At the end of the initial 24-month period, if new wage determinations have been issued by the department, the latest wage determination shall become effective for the next 24-month period or until the contract is completed, whichever occurs first. This process shall be repeated until the contract is completed.

Sec. 36.05.040. Filing schedule of employees, wages paid, and other information.
All contractors or subcontractors who perform work on a public construction contract for the state or for a political subdivision of the state shall, before the Friday of every second week, file with the Department of Labor and Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor and Workforce Development.

Sec. 36.05.045. Notice of work and completion; withholding of payment.

(a) Before commencing work on a public construction contract, the person entering into the contract with a contracting agency shall designate a primary contractor for purposes of this section. Before work commences, the primary contractor shall file a notice of work with the Department of Labor and Workforce Development. The notice of work must list work to be performed under the public construction contract by each contractor who will perform any portion of work on the contract and the contract price being paid to each contractor. The primary contractor shall pay all filing fees for each contractor performing work on the contract, including a filing fee based on the contract price being paid for work performed by the primary contractor's employees. The filing fee payable shall be the sum of all fees calculated for each contractor. The filing fee shall be one percent of each contractor's contract price. The total filing fee payable by the primary contractor under this subsection may not exceed $5,000. In this subsection, "contractor" means an employer who is using employees to perform work on the public construction contract under the contract or a subcontract.

(b) Upon completion of all work on the public construction contract, the primary contractor shall file with the Department of Labor and Workforce Development a notice of completion together with payment of any additional filing fees owed due to increased contract amounts. Within 30 days after the department's receipt of the primary contractor's notice of completion, the department shall inform the contracting agency of the amount, if any, to be withheld from the final payment.

(c) A contracting agency

(1) may release final payment of a public construction contract to the extent that the agency has received verification from the Department of Labor and Workforce Development that

(A) the primary contractor has complied with (a) and (b) of this section;

(B) the Department of Labor and Workforce Development is not conducting an investigation under this title; and

(C) the Department of Labor and Workforce Development has not issued a notice of a violation of this chapter to the primary contractor or any other contractors working on the public construction contract; and

(2) shall withhold from the final payment an amount sufficient to pay the department's estimate of what may be needed to compensate the employees of any contractors under investigation on this construction contract, and any unpaid filing fees.

(d) The notice and filing fee required under (a) of this section may be filed after work has begun if
   (1) The public construction contract is for work undertaken in immediate response to an emergency; and
   (2) The notice and fees are filed not later than 14 days after the work has begun.

(e) A false statement made on a notice required by this section is punishable under AS 11.56.210.

Sec. 36.05.060. Penalty for violation of this chapter.

A contractor who violates this chapter is guilty of a misdemeanor and upon conviction is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment for not less than 10 days nor more than 90 days, or by both. Each day a violation exists constitutes a separate offense.

Sec. 36.05.070. Wage rates in specifications and contracts for public works.

(a) The advertised specifications for a public construction contract that requires or involves the employment of mechanics, laborers, or field surveyors must contain a provision stating the minimum wages to be paid various classes of laborers, mechanics, or field surveyors and that the rate of wages shall be adjusted to the wage rate under AS 36.05.010.

(b) Repealed by §17 ch 142 SLA 1972.

(c) A public construction contract under (a) of this section must contain provisions that
   (1) the contractor or subcontractors of the contractor shall pay all employees unconditionally and not less than once a week;
   (2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the contractor or subcontractors and laborers, mechanics, or field surveyors;
   (3) the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;
   (4) the state or a political subdivision shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the contractor or subcontractors the difference between
      (A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and
      (B) the rates of wages in fact received by laborers, mechanics, or field surveyors.

Sec. 36.05.080. Failure to pay agreed wages.

Every contract within the scope of AS 36.05.070 shall contain a provision that if it is found that a laborer, mechanic, or field surveyor employed by the contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the state or its political subdivision may, by written notice to the contractor, terminate the contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the contractor and the contractor's sureties are liable to the state or its political subdivision for excess costs for completing the work.

Sec. 36.05.090. Payment of wages from withheld payments and listing contractors who violate contracts.

(a) The state disbursing officer in the case of a state public construction contract and the local fiscal officer in the case of a political subdivision public construction contract shall pay directly to laborers, mechanics, or field surveyors from accrued payments withheld under the terms of the contract the wages due laborers, mechanics, or field surveyors under AS 36.05.070.

(b) The state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees. A person appearing on this list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or

subcontractor on a public construction contract for the state or a political subdivision of the state until three years after the date of publication of the list. If the accrued payments withheld under the contract are insufficient to reimburse all the laborers, mechanics, or field surveyors with respect to whom there has been a failure to pay the wages required under AS 36.05.070, the laborers, mechanics, or field surveyors have the right of action or intervention or both against the contractor and the contractor's sureties conferred by law upon persons furnishing labor or materials, and in the proceedings it is not a defense that the laborers, mechanics, or field surveyors accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.

Sec. 36.05.900. Definition.
In this chapter, "contracting agency" means the state or a political subdivision of the state that has entered into a public construction contract with a contractor.

EXCERPTS FROM ALASKA ADMINISTRATIVE CODE

Notice:** Regulations relating to board and lodging and per diem went into effect on November 25, 2018. The new regulations are excerpted here

8 AAC 30.051. Purpose. The purpose of 8 AAC 30.052 – 8 AAC 30.056 is to ensure that wages paid to laborers, mechanics, and field surveyors do not fall below the prevailing rate of pay.

8 AAC 30.052. Board and lodging; remote sites. (a) A contractor on a public construction project located 65 or more road miles from the international airport closest to the project area in either Fairbanks, Juneau, or Anchorage, or that is inaccessible by road in a two-wheel drive vehicle, shall provide adequate board and lodging to each laborer, mechanic, or field surveyor while the person is employed on the project. If commercial lodging facilities are not available, the contractor shall provide temporary lodging facilities. Lodging facilities must comply with all applicable state and federal laws. For a highway project, the location of the project is measured from the midpoint of the project.

(b) A contractor is not required to provide board and lodging:
(1) to a laborer, mechanic, or field surveyor who is a domiciled resident of the project area; or
(2) on a laborer, mechanic, or field surveyor's scheduled days off, when the person can reasonably travel between the project and the person's permanent residence; for the purposes of this paragraph, "scheduled day off" means a day in which a person does not perform work on-site, is not required to remain at or near the job location for the benefit of the contractor, and is informed of the day off at least seven days before the day off.
(c) Upon a contractor's written request, the commissioner may waive the requirements of (a) of this section where:
(1) the project is inaccessible by road in a two-wheel drive vehicle, but the laborer, mechanic, or field surveyor can reasonably travel between the project and the person's permanent residence within one hour; or
(2) a laborer, mechanic, or field surveyor is not a domiciled resident of the project area, but has established permanent residence, with the intent to remain indefinitely, within 65 road miles of the project, or for a highway project, the mid-point of the project.

8 AAC 30.054. Per diem instead of board and lodging. (a) A contractor may pay a laborer, mechanic, or field surveyor per diem instead of providing board and lodging, when the following conditions are met:
(1) the department determines that per diem instead of board and lodging is an established practice for the work classification; the department shall publish and periodically revise its determinations in the pamphlet *Laborers and Mechanics Minimum Rates of Pay*;
(2) the contractor pays each laborer, mechanic, or field surveyor the appropriate per diem rate as published and periodically revised in the pamphlet *Laborers and Mechanics Minimum Rates of Pay*; and

(3) the contractor pays the per diem to each laborer, mechanic, or field surveyor on the same day that wages are paid.

(b) A contractor may not pay per diem instead of board and lodging on a highway project located

(1) west of Livengood on the Elliot Highway, AK-2;

(2) on the Dalton Highway, AK-11;

(3) north of milepost 20 on the Taylor Highway, AK-5;

(4) east of Chicken on the Top of the World Highway; or

(5) south of Tetlin Junction to the Alaska-Canada border on the Alaska Highway, AK-2.

8 AAC 30.056. Alternative arrangement. Upon a contractor's written request, the commissioner may approve an alternative board and lodging or per diem arrangement, provided

(1) the arrangement does not reduce the laborer, mechanic, or field surveyor's wages below the prevailing wage rate; and

(2) the laborer, mechanic, or field surveyor voluntarily enters into and signs the written arrangement; a labor organization representing laborers, mechanics, or field surveyors may enter into the written agreement on their behalf.

8 AAC 30.900. General definitions (selected excerpts only):

In this chapter and in AS 36

(22) "domiciled resident" means a person living within 65 road miles of a public construction project, or in the case of a highway project, the mid-point of the project, for at least 12 consecutive months prior to the award of the public construction project;

(23) "employed on the project" means the time period from the date the laborer, mechanic, or field surveyor first reports on-site to the project through the final date the person reports on-site to the project.

ADDITIONAL INFORMATION

PER DIEM

Notice: New regulations relating to board and lodging and per diem went into effect on November 25, 2018. The regulations provide a comprehensive set of requirements for the provision of board and lodging or per diem for workers on remote projects. Please refer to Alaska Administrative Code 8 AAC Chapter 30 and read the chapter carefully.

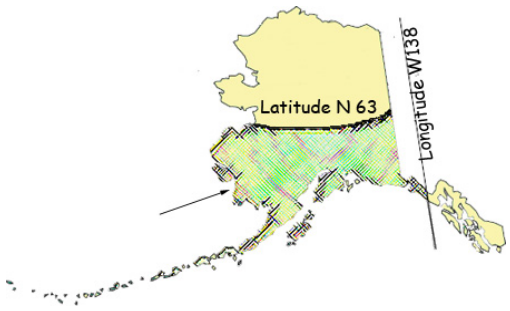
The Alaska Department of Labor and Workforce Development has determined that per diem is an established work practice for certain work classifications. These classifications are indicated throughout the Pamphlet by an asterisk (*) under the classification title. If all of the conditions of 8 AAC 30.054 are met, an employer may pay workers in these classifications per diem instead of providing board and lodging on a remote project.

Per Diem Rate: As of May 1, 2019, the minimum per diem rate is $100.00 per day, or part thereof, the worker is employed on the project. In the event that a contractor provides lodging facilities, but no meals, the department will accept a payment of $48 per day for meals to meet the per diem requirements.

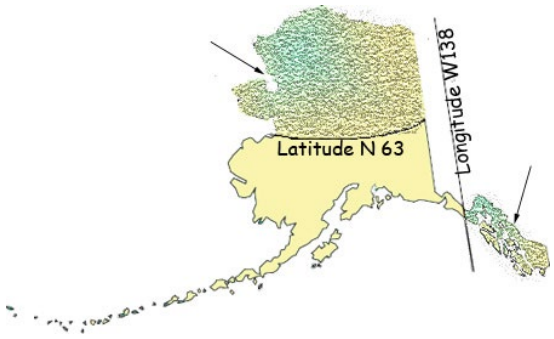
LABORER CLASSIFICATION CLARIFICATION

The laborer rates categorized in class code S1201-S1206 apply in one area of Alaska; the area that is south of N63 latitude and west of W138 Longitude. The laborer rates categorized in class code N1201-N1206 apply in two areas of Alaska; the Alaska areas north of N63 latitude and east of W138 longitude. The following graphic representations should assist with clarifying the applicable wage rate categories:

S1201-
S1206



N1201-
N1206



APPRENTICE RATES

Apprentice rates at less than the minimum prevailing rates may be paid to apprentices according to an apprentice program which has been registered and approved by the Commissioner of the Alaska Department of Labor and Workforce Development in writing or according to a bona fide apprenticeship program registered with the U.S. Department of Labor, Office of Apprenticeship Training. **Any employee listed on a payroll at an apprentice wage rate who is not registered as above shall be paid the journeyman prevailing minimum wage in that work classification.** Wage rates are based on prevailing crew makeup practices in Alaska and apply to work performed regardless of either the quality of the work performed by the employee or the titles or classifications which may be assigned to individual employees.

FRINGE BENEFIT PLANS

Contractors/subcontractors may compensate fringe benefits to their employees in any one of three methods. The fringe benefits may be paid into a union trust fund, into an approved benefit plan, or paid directly on the paycheck as gross wages.

Where fringe benefits are paid into approved plans, funds, or programs including union trust funds, the payments must be contributed at least monthly. If contractors submit their own payroll forms and are paying fringe benefits into approved plans, funds, or programs, the employer's certification must include, in addition to those requirements of 8 AAC 30.020(c), a statement that fringe benefit payments have been or will be paid at least monthly. Contractors who pay fringe benefits to a plan must ensure the plan is one approved by the Internal Revenue Service and that the plan meets the requirements of 8 AAC 30.025 (eff. 3/2/08) in order for payments to be credited toward the prevailing wage obligation.

PAID SICK LEAVE

Effective July 1, 2025, the provisions of Alaska Statutes 23.10.066–23.10.069, relating to paid sick leave, shall apply. For all projects bid after July 1, 2025, contractors are required to comply with these statutory provisions. The regular rate of pay for sick leave must be calculated to include prevailing wages, defined as the base hourly rate (BHR), for all hours worked on site in accordance with the applicable pamphlet.

SPECIAL PREVAILING WAGE RATE DETERMINATION

Special prevailing wage rate determinations may be requested for special projects or a special worker classification if the work to be performed does not conform to traditional public construction for which a prevailing wage rate has been established under 8 AAC 30.050(a) of this section. Requests for special wage rate determinations must be in writing and filed with the Commissioner at least 30 days before the award of the contract. An applicant for a special wage rate determination shall have the responsibility to support the necessity for the special rate. An application for a special wage rate determination filed under this section must contain:

(1) a specification of the contract or project on which the special rates will apply and a description of the work to be performed;
(2) a brief narrative explaining why special wage rates are necessary;
(3) the job class or classes involved;
(4) the special wage rates the applicant is requesting, including survey or other relevant wage data to support the requested rates;
(5) the approximate number of employees who would be affected; and
(6) any other information which might be helpful in determining if special wage rates are appropriate.

Requests made pursuant to the above should be addressed to:

Director
Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour
P.O. Box 111149
Juneau, AK 99811-1149
-or-
Email: statewide.wagehour@alaska.gov

EMPLOYMENT PREFERENCE INFORMATION

In October 2019, the Alaska Attorney General issued a formal opinion stating that the Alaska Statutes 36.10.150 of the State's 90% Employment Preference law, also known as the Alaska Resident Hire law, violates both the U.S. and Alaska Constitutions. As a result, the state has stopped all enforcement activity.
A copy of the Attorney General opinion is found here:

http://law.alaska.gov/pdf/opinions/opinions_2019/19-005_AK-hire.pdf

Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour
Web site: http://labor.state.ak.us/lss/pamp600.htm

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LABOR STANDARDS AND SAFETY NOTICE REQUESTS

If you would like to receive Wage and Hour or Mechanical Inspection **regulation notices** or **publications information**, they are available via electronic mail, by signing up in the GovDelivery System, https://public.govdelivery.com/accounts/AKDOL/subscriber/new and selecting topics *LSS – Wage and Hour – Forms and Publications*, *LSS – Mechanical Inspection Regulations*, or *LSS – Wage and Hour Regulations*.

Publications are also available online at http://labor.alaska.gov/lss/home.htm

DEBARMENT LIST

AS 36.05.090(b) states that "the state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees."

A person appearing on the following debarment list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision of the state for three years from the date of debarment.

Company Name	Debarment Expires

No companies are currently debarred.

Laborers' & Mechanics' Minimum Rates of Pay

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Boilermakers	*See per diem note on last page							
						VAC	**SAF**	
A0101	Boilermaker (journeyman)	54.08	8.57	18.72	2.50	4.25	0.34	88.46
Bricklayers & Allied Craftworkers	*See per diem note on last page							
						L&M	**ANU**	
A0201	Blocklayer, including:	52.77		9.91	0.66	0.20	2.45	65.99
	Bricklayer Marble Mason Refractory Worker (Firebrick, Plastic, Castable, and Gunite Refractory Applications) Stone Mason Terrazzo Worker Tile Setter							
						L&M	**ANU**	
A0202	Pointer/Caulker/Cleaner (PCC)	52.77		9.91	0.66	0.20	2.45	65.99
	Caulker Cleaner Tuck Pointer							
						L&M	**ANU**	
A0203	Finisher	40.91		10.03	0.54	0.20	2.45	54.13
	Marble Finisher Terrazzo Finisher Tile Finisher							
						L&M	**ANU**	
A0204	Torginal Applicator	40.91		10.03	0.54	0.20	2.45	54.13
Carpenters, Region I (North of 63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
N0301	Carpenter (journeyman)	50.79	8.75	16.80	0.77	0.10		77.21
	Lather/Drywall/Acoustical							
Carpenters, Region II (South of N63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
S0301	Carpenter (journeyman)	50.79	8.75	17.34	0.77	0.10		77.75

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Carpenters, Region II (South of N63 latitude)								
	*See per diem note on last page							
						L&M	**SAF**	
S0301	Carpenter (journeyman)	50.79	8.75	17.34	0.77	0.10		77.75
	Lather/Drywall/Acoustical							
Cement Masons								
	*See per diem note on last page							
						L&M		
A0401	Group I, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Application of Sealing Compound							
	Application of Underlayment							
	Building, General							
	Cement Finisher							
	Cement Mason (journeyman)							
	Concrete							
	Concrete Paving							
	Concrete Polishing							
	Concrete Repair							
	Curb & Gutter, Sidewalk							
	Curing of All Concrete							
	General Concrete Pour Tender							
	Grouting & Caulking of Tilt-Up Panels							
	Grouting of All Plates							
	Patching Concrete							
	Screed Pin Setter							
	Screeder or Rodder							
	Spackling/Skim Coating							
						L&M		
A0402	Group II, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Form Setter							
						L&M		
A0403	Group III, including:	49.28	8.80	11.80	1.68	0.10		71.66
	Concrete Saw Cutter Operator (All Control Joints and Self-powered)							
	Curb & Gutter Machine							
	Floor Grinder							
	Pneumatic Power Tools							
	Power Chipping & Bushing							
	Sand Blasting Architectural Finish							
	Screed & Rodding Machine Operator							
	Troweling Machine Operator (all concrete surfaces)							
						L&M		
A0404	Group IV, including:	49.28	8.80	11.80	1.68	0.10		71.66

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Cement Masons							
	*See per diem note on last page						
						L&M	
A0404	Group IV, including:	49.28	8.80	11.80	1.68	0.10	71.66
	Acoustical or Imitation Acoustical Finish						
	Application of All Composition Mastic						
	Application of All Epoxy Finishes on Concrete Surfaces						
	Application of All Plastic Material						
	Finish Colored Concrete						
	Gunite Nozzleman						
	Hand Powered Grinder						
	Preparing, scratching and browsing of all ceilings and walls, finished with terrazo or tile						
	Tunnel Worker						
						L&M	
A0405	Group V, including:	49.28	8.80	11.80	1.68	0.10	71.66
	Casting and finishing						
	EIFS Systems						
	Finishing of all interior and exterior plastering						
	Fireproofing (Pryocrete, Cafco, Albi-Clad, sprayed fiberglass)						
	Gypsum, Portland Cement						
	Kindred material and products						
	Operation and control of all types of plastering machines, including power tools and floats, used by the industry						
	Overcoating and maintenance of interior/exterior plaster surfaces						
	Plasterer						
	Support and control of all concrete 3D printing operations (Excluding Paint)						
	Use of 3D structural and architectural printing and finishes						
	Use of sustainable materials and equipment practices						
	Veneer plastering process (Rapid Plaster, U.S.G. "Imperial Systems", and Pabcoat Systems")						
	Venetian plaster and color-integrated Italian/Middle-Eastern line plaster						
Culinary Workers							
						LEG	
A0501	Baker/Cook	32.15	6.77	9.23			48.15
						LEG	
A0503	General Helper	28.23	6.77	9.23			44.23
	Housekeeper						
	Janitor						
	Kitchen Helper						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Culinary Workers							
A0504	Head Cook	32.15	6.77	9.23		LEG	48.15
A0505	Head Housekeeper	28.23	6.77	9.23		LEG	44.23
	Head Kitchen Help						
Dredgemen	*See per diem note on last page						
A0601	Assistant Engineer	52.32	12.10	16.25	1.05	L&M 0.10	81.82
	Craneman Electrical Generator Operator (primary pump/power barge/dredge) Engineer Welder						
A0602	Assistant Mate (deckhand)	50.93	12.10	16.25	1.05	L&M 0.10	80.43
A0603	Fireman	51.46	12.10	16.25	1.05	L&M 0.10	80.96
A0605	Leverman Clamshell	55.33	12.10	16.25	1.05	L&M 0.10	84.83
A0606	Leverman Hydraulic	53.23	12.10	16.25	1.05	L&M 0.10	82.73
A0607	Mate & Boatman	52.32	12.10	16.25	1.05	L&M 0.10	81.82
A0608	Oiler (dredge)	51.46	12.10	16.25	1.05	L&M 0.10	80.96
Electricians	*See per diem note on last page						
A0701	Inside Cable Splicer	55.44	14.83	14.49	0.95	L&M 0.25 LEG 0.15	86.11
A0702	Inside Journeyman Wireman, including:	55.44	14.83	14.49	0.95	L&M 0.25 LEG 0.15	86.11
	Technicians (including use of drones in electrical construction)						
A0703	Power Cable Splicer	74.34	14.83	19.92	0.95	L&M 0.25 LEG 0.15	110.44
A0704	Tele Com Cable Splicer	55.28	14.83	18.56	0.95	L&M 0.25 LEG 0.15	90.02

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Electricians								
	*See per diem note on last page							
						L&M	**LEG**	
A0705	Power Journeyman Lineman, including:	72.59	14.83	19.87	0.95	0.25	0.15	108.64
	Power Equipment Operator Technician (including use of drones in electrical construction)							
						L&M	**LEG**	
A0706	Tele Com Journeyman Lineman, including:	53.53	14.83	18.51	0.95	0.25	0.15	88.22
	Technician (including use of drones in telecommunications construction) Tele Com Equipment Operator							
						L&M	**LEG**	
A0707	Straight Line Installer - Repairman	53.53	14.83	18.51	0.95	0.25	0.15	88.22
						L&M	**LEG**	
A0708	Powderman	70.59	14.83	19.81	0.95	0.25	0.15	106.58
						L&M	**LEG**	
A0710	Material Handler	29.57	15.34	5.89	0.15	0.15	0.15	51.25
						L&M	**LEG**	
A0712	Tree Trimmer Groundman	32.97	14.83	14.84	0.15	0.15	0.15	63.09
						L&M	**LEG**	
A0713	Journeyman Tree Trimmer	42.23	14.83	15.12	0.15	0.15	0.15	72.63
						L&M	**LEG**	
A0714	Vegetation Control Sprayer	45.91	14.83	15.23	0.15	0.15	0.15	76.42
						L&M	**LEG**	
A0715	Inside Journeyman Communications CO/PBX	55.44	14.83	14.49	0.95	0.25	0.15	86.11
Elevator Workers								
	*See per diem note on last page							
						L&M	**VAC**	
A0802	Elevator Constructor	50.01	16.28	21.36	0.80	1.60	5.55	95.60
						L&M	**VAC**	
A0803	Elevator Constructor Mechanic	71.44	16.28	21.36	0.80	1.60	7.93	119.41
Heat & Frost Insulators/Asbestos Workers (North of 63rd Parallel)								
	*See per diem note on last page							
						IAF	**LML**	
N0902	Asbestos Abatement-Mechanical Systems	46.35	9.24	11.13	1.50	0.18	0.05	68.45
						IAF	**LML**	
N0904	Insulator, Group II	46.35	9.24	11.13	1.50	0.18	0.05	68.45
						IAF	**LML**	
N0905	Fire Stop	46.35	9.24	11.13	1.50	0.18	0.05	68.45

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Heat & Frost Insulators/Asbestos Workers (South of 63rd Parallel) *See per diem note on last page								
						IAF	**LML**	
S0902	Asbestos Abatement-Mechanical Systems	45.85	9.24	11.13	1.50	0.18	0.05	67.95
						IAF	**LML**	
S0904	Insulator, Group II	45.85	9.24	11.13	1.50	0.18	0.05	67.95
						IAF	**LML**	
S0905	Fire Stop	45.85	9.24	11.13	1.50	0.18	0.05	67.95
IronWorkers *See per diem note on last page								
						L&M	**IAF**	
A1101	Ironworkers, including:	48.48	10.41	26.45	1.12	0.20		86.66
	Bender Operators Bridge & Structural Hangar Doors Hollow Metal Doors Industrial Doors Machinery Mover Mass Timber Construction (Cross Laminate Timber) Ornamental Reinforcing Rigger Sheeter Signalman Stage Rigger Toxic Haz-Mat Work Welder							
						L&M	**IAF**	
A1102	Helicopter	49.48	10.41	26.45	1.12	0.20		87.66
	Helicopter (used for rigging and setting) Tower (energy producing windmill type towers to include nacelle and blades)							
						L&M	**IAF**	
A1103	Fence/Barrier Installer	44.98	10.41	26.45	1.12	0.20		83.16
						L&M	**IAF**	
A1104	Guard Rail Layout Man	45.72	10.41	26.45	1.12	0.20		83.90
						L&M	**IAF**	
A1105	Guard Rail Installer	45.98	10.41	26.45	1.12	0.20		84.16
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N1201	Group I, including:	40.25	10.55	21.51	2.00	0.35	0.20	74.86
	Asphalt Worker (shovelman, plant crew)							
	Brush Cutter							
	Camp Maintenance Laborer							
	Carpenter Tender or Helper							
	Choke Setter, Hook Tender, Rigger, Signalman							
	Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding)							
	Crusher Plant Laborer							
	Demolition Laborer							
	Ditch Digger							
	Dumpman							
	Environmental Laborer (hazard/toxic waste, oil spill)							
	Fence Installer							
	Fire Watch Laborer							
	Flagman							
	Form Stripper							
	General Laborer							
	Guardrail Laborer, Bridge Rail Installer							
	Hydro Seeder Nozzleman							
	Laborer, Building							
	Landscaper or Planter							
	Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)							
	Material Handler							
	Pneumatic or Power Tools							
	Portable or Chemical Toilet Serviceman							
	Pump Man or Mixer Man							
	Railroad Track Laborer							
	Sandblast, Pot Tender							
	Saw Tender							
	Slurry Work							
	Steam Cleaner Operator							
	Steam Point or Water Jet Operator							
	Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)							
	Tank Cleaning							
	Utiliwalk & Utilidor Laborer							
	Watchman (construction projects)							
	Window Cleaner							
						L&M	LEG	
N1202	Group II, including:	41.25	10.55	21.51	2.00	0.35	0.20	75.86

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	LEG	THR

Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)

*See per diem note on last page

N1202	Group II, including:	41.25	10.55	21.51	2.00		0.35	0.20	75.86

Burning & Cutting Torch
Cement or Lime Dumper or Handler (sack or bulk)
Certified Erosion Sediment Control Lead (CESCL Laborer)
Choker Splicer
Chucktender (wagon, air-track & hydraulic drills)
Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)
Culvert Pipe Laborer
Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator
Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

N1203	Group III, including:	42.15	10.55	21.51	2.00		0.35	0.20	76.76

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N1203	Group III, including:	42.15	10.55	21.51	2.00	0.35	0.20	76.76
	Plastic Welding							
	Slurry Seal Squeegee Man							
	Traffic Control Supervisor							
	Welding Certified (in connection with laborer's work)							
						L&M	LEG	
N1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14
	Asphalt Raker, Asphalt Belly Dump Lay Down							
	Drill Doctor (in the field)							
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)							
	Pioneer Drilling & Drilling Off Tugger (all type drills)							
	Pipelayers							
	Powderman (Employee Possessor)							
	Storm Water Pollution Protection Plan Specialist (SWPPP Specialist)							
	Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
N1205	Group IV	29.82	10.55	21.51	2.00	0.35	0.20	64.43
	Final Building Cleanup							
	Permanent Yard Worker							
						L&M	LEG	
N1206	Group IIIB	54.01	5.50	21.51	1.60	0.35	0.20	83.17
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours)							
	Federal Powderman (Responsible Person in Charge)							
	Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones)							
	Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours)							
	Stake Hopper							
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S1201	Group I, including:	40.25	10.55	21.51	2.00	0.35	0.20	74.86
	Asphalt Worker (shovelman, plant crew)							
	Brush Cutter							
	Camp Maintenance Laborer							
	Carpenter Tender or Helper							
	Choke Setter, Hook Tender, Rigger, Signalman							
	Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding)							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	LEG	THR

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

							L&M	LEG	
S1201	Group I, including:	40.25	10.55	21.51	2.00		0.35	0.20	74.86

Crusher Plant Laborer
Demolition Laborer
Ditch Digger
Dumpman
Environmental Laborer (hazard/toxic waste, oil spill)
Fence Installer
Fire Watch Laborer
Flagman
Form Stripper
General Laborer
Guardrail Laborer, Bridge Rail Installer
Hydro Seeder Nozzleman
Laborer, Building
Landscaper or Planter
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)
Material Handler
Pneumatic or Power Tools
Portable or Chemical Toilet Serviceman
Pump Man or Mixer Man
Railroad Track Laborer
Sandblast, Pot Tender
Saw Tender
Slurry Work
Steam Cleaner Operator
Steam Point or Water Jet Operator
Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)
Tank Cleaning
Utiliwalk & Utilidor Laborer
Watchman (construction projects)
Window Cleaner

							L&M	LEG	
S1202	Group II, including:	41.25	10.55	21.51	2.00		0.35	0.20	75.86

Burning & Cutting Torch
Cement or Lime Dumper or Handler (sack or bulk)
Certified Erosion Sediment Control Lead (CESCL Laborer)
Choker Splicer
Chucktender (wagon, air-track & hydraulic drills)
Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

S1202	Group II, including:	41.25	10.55	21.51	2.00	0.35	0.20	75.86

Culvert Pipe Laborer
Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator
Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

S1203	Group III, including:	42.15	10.55	21.51	2.00	0.35	0.20	76.76

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate
Plastic Welding
Slurry Seal Squeegee Man
Traffic Control Supervisor
Welding Certified (in connection with laborer's work)

S1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
S1204	Group IIIA	46.53	10.55	21.51	2.00	0.35	0.20	81.14
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayers Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
S1205	Group IV	29.82	10.55	21.51	2.00	0.35	0.20	64.43
	Final Building Cleanup Permanent Yard Worker							
						L&M	LEG	
S1206	Group IIIB	54.01	5.50	21.51	1.60	0.35	0.20	83.17
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Millwrights *See per diem note on last page								
						L&M		
A1251	Millwright (journeyman)	62.50	9.50	11.41	1.17	0.15	0.25	84.98
						L&M		
A1252	Millwright Welder	63.50	9.50	11.41	1.17	0.15	0.25	85.98
Painters, Region I (North of N63 latitude) *See per diem note on last page								
						L&M		
N1301	Group I, including:	43.05	10.15	15.20	1.10	0.10		69.60
	Brush General Painter Hand Taping Hazardous Material Handler Lead-Based Paint Abatement							

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region I (North of N63 latitude) *See per diem note on last page							
						L&M	
N1301	Group I, including:	43.05	10.15	15.20	1.10	0.10	69.60
	Roll						
						L&M	
N1302	Group II, including:	43.57	10.15	15.20	1.10	0.10	70.12
	Bridge Painter						
	Epoxy Applicator						
	General Drywall Finisher						
	Hand/Spray Texturing						
	Industrial Coatings Specialist						
	Machine/Automatic Taping						
	Pot Tender						
	Sandblasting						
	Specialty Painter						
	Spray						
	Structural Steel Painter						
	Wallpaper/Vinyl Hanger						
N1304	Group IV, including:	46.76	10.15	19.21	1.10	0.10	77.32
	Glazier						
	Storefront/Automatic Door Mechanic						
N1305	Group V, including:	39.48	10.15	5.00	1.10	0.10	55.83
	Carpet Installer						
	Floor Coverer						
	Heat Weld/Cove Base						
	Linoleum/Soft Tile Installer						
N1306	Group VI, including:	69.78	11.21	10.49	1.00	0.10	92.58
	Traffic Control Striper						
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1301	Group I, including :	37.29	10.15	18.95	1.10	0.10	67.59
	Brush						
	General Painter						
	Hand Taping						
	Hazardous Material Handler						
	Lead-Based Paint Abatement						
	Roll						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1301	Group I, including :	37.29	10.15	18.95	1.10	0.10	67.59
	Spray						
						L&M	
S1302	Group II, including :	38.54	10.15	18.95	1.10	0.10	68.84
	General Drywall Finisher Hand/Spray Texturing Machine/Automatic Taping Wallpaper/Vinyl Hanger						
						L&M	
S1303	Group III, including :	38.64	10.15	18.95	1.10	0.10	68.94
	Bridge Painter Epoxy Applicator Industrial Coatings Specialist Pot Tender Sandblasting Specialty Painter Structural Steel Painter						
						L&M	
S1304	Group IV, including:	47.42	10.15	17.85	1.10	0.10	76.62
	Glazier Storefront/Automatic Door Mechanic						
						L&M	
S1305	Group V, including:	39.48	10.15	5.00	1.10	0.10	55.83
	Carpet Installer Floor Coverer Heat Weld/Cove Base Linoleum/Soft Tile Installer						
S1306	Group VI, including:	69.78	11.21	10.49	1.00	0.10	92.58
	Traffic Control Striper						
Piledrivers *See per diem note on last page							
						L&M	**IAF**
A1401	Piledriver	50.79	8.75	16.80	0.77	0.10	77.21
	Assistant Dive Tender Carpenter/Piledriver Rigger Sheet Stabber						

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Piledrivers								
	*See per diem note on last page							
						L&M	**IAF**	
A1401	Piledriver	50.79	8.75	16.80	0.77	0.10		77.21
	Skiff Operator							
						L&M	**IAF**	
A1402	Piledriver-Welder/Toxic Worker	51.79	8.75	16.80	0.77	0.10		78.21
						L&M	**IAF**	
A1403	Remotely Operated Vehicle Pilot/Technician	55.10	8.75	16.80	0.77	0.10		81.52
	Single Atmosphere Suit, Bell or Submersible Pilot							
						L&M	**IAF**	
A1404	Diver (working) **See note on last page	94.90	8.75	16.80	0.77	0.10		121.32
						L&M	**IAF**	
A1405	Diver (standby) **See note on last page	55.10	8.75	16.80	0.77	0.10		81.52
						L&M	**IAF**	
A1406	Dive Tender **See note on last page	54.10	8.75	16.80	0.77	0.10		80.52
						L&M	**IAF**	
A1407	Welder (American Welding Society, Certified Welding Inspector)	56.35	8.75	16.80	0.77	0.10		82.77
Plumbers, Region I (North of N63 latitude)								
	*See per diem note on last page							
						L&M	**S&L**	
N1501	Journeyman Pipefitter	55.66	12.95	20.20	1.75	1.20		91.76
	Plumber							
	Welder							
Plumbers, Region II (South of N63 latitude)								
	*See per diem note on last page							
						L&M		
S1501	Journeyman Pipefitter	50.00	14.28	16.52	2.40	0.20		83.40
	Plumber							
	Welder							
Plumbers, Region IIA (1st Judicial District)								
	*See per diem note on last page							
						L&M		
X1501	Journeyman Pipefitter	53.00	16.17	12.50	3.10	0.24		85.01
	Plumber							
	Welder							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
						L&M	
A1601	Group I, including:	53.23	12.10	16.25	1.05	0.10	82.73

Asphalt Roller: Breakdown, Intermediate, and Finish
Back Filler
Barrier Machine (Zipper)
Beltcrete with Power Pack & similar conveyors
Bending Machine
Boat Coxswain
Bulldozer
Cableways, Highlines & Cablecars
Cleaning Machine
Coating Machine
Concrete Hydro Blaster
Cranes (45 tons & under or 150 feet of boom & under (including jib & attachments))
(a) Hydralifts or Transporters, (all track or truck type)
(b) Derricks
(c) Overhead
Crushers
Deck Winches, Double Drum
Ditching or Trenching Machine (16 inch or over)
Drag Scraper, Yarder, and similar types
Drilling Machines, Core, Cable, Rotary and Exploration
Finishing Machine Operator, Concrete Paving, Laser Screed, Sidewalk, Curb & Gutter Machine
Grade Checker and/or Line and Grade including Drone
Helicopters
Hover Craft, Flex Craft, Loadmaster, Air Cushion, All-Terrain Vehicle, Rollagon, Bargecable, Nodwell, & Snow Cat
Hydro Ax, Feller Buncher & similar
Hydro Excavation (Vac-Truck and Similar)
Loaders (2 1/2 yards through 5 yards, including all attachments):
(a) Forklifts (with telescopic boom & swing attachment)
(b) Front End & Overhead, (2-1/2 yards through 5 yards)
(c) Loaders, (with forks or pipe clamp)
(d) Loaders, (elevating belt type, Euclid & similar types)
Material Transfer Vehicle (Elevating Grader, Pickup Machine, and similar types)
Mechanic, Welder, Bodyman, Electrical, Camp & Maintenance Engineer
Micro Tunneling Machine
Mixers: Mobile type with hoist combination
Motor Patrol Grader
Mucking Machine: Mole, Tunnel Drill, Horizontal/Directional Drill Operator and/or Shield

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
						L&M	
A1601	Group I, including:	53.23	12.10	16.25	1.05	0.10	82.73
	Off-Road Hauler (including Articulating and Haul Trucks)						
	Operator on Dredges						
	Piledriver Engineer, L.B. Foster, Puller or similar paving breaker						
	Plant Operator (Asphalt & Concrete)						
	Power Plant, Turbine Operator 200 k.w & over (power plants or combination of power units over 300 k.w.)						
	Remote Controlled Equipment						
	Scraper (through 40 yards)						
	Service Oiler/Service Engineer						
	Shot Blast Machine						
	Shovels, Backhoes, Excavators with all attachments, and Gradealls (3 yards & under)						
	Sideboom (under 45 tons)						
	Sub Grader (Gurries & similar types)						
	Tack Tractor						
	Truck Mounted Concrete Pump, Conveyor/Tele-belt, & Creter						
	Wate Kote Machine						
						L&M	
A1602	Group IA, including:	55.33	12.10	16.25	1.05	0.10	84.83
	Camera/Tool/Video Operator (Slipline)						
	Certified Welder, Electrical Mechanic, Camp Maintenance Engineer, Mechanic (over 10,000 hours)						
	Cranes (over 45 tons or 150 feet including jib & attachments)						
	(a) Clamshells & Draglines (over 3 yards)						
	(b) Tower Cranes						
	Licensed Water/Waste Water Treatment Operator						
	Loaders (over 5 yards)						
	Motor Patrol Grader, Dozer, Grade Tractor (finish: when finishing to final grade and/or to hubs, or for asphalt)						
	Power Plants (1000 k.w. & over)						
	Profiler, Reclaimer, and Roto-Mill						
	Quad						
	Scrapers (over 40 yards)						
	Screed						
	Shovels, Backhoes, Excavators with all attachments (over 3 yards)						
	Sidebooms (over 45 tons)						
	Slip Form Paver, C.M.I. & similar types						
	Topside (Asphalt Paver, Slurry machine, Spreaders, and similar types)						
						L&M	
A1603	Group II, including:	52.32	12.10	16.25	1.05	0.10	81.82
	Boiler - Fireman						

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Power Equipment Operators *See per diem note on last page							
						L&M	
A1603	Group II, including:	52.32	12.10	16.25	1.05	0.10	81.82
	Cement Hogs & Concrete Pump Operator						
	Conveyors (except those listed in Group I)						
	Hoists on Steel Erection, Towermobiles & Air Tuggers						
	Horizontal/Directional Drill Locator						
	Locomotives, Rod & Geared Engines						
	Mixers						
	Screening, Washing Plant						
	Sideboom (cradling rock drill, regardless of size)						
	Skidder						
	Trenching Machines (under 16 inches)						
	Water/Waste Water Treatment Operator						
						L&M	
A1604	Group III, including:	51.46	12.10	16.25	1.05	0.10	80.96
	"A" Frame Trucks, Deck Winches						
	Bombardier (tack or tow rig)						
	Boring Machine						
	Brooms, Power (sweeper, elevator, vacuum, or similar)						
	Bump Cutter						
	Compressor						
	Farm Tractor						
	Forklift, Industrial Type						
	Gin Truck or Winch Truck (with poles when used for hoisting)						
	Hoists, Air Tuggers, Elevators						
	Loaders:						
	(a) Elevating-Athey, Barber Greene & similar types						
	(b) Forklifts or Lumber Carrier (on construction job sites)						
	(c) Forklifts, (with tower)						
	(d) Overhead & Front End, (under 2-l/2 yards)						
	Locomotives: Dinkey (air, steam, gas & electric) Speeders						
	Mechanics, Light Duty						
	Oil, Blower Distribution						
	Posthole Digger, Mechanical						
	Pot Fireman (power agitated)						
	Power Plant, Turbine Operator, (under 200 k.w.)						
	Pumps, Water						
	Roller (other than Asphalt)						
	Saws, Concrete						
	Skid Hustler						
	Skid Steer (with all attachments)						
	Stake Hopper						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Power Equipment Operators								
	*See per diem note on last page							
						L&M		
A1604	Group III, including:	51.46	12.10	16.25	1.05	0.10		80.96
	Straightening Machine							
	Tow Tractor							
						L&M		
A1605	Group IV, including:	44.06	12.10	16.25	1.05	0.10		73.56
	Crane Assistant Engineer/Rig Oiler							
	Drill Helper							
	Parts & Equipment Coordinator							
	Spotter							
	Steam Cleaner							
	Swamper (on trenching machines or shovel type equipment)							
Roofers								
	*See per diem note on last page							
						L&M		
A1701	Roofer & Waterproofer	52.07	13.90	4.01	0.81	0.10	0.09	70.98
						L&M		
A1702	Roofer Material Handler	38.68	13.90	4.01	0.81	0.10	0.09	57.59
Sheet Metal Workers, Region I (North of N63 latitude)								
	*See per diem note on last page							
						L&M		
N1801	Sheet Metal Journeyman	58.73	13.45	15.94	0.17	0.12		88.41
	Brazing, soldering or welding of metals							
	Demolition of sheet metal HVAC & HVAC-R systems							
	Fabrication and installation of heating, ventilation and air conditioning ducts and equipment							
	Fabrication and installation of interior and exterior wall sheathing, siding, metal roofing, flashing, gutters, decking and architectural sheet metal work							
	Fabrication and installation of louvers and hoods							
	Fabrication and installation of sheet metal lagging							
	Fabrication and installation of stainless steel commercial or industrial food service equipment & wall sheathing							
	HVAC & HVAC-R Service Mechanic, servicing and maintaining and making operable HVAC & HVAC-R Systems							
	HVAC & HVAC-R systems controls and programming							
	Installation, inspection, testing, servicing, and maintenance of fire dampers, smoke control systems, smoke evacuation systems, and fire/smoke dampers							

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Sheet Metal Workers, Region I (North of N63 latitude) *See per diem note on last page							
						L&M	
N1801	Sheet Metal Journeyman	58.73	13.45	15.94	0.17	0.12	88.41

Installation, servicing, and maintenance of commercial laundry systems and associated equipment

Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work

Metal lavatory partitions

Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work

Sheet Metal shelving, lockers

Sheet Metal venting, chimneys and breaching

Skylight installation

Testing, Adjusting and Balancing (TAB) of all HVAC & HVAC-R mechanical systems as well as the cleaning of those systems

Sheet Metal Workers, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1801	Sheet Metal Journeyman	52.08	13.45	15.30	2.08	0.43	83.34

Brazing, soldering or welding of metals

Demolition of sheet metal HVAC & HVAC-R systems

Fabrication and installation of heating, ventilation and air conditioning ducts and equipment

Fabrication and installation of interior and exterior wall sheathing, siding, metal roofing, flashing, decking and architectural sheet metal work

Fabrication and installation of louvers and hoods

Fabrication and installation of sheet metal lagging

Fabrication and installation of stainless steel commercial or industrial food service equipment & wall sheathing

HVAC & HVAC-R Service Mechanic, servicing and maintaining and making operable HVAC & HVAC-R Systems

HVAC & HVAC-R systems controls and programming

Installation, inspection, testing, servicing, and maintenance of fire dampers, smoke control systems, smoke evacuation systems, and fire/smoke dampers

Installation, servicing, and maintenance of commercial laundry systems and associated equipment

Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work

Metal lavatory partitions

Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work

Sheet Metal shelving, lockers

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Sheet Metal Workers, Region II (South of N63 latitude) *See per diem note on last page							
S1801	Sheet Metal Journeyman	52.08	13.45	15.30	2.08	L&M 0.43	83.34
	Sheet Metal venting, chimneys and breaching Skylight installation Testing, Adjusting and Balancing (TAB) of all HVAC & HVAC-R mechanical systems as well as the cleaning of those systems						
Sprinkler Fitters *See per diem note on last page							
A1901	Sprinkler Fitter	60.67	12.40	18.45	0.54	L&M 0.25	92.31
Surveyors *See per diem note on last page							
A2001	Chief of Parties	59.93	13.48	14.64	1.30	L&M 0.10	89.45
A2002	Party Chief	55.78	13.48	14.64	1.30	L&M 0.10	85.30
A2003	Line & Grade Technician/Office Technician/GPS, Drones	52.77	13.48	14.64	1.30	L&M 0.10	82.29
A2004	Associate Party Chief (including Instrument Person & Head Chain Person)/Stake Hop/Grademan	50.31	13.48	14.64	1.30	L&M 0.10	79.83
A2006	Chain Person (for crews with more than 2 people)	45.29	13.48	14.64	1.30	L&M 0.10	74.81
Truck Drivers *See per diem note on last page							
A2101	Group I, including:	51.58	13.48	14.64	1.30	L&M 0.10	81.10
	Air/Sea Traffic Controllers Ambulance/Fire Truck Driver (EMT certified) Boat Coxswain Captains & Pilots (air & water) Deltas, Commanders, Rollagons, & similar equipment (when pulling sleds, trailers or similar equipment) Dump Trucks (including articulating end dumps, rockbuggy, side dump, belly dump, & trucks with pups) over 40 yards up to & including 60 yards Fueler Helicopter Transporter						

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers	*See per diem note on last page						
A2101	Group I, including: Liquid Vac Truck/Super Vac Truck Material Coordinator or Purchasing Agent Oil Distributor Truck Ready-mix (over 12 yards up to & including 15 yards) (over 15 yards to be negotiated) Semi with Double Box Mixer Tireman, Medium Duty (Truck Tires up to 1200-24") Water Wagon (250 Bbls and above)	51.58	13.48	14.64	1.30	L&M 0.10	81.10
A2102	Group 1A including: Dump Trucks (including rockbuggy, side dump, belly dump & trucks with pups) over 60 yards up to & including 100 yards (over 100 yards to be negotiated) Jeeps (driver under load) Lowboys, including tractor attached trailers & jeeps, up to & including 12 axles (over 12 axles or 150 tons to be negotiated) Tireman Heavy Duty (earthmover tires, i.e., loader, scraper, haul truck)	53.05	13.48	14.64	1.30	L&M 0.10	82.57
A2103	Group II, including: All Deltas, Commanders, Rollagons, & similar equipment Batch Trucks (8 yards & up) Batch Trucks (up to & including 7 yards) Boom Truck/Knuckle Truck (over 5 tons) Cacasco Truck/Heat Stress Truck Construction and Material Safety Technician Dump Trucks (including articulating end dump, rockbuggy, side dump, belly dump, & trucks with pups) over 20 yards up to & including 40 yards Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating over 5 tons) Mechanics Partsman Ready-mix (up to & including 12 yards) Stringing Truck Turn-O-Wagon or DW-10 (not self loading)	50.12	13.48	14.64	1.30	L&M 0.10	79.64
A2104	Group III, including: Boom Truck/Knuckle Truck (up to & including 5 tons) Dump Trucks (including articulating end dump, rockbuggy, side dump, belly dump, & trucks with pups) over 10 yards up to & including 20 yards Expeditor (electrical & pipefitting materials)	49.17	13.48	14.64	1.30	L&M 0.10	78.69

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers	*See per diem note on last page						
						L&M	
A2104	Group III, including:	49.17	13.48	14.64	1.30	0.10	78.69
	Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating 5 tons & under)						
	Greaser - Shop						
	Semi or Truck & Trailer						
	Thermal Plastic Layout Technician						
	Traffic Control Technician						
	Trucks/Jeeps (push or pull)						
						L&M	
A2105	Group IV, including:	48.50	13.48	14.64	1.30	0.10	78.02
	Air Cushion or similar type vehicle						
	All Terrain Vehicle						
	Buggymobile						
	Bull Lift & Fork Lift, Fork Lift with Power Boom & Swing Attachment (over 5 tons)						
	Bus Operator (over 30 passengers)						
	Cement Spreader, Dry						
	Combination Truck-Fuel & Grease						
	Compactor (when pulled by rubber tired equipment)						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) up to & including 10 yards						
	Dumpster						
	Expeditor (general)						
	Fire Truck/Ambulance Driver						
	Flat Beds, Dual Rear Axle						
	Foam Distributor Truck Dual Axle						
	Front End Loader with Fork						
	Grease Truck						
	Hydro Seeder, Dual Axle						
	Hyster Operators (handling bulk aggregate)						
	Loadmaster (air & water operations)						
	Lumber Carrier						
	Ready-mix, (up to & including 7 yards)						
	Rigger (air/water/oilfield)						
	Tireman, Light Duty						
	Track Truck Equipment						
	Truck Vacuum Sweeper						
	Warehouseperson						
	Water Truck (Below 250 Bbls)						
	Water Truck (straight)						
	Water Wagon, Semi						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers							
	*See per diem note on last page						
						L&M	
A2106	Group V, including:	47.62	13.48	14.64	1.30	0.10	77.14
	Buffer Truck						
	Bull Lifts & Fork Lifts, Fork Lifts with Power Boom & Swing Attachments (up to & including 5 tons)						
	Bus Operator (up to 30 passengers)						
	Farm Type Rubber Tired Tractor (when material handling or pulling wagons on a construction project)						
	Flat Beds, Single Rear Axle						
	Foam Distributor Truck Single Axle						
	Fuel Handler (station/bulk attendant)						
	Gear/Supply Truck						
	Gravel Spreader Box Operator on Truck						
	Hydro Seeder, Single Axle						
	Pickups (pilot cars & all light-duty vehicles)						
	Rigger						
	Swamper						
	Tack Truck (welders/gear)						
	Team Drivers (horses, mules, & similar equipment)						
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)							
	*See per diem note on last page						
						L&M	**LEG**
N2201	Group I, including:	44.28	10.55	21.51	2.00	0.35	0.20	78.89
	Brakeman						
	Mucker						
	Nipper						
	Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)						
	Topman & Bull Gang						
	Tunnel Track Laborer						
						L&M	**LEG**
N2202	Group II, including:	45.38	10.55	21.51	2.00	0.35	0.20	79.99
	Burning & Cutting Torch						
	Certified Erosion Sediment Control Lead (CESCL Laborer)						
	Concrete Laborer						
	Floor Preparation, Core Drilling						
	Jackhammer/Chipping Gun or Pavement Breaker						
	Laser Instrument Operator						
	Nozzlemen, Pumpcrete or Shotcrete						
	Pipelayer Helper						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N2203	Group III, including: Miner Retimberman	46.37	10.55	21.51	2.00	0.35	0.20	80.98
						L&M	LEG	
N2204	Group IIIA, including: Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayer Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified	51.18	10.55	21.51	2.00	0.35	0.20	85.79
						L&M	LEG	
N2206	Group IIIB, including: Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper	59.41	5.50	21.51	1.60	0.35	0.20	88.57
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S2201	Group I, including: Brakeman Mucker Nipper Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer) Topman & Bull Gang Tunnel Track Laborer	44.28	10.55	21.51	2.00	0.35	0.20	78.89
						L&M	LEG	
S2202	Group II, including: Burning & Cutting Torch Certified Erosion Sediment Control Lead (CESCL Laborer) Concrete Laborer Floor Preparation, Core Drilling	45.38	10.55	21.51	2.00	0.35	0.20	79.99

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S2202	Group II, including:	45.38	10.55	21.51	2.00	0.35	0.20	79.99
	Jackhammer/Chipping Gun or Pavement Breaker Laser Instrument Operator Nozzlemen, Pumpcrete or Shotcrete Pipelayer Helper							
						L&M	LEG	
S2203	Group III, including:	46.37	10.55	21.51	2.00	0.35	0.20	80.98
	Miner Retimberman							
						L&M	LEG	
S2204	Group IIIA, including:	51.18	10.55	21.51	2.00	0.35	0.20	85.79
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayer Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
S2206	Group IIIB, including:	59.41	5.50	21.51	1.60	0.35	0.20	88.57
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Tunnel Workers, Power Equipment Operators *See per diem note on last page								
						L&M		
A2207	Group I	58.55	12.10	16.25	1.05	0.10		88.05
						L&M		
A2208	Group IA	60.86	12.10	16.25	1.05	0.10		90.36
						L&M		
A2209	Group II	57.55	12.10	16.25	1.05	0.10		87.05

Wage benefits key: ANU=Annuity, BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pension fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Tunnel Workers, Power Equipment Operators *See per diem note on last page							
A2210	Group III	56.60	12.10	16.25	1.05	**L&M** 0.10	86.10
A2211	Group IV	48.47	12.10	16.25	1.05	**L&M** 0.10	77.97

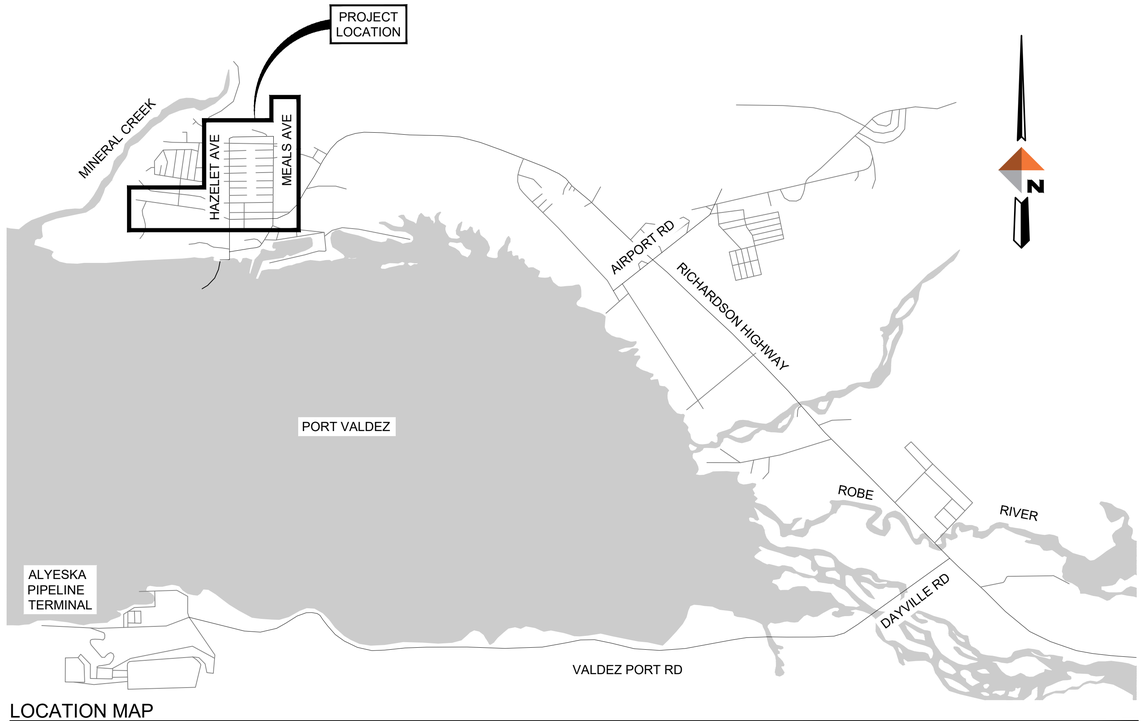
*** Per diem is an established practice for this classification. This means that per diem is an allowable alternative to board and lodging if all criteria are met. See 8 AAC 30.051-08 AAC 30.056, and the per diem information on page vii of this Pamphlet.**

**** Work in combination of classifications: Employees working in any combination of classifications within the diving crew (working diver, standby diver, and tender) in a shift are paid in the classification with the highest rate for a minimum of 8 hours per shift.**

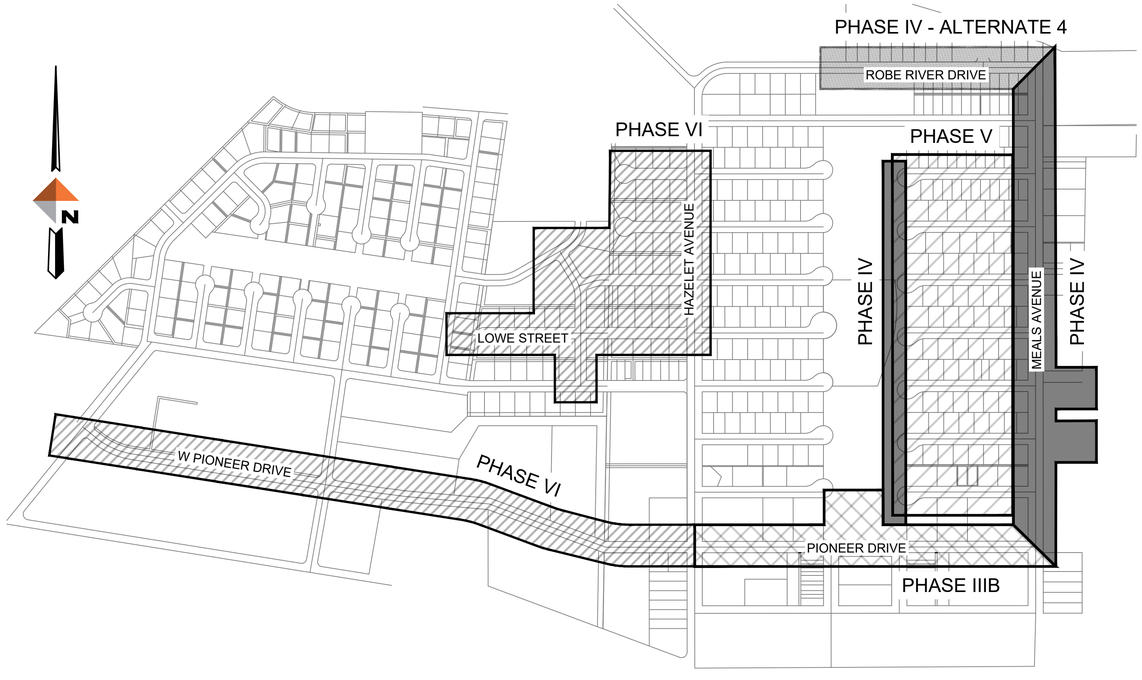
VALDEZ PAVEMENT REHABILITATION

PHASE IV-MEALS AVENUE

PROJECT NUMBER 22-310-1115



LOCATION MAP
VALDEZ, AK



VICINITY MAP

SHEET INDEX

SHEET NO.	SHEET
G-001	COVER SHEET
G-002	NOTES, LEGEND, AND ABBREVIATIONS
G-003	SITE PLAN AND KEY MAP
G-004	SURVEY CONTROL
C-101	TYPICAL SECTIONS
C-110	SUMMARY TABLES
C-111	SUMMARY TABLES
C-201 TO C-206	PLAN AND PROFILE
C-210 TO C-211	TEMPORARY GRAVEL ACCESS
C-301 TO C-306	INTERSECTION GRADING
C-307	INTERSECTION GRADING AND ADD ALT #1
C-308	INTERSECTION GRADING AND ADD ALT #2
C-309	INTERSECTION GRADING
C-401 TO C-405	DETAILS
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C-601 TO C-603	EROSION AND SEDIMENT CONTROL PLAN
C-604	EROSION AND SEDIMENT CONTROL PLAN - ADD ALT #1 & #2
E-001	ELECTRICAL LEGEND, SCHEDULES, AND CALCULATIONS
E-002	ELECTRICAL SPECIFICATIONS
E-003	ELECTRICAL DETAILS
E-004	ELECTRICAL SITE PLAN AND OVERALL MAP
E-101 TO E-104	ELECTRICAL DEMOLITION PLANS
E-201 TO E-204	ELECTRICAL PLANS

PREPARED FOR:

CITY OF VALDEZ, ALASKA
GATEWAY TO THE INTERIOR

PREPARED BY:

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01/16/2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

COVER SHEET

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

G-001

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	
TYPE III STORM MANHOLE		
SEWER MANHOLE	S	
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

NOTES, LEGEND, AND ABBREVIATIONS

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

G-002

TRAFFIC CONTROL AND PHASING

GENERAL

A. ALL STAGING AREAS USED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE COMPLETION OF THE PROJECT PHASE.
B. ALL TRAFFIC CONTROL OPERATIONS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LATEST EDITION OF THE ALASKA TRAFFIC MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ALASKA SIGN SPECIFICATIONS AND THE MUTCD.
C. TEMPORARY TRAFFIC CONTROL (TTC) PLANS FOR EACH PHASE AND FOR SPECIFIC CONSTRUCTION ACTIVITIES THAT CANNOT BE EXECUTED WITHIN A PARTICULAR PHASE TTC, SHALL BE PREPARED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AT LEAST 7 DAYS IN ADVANCE OF THE WORK UNLESS OTHERWISE APPROVED BY THE ENGINEER.
D. TEMPORARY TRAFFIC LANES SHALL BE A MINIMUM OF 10-FT WIDE.
E. WHEN CONSTRUCTION ACTIVITIES REQUIRE THE CLOSURE OF THE EXISTING OR NEW SIDEWALKS, ALTERNATIVE PEDESTRIAN ROUTES THROUGH OR AROUND THE ACTIVE CONSTRUCTION ZONE SHALL BE ESTABLISHED.
F. WITH THE EXCEPTION OF CONCRETE POURS AND DRIVEWAY WORK VEHICULAR ACCESS SHALL BE MAINTAINED TO EACH LOT WITHIN THE PROJECT LIMITS AT ALL TIMES.

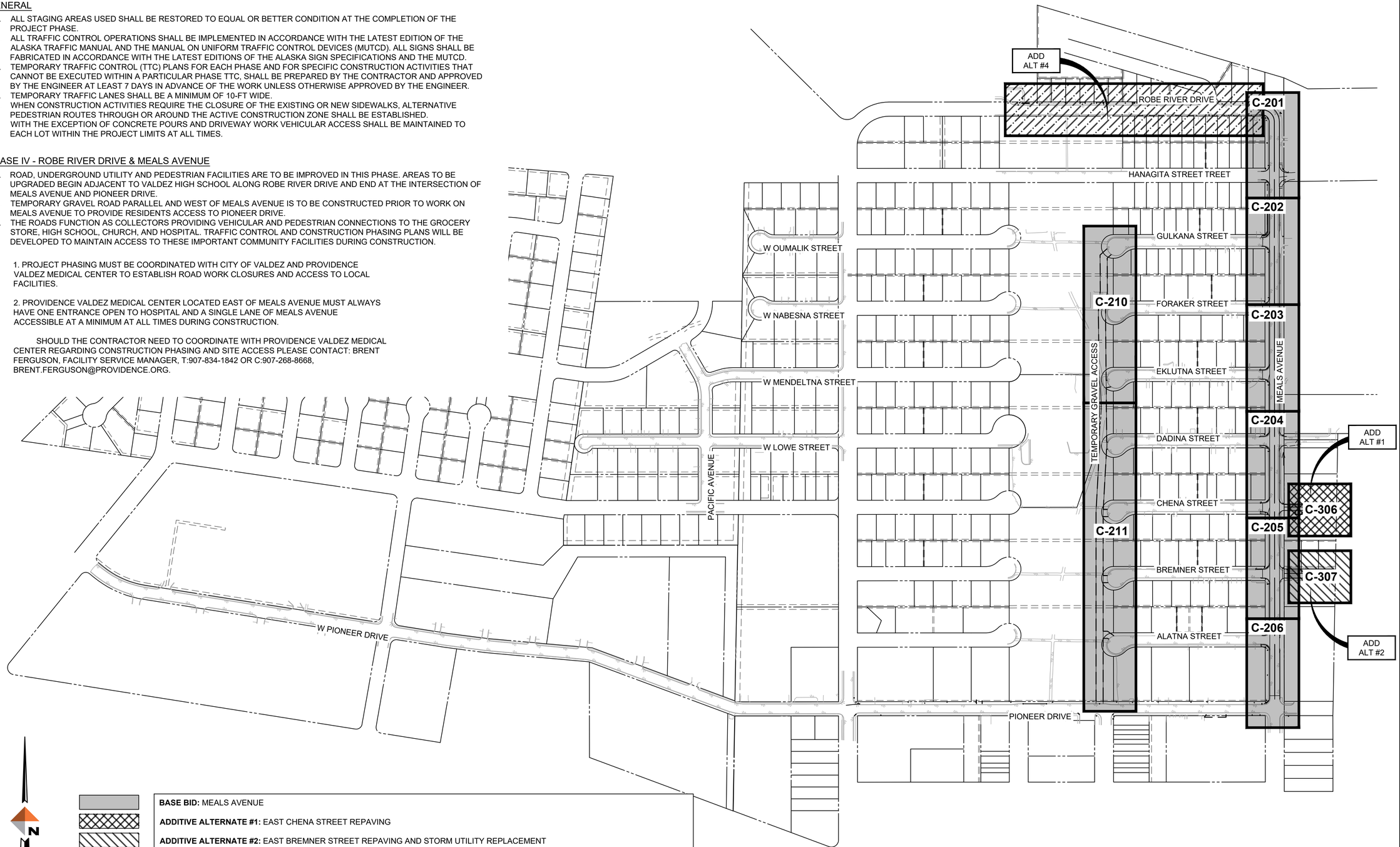
PHASE IV - ROBE RIVER DRIVE & MEALS AVENUE

A. ROAD, UNDERGROUND UTILITY AND PEDESTRIAN FACILITIES ARE TO BE IMPROVED IN THIS PHASE. AREAS TO BE UPGRADED BEGIN ADJACENT TO VALDEZ HIGH SCHOOL ALONG ROBE RIVER DRIVE AND END AT THE INTERSECTION OF MEALS AVENUE AND PIONEER DRIVE.
B. TEMPORARY GRAVEL ROAD PARALLEL AND WEST OF MEALS AVENUE IS TO BE CONSTRUCTED PRIOR TO WORK ON MEALS AVENUE TO PROVIDE RESIDENTS ACCESS TO PIONEER DRIVE.
C. THE ROADS FUNCTION AS COLLECTORS PROVIDING VEHICULAR AND PEDESTRIAN CONNECTIONS TO THE GROCERY STORE, HIGH SCHOOL, CHURCH, AND HOSPITAL. TRAFFIC CONTROL AND CONSTRUCTION PHASING PLANS WILL BE DEVELOPED TO MAINTAIN ACCESS TO THESE IMPORTANT COMMUNITY FACILITIES DURING CONSTRUCTION.

1. PROJECT PHASING MUST BE COORDINATED WITH CITY OF VALDEZ AND PROVIDENCE VALDEZ MEDICAL CENTER TO ESTABLISH ROAD WORK CLOSURES AND ACCESS TO LOCAL FACILITIES.

2. PROVIDENCE VALDEZ MEDICAL CENTER LOCATED EAST OF MEALS AVENUE MUST ALWAYS HAVE ONE ENTRANCE OPEN TO HOSPITAL AND A SINGLE LANE OF MEALS AVENUE ACCESSIBLE AT A MINIMUM AT ALL TIMES DURING CONSTRUCTION.

SHOULD THE CONTRACTOR NEED TO COORDINATE WITH PROVIDENCE VALDEZ MEDICAL CENTER REGARDING CONSTRUCTION PHASING AND SITE ACCESS PLEASE CONTACT: BRENT FERGUSON, FACILITY SERVICE MANAGER, T:907-834-1842 OR C:907-268-8668, BRENT.FERGUSON@PROVIDENCE.ORG.



BASE BID: MEALS AVENUE

ADDITIVE ALTERNATE #1: EAST CHENA STREET REPAVING

ADDITIVE ALTERNATE #2: EAST BREMNER STREET REPAVING AND STORM UTILITY REPLACEMENT

ALTERNATE #3: HDPE CONDUIT REPLACES RIGID CONDUIT IN BASE PLANS

ADDITIVE ALTERNATE #4: ROBE RIVER DRIVE (UNDER SEPARATE COVER)

ADDITIVE ALTERNATE #5: FIBER OPTIC CONDUIT MEALS AVENUE

ADDITIVE ALTERNATE #6: FIBER OPTIC CONDUIT ROBE RIVER DRIVE (UNDER SEPARATE COVER)

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
Jan 16, 2026
REGISTERED PROFESSIONAL ENGINEER

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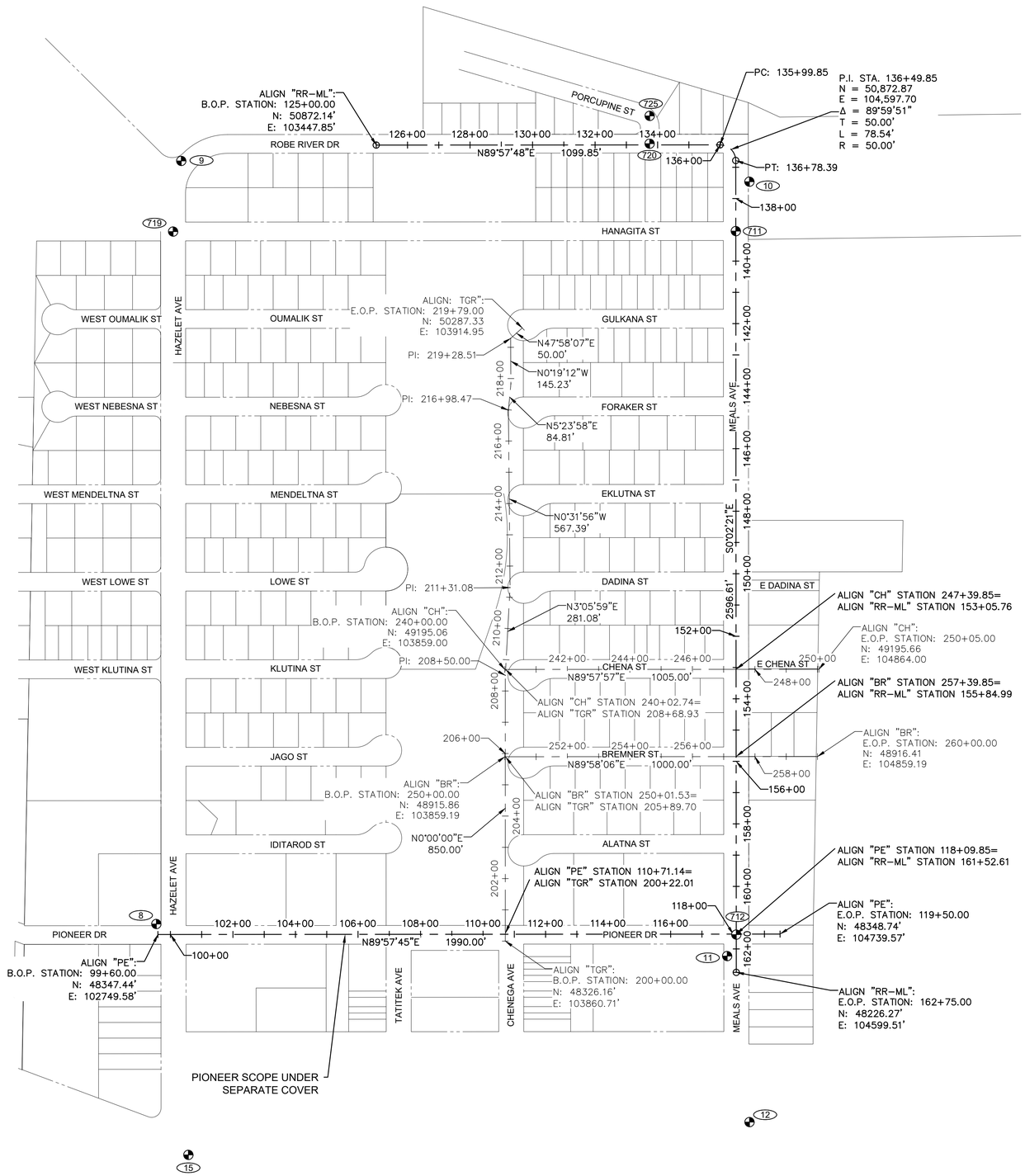
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

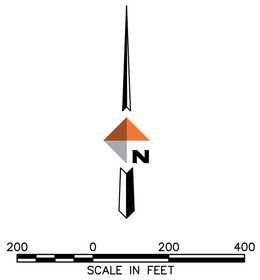
SITE PLAN AND KEY MAP

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-003





REVISIONS

REV	DATE	DESCRIPTION	BY

SURVEY CONTROL NOTES

HORIZONTAL CONTROL:
COORDINATES ARE BASED ON AN ASSUMED DATUM IN U.S. FEET. BEARINGS ARE BASED ON THE FINAL PLAT BLACK GOLD NO 1 DIVISION 1 FILED AS PLAT NO. 78-3 IN THE VALDEZ RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA.

VERTICAL CONTROL:
ELEVATIONS ARE NAVD88(GEOID 12A) IN US SURVEY FEET. THE BASIS OF ELEVATIONS IS POINT 601, AN NGS BRASS CAP (PID: BBBB44) STAMPED "4240 T 2000", HAVING AN OPUS DERIVED VALUE OF 49.89 FEET.

SURVEY MONUMENTS

STATIC GPS TIED:

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
*1	49393.66	99959.88	54.37	ALCAP
*2	49755.79	101505.00	58.69	ALCAP
*3	49832.19	101025.73	63.02	ALCAP
*4	50417.76	101106.85	65.97	ALCAP
*5	49996.66	100078.42	59.70	ALCAP
*6	48929.31	99530.75	45.65	ALCAP
*7	48558.80	101468.28	45.80	ALCAP
8	48380.91	102744.58	35.71	BRASS CAP
*9	50821.46	102824.23	58.09	BRASS CAP
10	50755.02	104641.48	37.08	ALCAP
11	48278.43	104570.40	21.72	BRASS CAP
12	47747.39	104641.87	19.63	BRASS CAP
*13	49171.98	102254.73	44.61	ALCAP
*14	49927.19	102115.85	55.80	ALCAP
15	47642.49	102847.16	31.29	ALCAP
*601	47016.69	102889.07	49.89	BRASS CAP

* = MONUMENT NOT SHOWN

"RR-ML" ALIGNMENT CONTROL MONUMENTS

POINT	STATION	OFFSET	LOCAL NORTHING	LOCAL EASTING	NAVD88 ELEVATION	DESCRIPTION
720	133+74.59	4.01' LT	50876.7074	104322.4415	--	CTRL/FOUN.GPSS.BC
725	133+74.72	92.82' LT	50965.5231	104322.5181	--	CTRL/FOUN.GPSS.BC
10	137+46.27	43.70' LT	50755.0225	104641.4774	37.08	CTRL/SETN.GPSS.ALCAP
711	139+04.32	0.17' LT	50596.9436	104598.0610	--	CTRL/FOUN.GPSS.BC
719	139+04.51	1799.69' RT	50595.5252	102798.2043	--	CTRL/FOUN.GPSS.ALMON
712	161+54.27	0.15' LT	48346.9967	104599.5715	--	CTRL/FOUN.GPSS.ALCAP
11	162+22.82	29.07' RT	48278.4281	104570.3967	21.72	CTRL/SETN.GPSS.BC

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SURVEY CONTROL SHEET

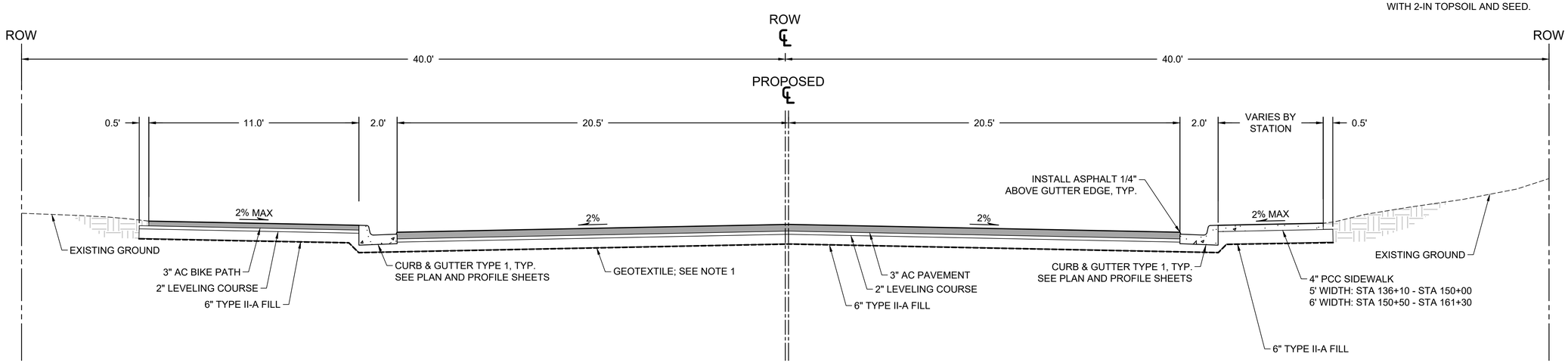
VALDEZ, ALASKA

PROJECT 63461.01
DATE 11/25/2025

G-004

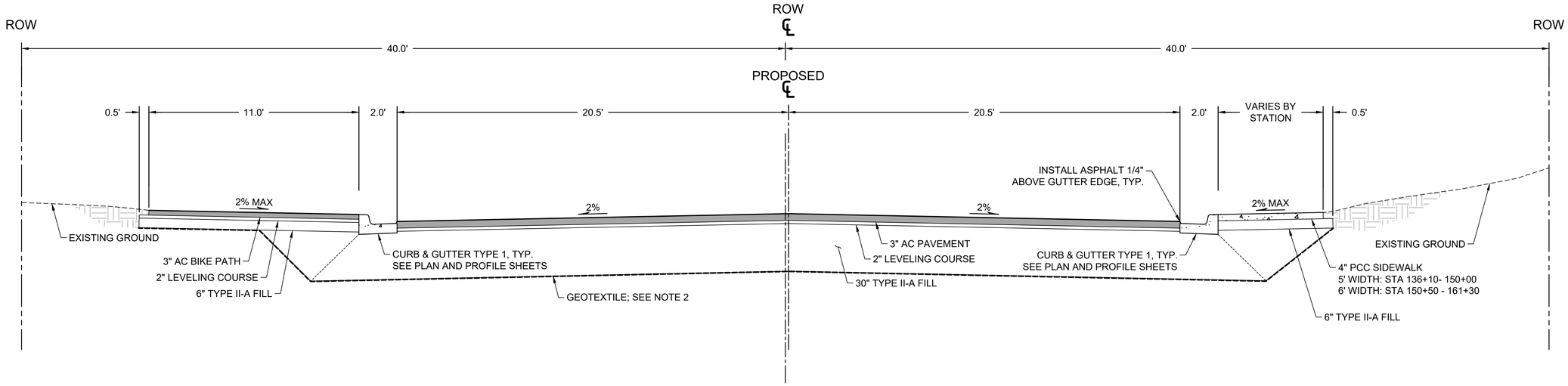
NOTES

1. GEOTEXTILE FOR RE-SURFACING SECTION TO BE A SEPARATION AND STABILIZATION GEOTEXTILE. GEOTEXTILE TO BE WOVEN MEETING CLASS 3 STRENGTH PER AASHTO M288 WHICH ALSO MEETS CRITERIA FOR TYPE A SEPARATION GEOTEXTILE PER CITY OF VALDEZ.
2. GEOTEXTILES USED UNDER REDUCED SUBGRADE SECTION SHALL BE WOVEN AND MEET CRITERIA FOR CITY OF VALDEZ (20.22) TYPE A, SEPARATION GEOTEXTILE.
3. LEVELING COURSE AND TYPE II-A FILL SHALL MEET REQUIREMENTS OF CITY OF VALDEZ GRADATION. SEE GEOTECHNICAL REPORT. CLASSIFIED FILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS IF A LARGE VIBRATORY COMPACTOR IS USED. EACH LIFT SHOULD BE COMPACTED THROUGHOUT ITS ENTIRE DEPTH TO A DENSITY OF AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR AASHTO T180.
4. EXCAVATIONS SHOULD BE COMPLETELY DEWATERED BEFORE PLACEMENT OF CLASSIFIED FILL. DO NOT PLACE FILL OR ASPHALT PAVEMENT OVER FROZEN SOILS. DO NOT FILL OR BACKFILL WITH FROZEN SOILS.
5. GRASS AREAS WITHIN WORK LIMITS SHALL BE REPLACED WITH 2-IN TOPSOIL AND SEED.



MEALS AVENUE - TYPICAL SECTION

STA: 135+92.81 TO 141+40.00
STA: 142+60.00 TO 151+15.00
STA: 152+35.00 TO 153+15.00
STA: 154+35.00 TO 155+90.00
STA: 157+10.00 TO EOP STA: 161+12.46



MEALS AVENUE - REDUCED SUBGRADE STRENGTH (RSS) SECTION

STA: 141+40.00 TO 142+60.00
STA: 151+15.00 TO 152+35.00
STA: 153+15.00 TO 154+35.00
STA: 155+90.00 TO 157+10.00

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

TYPICAL SECTIONS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-101

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
23	RR-ML	136+13.82	20.50 L	24'
24	RR-ML	158+55.39	20.50 L	48'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
344	RR-ML	138+76.78	37.50 R	
331	RR-ML	144+37.55	41.00 R	
322	RR-ML	149+97.40	41.50 R	
315	RR-ML	155+56.19	42.00 R	REPLACE VALVE AND ASSOCIATED PIPE
303	RR-ML	161+28.54	38.00 R	REPLACE VALVE AND ASSOCIATED PIPE

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1004	RR-ML	136+45.93	22.50 R	PARALLEL
1005	RR-ML	138+64.06	22.50 R	TYPE II PARALLEL
1006	RR-ML	139+32.07	28.00 R	PARALLEL
1007	RR-ML	141+57.27	28.00 R	PARALLEL (MODIFIED SEE GRADING)
1008	RR-ML	142+28.35	22.50 R	TYPE II PARALLEL
1009	RR-ML	144+22.27	22.50 R	TYPE II PARALLEL
1010	RR-ML	144+93.32	28.00 R	PARALLEL
1011	RR-ML	147+17.14	28.00 R	PARALLEL
1012	RR-ML	147+88.21	22.50 R	TYPE II PARALLEL
1013	RR-ML	149+97.27	28.00 R	PARALLEL
1014	RR-ML	150+68.34	22.50 R	TYPE II PARALLEL
1015	RR-ML	152+79.29	29.54 R	PARALLEL
1016	RR-ML	153+48.73	22.50 R	TYPE II PARALLEL
1017	RR-ML	155+56.89	28.00 R	PARALLEL
1018	RR-ML	156+27.97	22.50 R	TYPE II PARALLEL
1019	RR-ML	158+22.11	22.50 R	TYPE II PARALLEL
1020	RR-ML	158+93.17	28.00 R	PARALLEL
1021	RR-ML	161+24.54	28.00 R	PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C6	43.20	27.50	90.00	S45° 02' 16"E	38.89
C7	95.80	72.50	75.71	N37° 53' 33"W	88.98
C8	36.14	23.00	90.03	S44° 56' 20"W	32.54
C9	36.14	23.00	90.04	S45° 01' 09"E	32.54
C10	40.80	28.00	83.49	S41° 44' 42"W	37.29
C11	55.56	33.00	96.47	S48° 16' 28"E	49.23
C12	36.13	23.00	90.00	S44° 57' 40"W	32.53
C13	36.13	23.00	90.00	S45° 02' 20"E	32.53
C14	29.05	30.00	55.48	S27° 42' 05"W	27.93
C15	18.30	30.00	34.95	S72° 59' 41"E	18.02
C16	36.13	23.00	90.00	S44° 57' 40"W	32.53
C17	36.13	23.00	90.00	S45° 02' 20"E	32.53
C18	36.13	23.00	90.00	S44° 57' 40"W	32.53
C19	36.13	23.00	90.00	S45° 02' 20"E	32.53
C20	36.13	23.00	90.00	S44° 57' 44"W	32.53
C21	36.13	23.00	90.00	S45° 02' 16"E	32.53
C22	36.13	23.00	90.00	S44° 57' 44"W	32.53
C23	36.13	23.00	90.00	S45° 02' 16"E	32.53
C24	36.13	23.00	90.00	S44° 57' 44"W	32.53
C25	36.13	23.00	90.00	S45° 02' 16"E	32.53
C26	28.28	18.00	90.00	S44° 57' 47"W	25.46
C27	28.27	18.00	90.00	S45° 02' 13"E	25.45
C28	36.13	23.00	90.01	S44° 57' 49"W	32.53
C29	36.13	23.00	89.99	S45° 02' 11"E	32.53
C30	36.13	23.00	90.01	S44° 57' 49"W	32.53
C31	36.13	23.00	89.99	S45° 02' 08"E	32.52
C32	36.13	23.00	90.00	S44° 57' 40"W	32.53
C33	36.13	23.00	90.00	S45° 02' 20"E	32.53
C34	36.13	23.00	90.00	S44° 57' 42"W	32.53

PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	28.87 LF	1.00%	108-CBMH	109-SDMH	RR-ML
CPEP	12"	17.17 LF	1.00%	110-CBMH	111-SDMH	RR-ML
CPEP	12"	33.72 LF	1.00%	112-CBMH	113-SDMH	RR-ML
CPEP	12"	33.04 LF	1.50%	118-CBMH	119-SDMH	RR-ML
CPEP	12"	49.91 LF	0.50%	122-CBMH	123-CBMH	RR-ML
CPEP	12"	10.62 LF	0.50%	123-CBMH	124-SDMH	RR-ML
CPEP	12"	25.76 LF	0.75%	129-CBMH	128-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	131-CBMH	130-CBMH	RR-ML
CPEP	12"	32.00 LF	0.50%	132-CBMH	135-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	134-CBMH	133-CBMH	RR-ML
CPEP	18"	51.15 LF	0.50%	136-SDMH	135-SDMH	RR-ML
CPEP	12"	45.27 LF	0.95%	137-CBMH	136-SDMH	RR-ML
CPEP	12"	46.45 LF	0.50%	138-CBMH	139-CBMH	RR-ML
CPEP	12"	20.59 LF	0.50%	139-CBMH	141-SDMH	RR-ML
CPEP	12"	38.24 LF	1.00%	140-CBMH	141-SDMH	RR-ML
CPEP	12"	33.28 LF	1.00%	144-CBMH	145-SDMH	RR-ML
CPEP	18"	76.45 LF	0.99%	146-CBMH	145-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	152-CBMH	151-CBMH	RR-ML
CPEP	12"	14.00 LF	1.00%	156-CBMH	155-SDMH	RR-ML
CPEP	18"	191.02 LF	0.64%	160-CBMH	136-SDMH	RR-ML
CPEP	12"	40.00 LF	0.50%	1001-CBMH	1002-CBMH	RR-ML
CPEP	18"	202.85 LF	0.50%	1002-CBMH	145-SDMH	RR-ML

C-201
C-202
C-203
C-204
C-205
C-206
C-306
C-308

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-110

PROPOSED STRUCTURES

NAME	DESCRIPTION
108-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH	NEW; HORSESHOE MANHOLE
110-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
112-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
116-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
118-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
120-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES
121-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
122-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
123-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
125-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES
126-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
129-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
132-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
136-SDMH	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)
138-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

C-201 C-202 C-203 C-204

PROPOSED STRUCTURES

NAME	DESCRIPTION
141-SDMH	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE
144-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
146-CBMH	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
148-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
151-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
154-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
156-CBMH	NEW; CATCH BASIN (COV 55-13)

C-204 C-205 C-206

PROPOSED STRUCTURES (ADD ALT 2)

NAME	DESCRIPTION
1001-CBMH	NEW; CATCH BASIN & TYPE II CURB INLET (COV 55-15) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)
1002-CBMH	NEW; TYPE I MH (55-3) SEE DOT D-24.00 FOR GUTTER INLET FRAME (TYPE II A CURB)

C-308

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
111-SDMH	EXISTING	RR-ML 136+44.80	40.65 L
113-SDMH	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 138+85.08	26.81 L
114-SDMH	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE	RR-ML 139+04.53	26.87 L
115-CBMH	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE	RR-ML 138+89.31	40.23 L
119-SDMH	EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 141+64.99	27.61 L
124-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 144+45.17	27.27 L
127-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 145+90.04	25.57 L
128-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 147+25.04	27.10 L
135-SDMH	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 150+04.71	26.98 L
145-SDMH	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;	RR-ML 155+64.61	27.55 L
149-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.53	27.25 L
150-CBMH	EXISTING; ADJUST TO GRADE	RR-ML 158+44.28	40.16 L
155-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 161+06.03	27.01 L

C-201 C-202 C-203 C-204 C-205 C-206

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
254-SSMH	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE	RR-ML 136+50.51	22.47 L
255-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 139+32.98	38.53 L
256-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 142+12.10	38.31 L
257-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 144+92.28	38.02 L
258-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 147+71.78	38.00 L
259-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 150+52.20	38.36 L
260-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 153+31.22	37.72 L
261-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 156+10.90	37.45 L
262-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 158+91.35	36.23 L

C-201 C-202 C-203 C-204 C-205 C-206

EXISTING WATER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
WV-124	REPLACE COVER	RR-ML 155+76.51	31.45 R

C-205

*EXISTING STRUCTURES TABLES HIGHLIGHT STRUCTURES LOCATED WITHIN DISTURBED AREAS AS WELL AS STRUCTURES REQUIRING MAINTENANCE. SEE SHEETS C-201 THROUGH C-206 FOR ADDITIONAL INFORMATION. OTHER STRUCTURES WITHIN WORK LIMITS MAY STILL REQUIRE ADJUSTMENTS, SEE GENERAL NOTE 7 ON SHEET G-002.

REMOVED STRUCTURES

STATION	OFFSET
BR 259+72.14	18.58 L
BR 259+72.31	17.79 R
RR-ML 136+45.39	20.61 L
RR-ML 138+60.40	21.40 L
RR-ML 138+84.52	49.32 R
RR-ML 139+27.00	49.17 R
RR-ML 141+55.31	16.42 L
RR-ML 141+64.40	49.27 R
RR-ML 142+07.01	49.33 R
RR-ML 144+14.98	19.32 R
RR-ML 144+33.93	16.63 L
RR-ML 144+44.08	49.92 R
RR-ML 144+86.73	50.04 R
RR-ML 146+99.92	16.42 L
RR-ML 147+24.17	49.86 R
RR-ML 147+67.04	50.25 R
RR-ML 149+85.20	16.42 L
RR-ML 149+99.88	77.94 L
RR-ML 150+04.13	50.41 R
RR-ML 150+45.83	50.72 R
RR-ML 152+54.36	19.63 R
RR-ML 152+65.76	16.26 L
RR-ML 152+83.95	50.67 R
RR-ML 152+84.96	26.91 L
RR-ML 153+25.96	50.55 R

C-308 C-201 C-202 C-203 C-204

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 155+48.64	21.35 L
RR-ML 155+63.82	50.83 R
RR-ML 156+06.10	51.03 R
RR-ML 158+43.76	50.49 R
RR-ML 158+44.68	21.21 L
RR-ML 158+85.59	50.71 R
RR-ML 160+96.85	20.13 R
RR-ML 161+06.23	32.30 L
RR-ML 161+06.45	24.07 R
RR-ML 161+06.47	21.12 L

C-205 C-206

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
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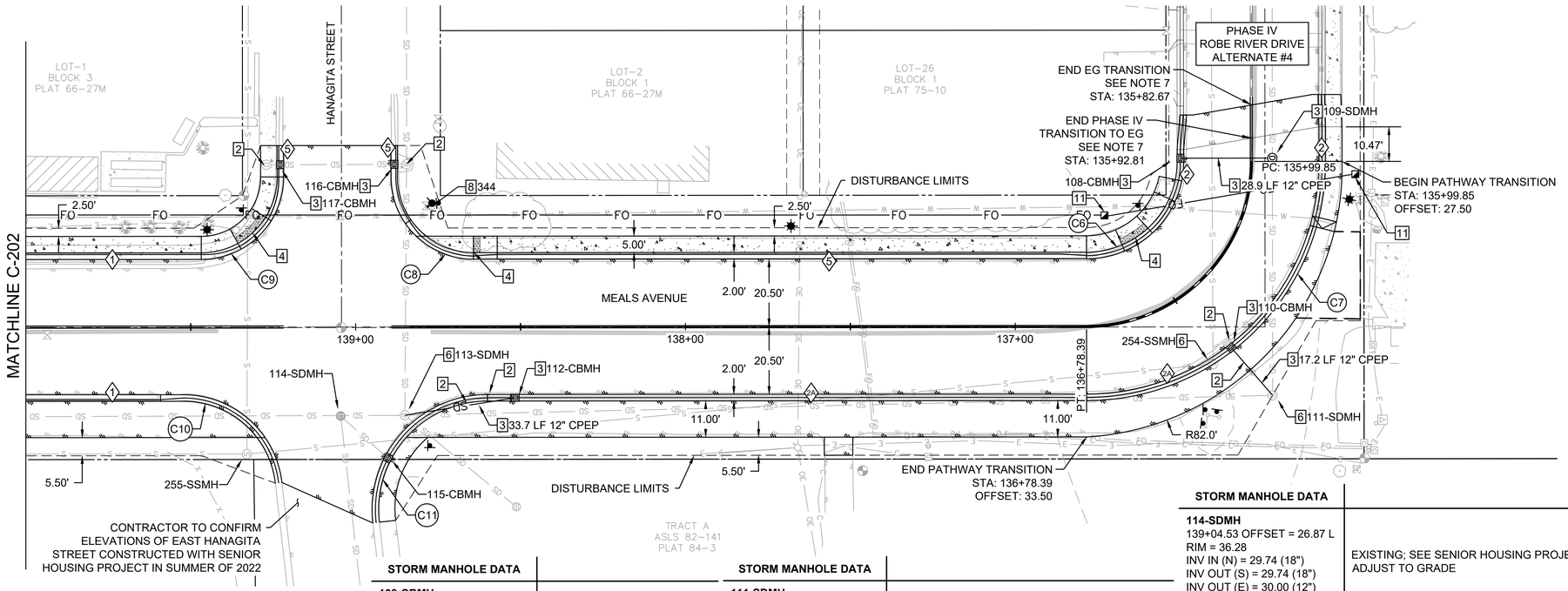
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-111

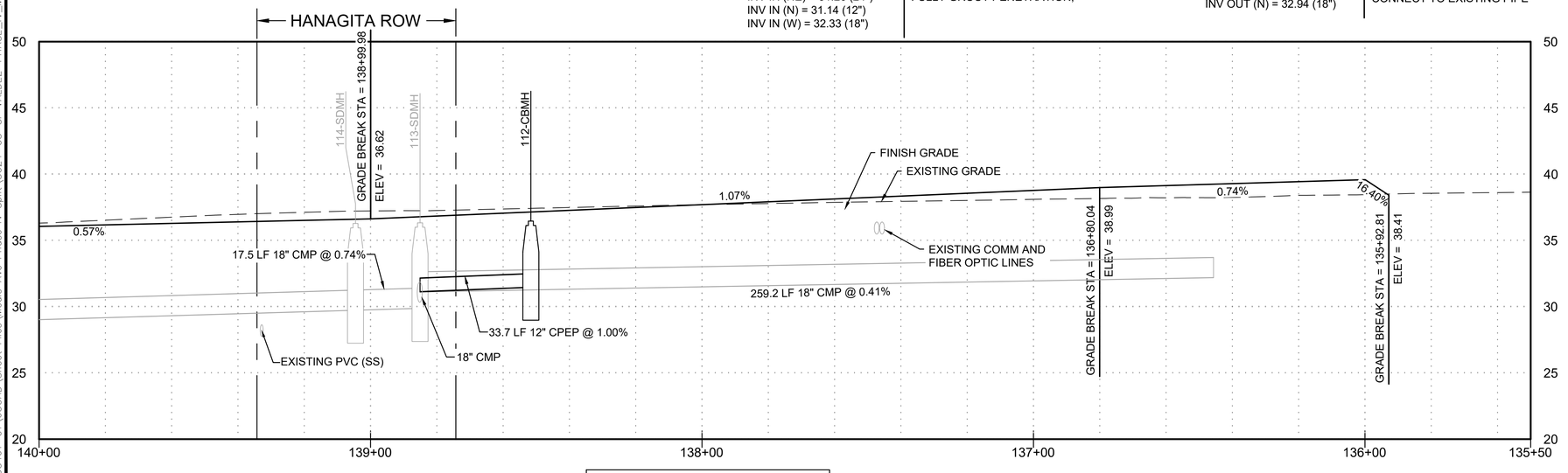


SANITARY MANHOLE DATA	
254-SSMH 136+50.51 OFFSET = 22.47 L RIM = 37.54 INV IN (W) = 29.56 (10") INV OUT (S) = 29.45 (10")	EXISTING; REPLACE REDUCING CONE; ROTATE ACCESS LID OUT OF CURB; NEW LADDER RUNGS ALIGNED WITH LID; ADJUST RIM TO GRADE
255-SSMH 139+32.98 OFFSET = 38.53 L RIM = 36.51 INV IN (N) = 27.35 (10") INV OUT (S) = 27.24 (12") INV IN (W) = 27.44 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
108-CBMH 135+98.85 OFFSET = 22.50 R RIM = 38.10 INV OUT (N) = 32.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
109-SDMH 135+98.83 OFFSET = 6.37 L RIM = 38.22 INV IN (S) = 32.53 (12") INV IN (W) = 32.45 (18") INV OUT (E) = 32.43 (18")	NEW; HORSESHOE MANHOLE
110-CBMH 136+45.36 OFFSET = 21.50 L RIM = 37.58 INV OUT (NE) = 33.01 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
111-SDMH 136+44.80 OFFSET = 40.65 L RIM = 37.63 INV IN (W) = 32.12 (18") INV OUT (S) = 32.20 (18") INV IN (SW) = 32.84 (12")	EXISTING
112-CBMH 138+51.64 OFFSET = 22.50 L RIM = 36.46 INV OUT (S) = 31.48 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403
113-SDMH 138+85.08 OFFSET = 26.81 L RIM = 36.33 INV IN (N) = 31.13 (18") INV OUT (S) = 29.87 (18") INV IN (NE) = 31.26 (24") INV IN (N) = 31.14 (12") INV IN (W) = 32.33 (18")	EXISTING, ADJUST TO GRADE; RE-GROUT AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
114-SDMH 139+04.53 OFFSET = 26.87 L RIM = 36.28 INV IN (N) = 29.74 (18") INV OUT (S) = 29.74 (18") INV OUT (E) = 30.00 (12") INV IN (NE) = 30.00 (12")	EXISTING; SEE SENIOR HOUSING PROJECT ADJUST TO GRADE
115-CBMH 138+89.31 OFFSET = 40.23 L RIM = 36.52 INV OUT (SW) = 30.20 (12")	EXISTING; SEE SENIOR HOUSING PROJECT RE-USE EXISTING CATCH BASIN; SHIFT TO FIT CURB LINE AND ADJUST TO GRADE
116-CBMH 138+87.27 OFFSET = 49.31 R RIM = 36.74 INV IN (S) = 32.60 (18") INV IN (W) = 32.83 (18") INV OUT (E) = 32.34 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
117-CBMH 139+23.77 OFFSET = 49.18 R RIM = 36.88 INV OUT (N) = 32.94 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.
7. IF ALTERNATE #4 IS SELECTED, SEE "PHASE IV-ROBE RIVER DRIVE-ALTERNATE 4" PLANSET UNDER SEPARATE COVER. TRANSITION TO EG NOT REQUIRED IF ALTERNATE IS SELECTED.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
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HORIZONTAL

SCALE IN FEET
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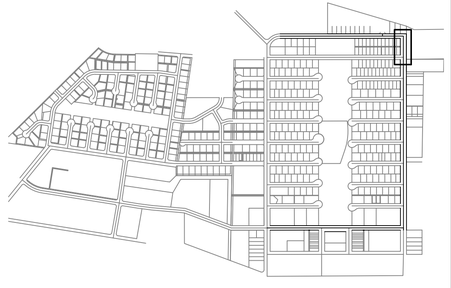
VERTICAL



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

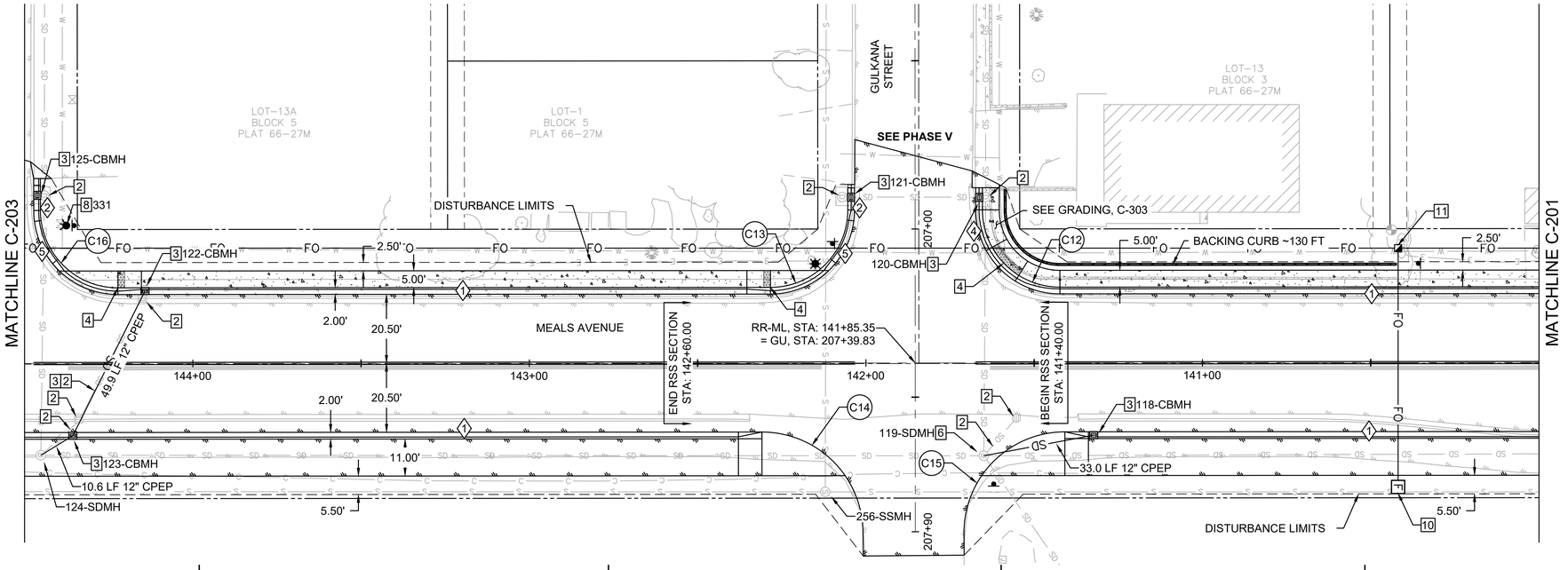
STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 133293
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-201



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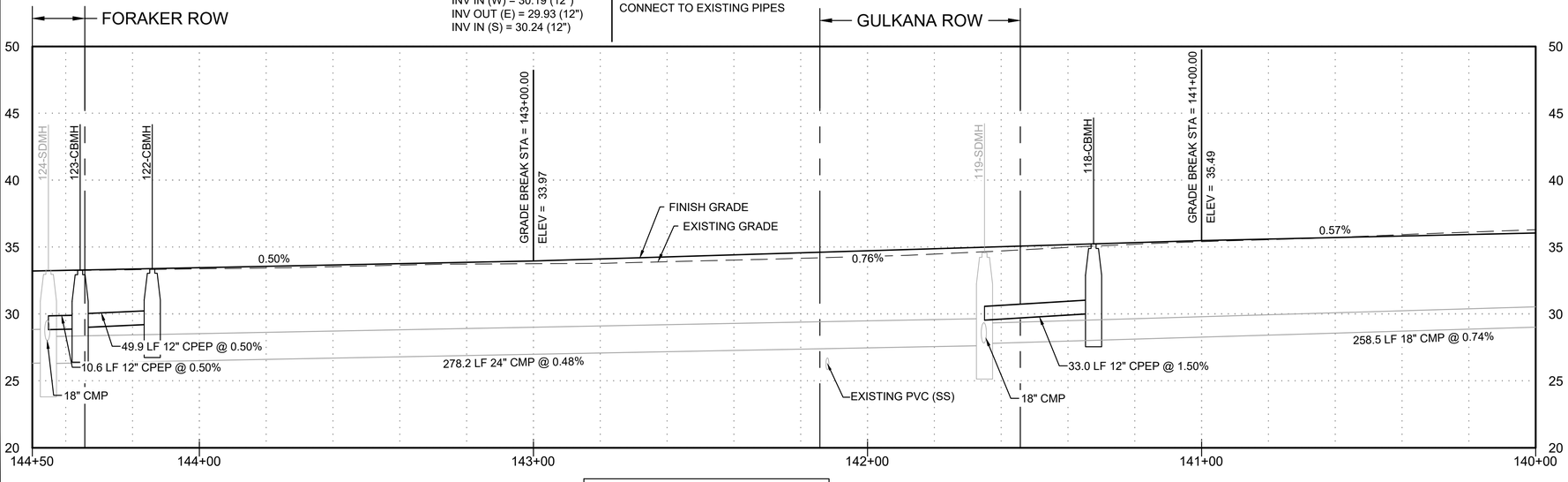
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SANITARY MANHOLE DATA

256-SSMH 142+12.10 OFFSET = 38.31 L RIM = 34.34 INV IN (N) = 25.24 (12") INV OUT (S) = 25.15 (12") INV IN (W) = 25.31 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA

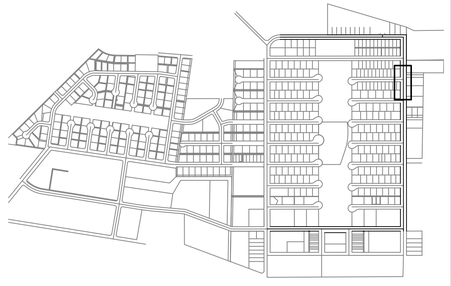
118-CBMH 141+32.34 OFFSET = 22.50 L RIM = 35.23 INV OUT (S) = 30.06 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
119-SDMH 141+64.99 OFFSET = 27.61 L RIM = 34.57 INV IN (N) = 27.82 (18") INV OUT (S) = 27.64 (24") INV IN (W) = 29.35 (12") INV IN (NE) = 28.36 (24") INV IN (NW) = 29.56 (12")	EXISTING, ADJUST TO GRADE; GROUT VOID AROUND NE PIPE CONNECTION; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
120-CBMH 141+65.35 OFFSET = 49.20 R RIM = 33.86 INV IN (W) = 30.19 (12") INV OUT (E) = 29.93 (12") INV IN (S) = 30.24 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403 CONNECT TO EXISTING PIPES
121-CBMH 142+05.35 OFFSET = 49.30 R RIM = 34.06 INV OUT (N) = 30.59 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
122-CBMH 144+14.09 OFFSET = 22.50 R RIM = 33.38 INV OUT (SE) = 29.25 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
123-CBMH 144+35.68 OFFSET = 22.50 L RIM = 33.28 INV OUT (SE) = 28.90 (12") INV IN (NW) = 29.00 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
124-SDMH 144+45.17 OFFSET = 27.27 L RIM = 33.30 INV IN (W) = 27.99 (18") INV IN (NW) = 28.85 (12") INV IN (N) = 26.31 (24") INV OUT (S) = 26.35 (30")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
125-CBMH 144+45.25 OFFSET = 50.00 R RIM = 32.61 INV IN (W) = 28.84 (12") INV OUT (E) = 28.69 (18") INV IN (S) = 28.83 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPES



STATIONING RIGHT TO LEFT

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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Anchorage, Alaska 99503
907-562-2000

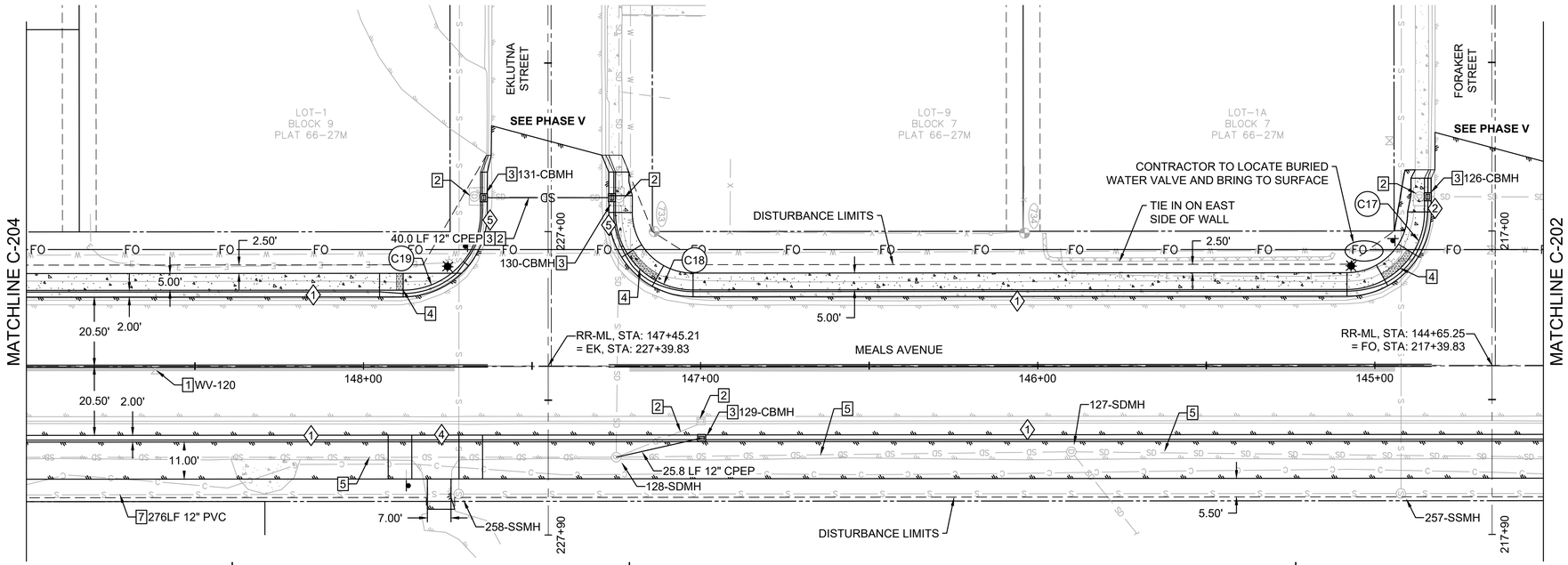
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

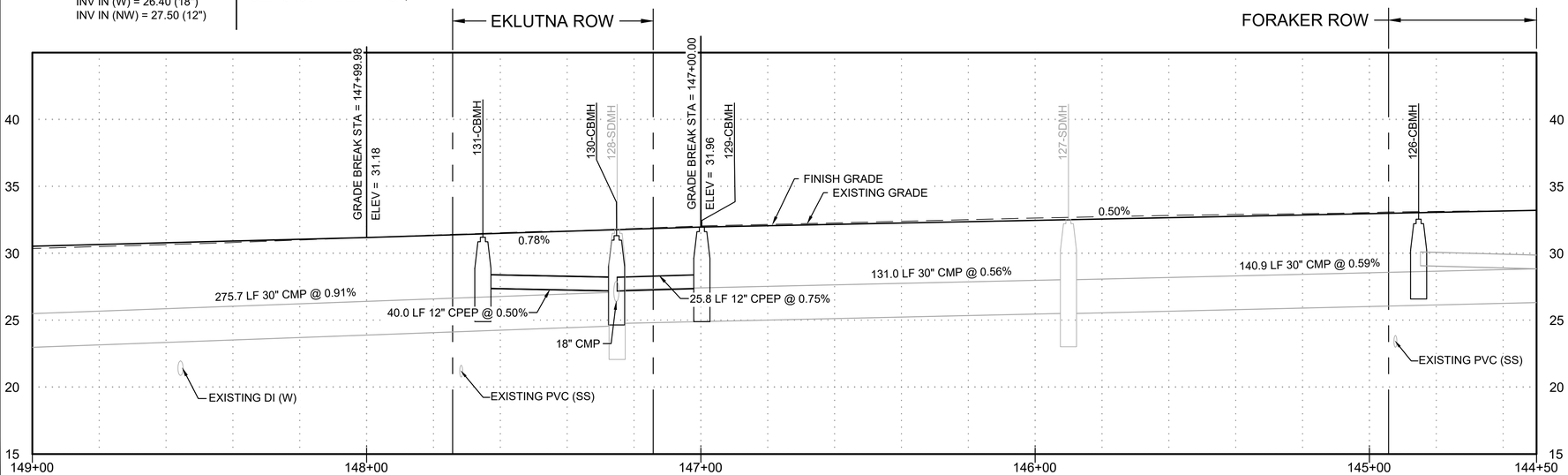
C-202



STORM MANHOLE DATA	
126-CBMH 144+85.28 OFFSET = 50.00 R RIM = 32.55 INV OUT (N) = 29.09 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
127-SDMH 145+90.04 OFFSET = 25.57 L RIM = 32.55 INV IN (N) = 25.52 (30") INV OUT (S) = 25.52 (30") INV IN (NE) = 26.02 (24")	EXISTING; ADJUST TO GRADE
128-SDMH 147+25.04 OFFSET = 27.10 L RIM = 31.83 INV IN (N) = 24.78 (30") INV OUT (S) = 24.57 (30") INV IN (W) = 26.40 (18") INV IN (NW) = 27.50 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;

STORM MANHOLE DATA	
129-CBMH 146+99.70 OFFSET = 22.50 L RIM = 31.96 INV OUT (S) = 27.39 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
130-CBMH 147+25.21 OFFSET = 49.90 R RIM = 31.32 INV IN (S) = 27.20 (12") INV OUT (E) = 27.15 (18") INV IN (W) = 27.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
131-CBMH 147+65.21 OFFSET = 49.90 R RIM = 31.20 INV OUT (N) = 27.40 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
257-SSMH 144+92.28 OFFSET = 38.02 L RIM = 32.82 INV IN (N) = 22.97 (12") INV OUT (S) = 22.97 (12") INV IN (W) = 22.23 (10")	EXISTING; ADJUST TO GRADE
258-SSMH 147+71.78 OFFSET = 38.00 L RIM = 31.70 INV IN (N) = 19.67 (12") INV OUT (S) = 19.61 (12") INV IN (W) = 19.91 (10")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

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SCALE IN FEET
HORIZONTAL
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SCALE IN FEET
VERTICAL
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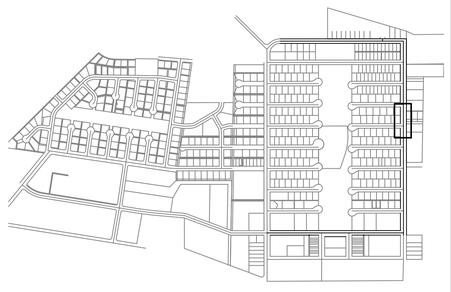


KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

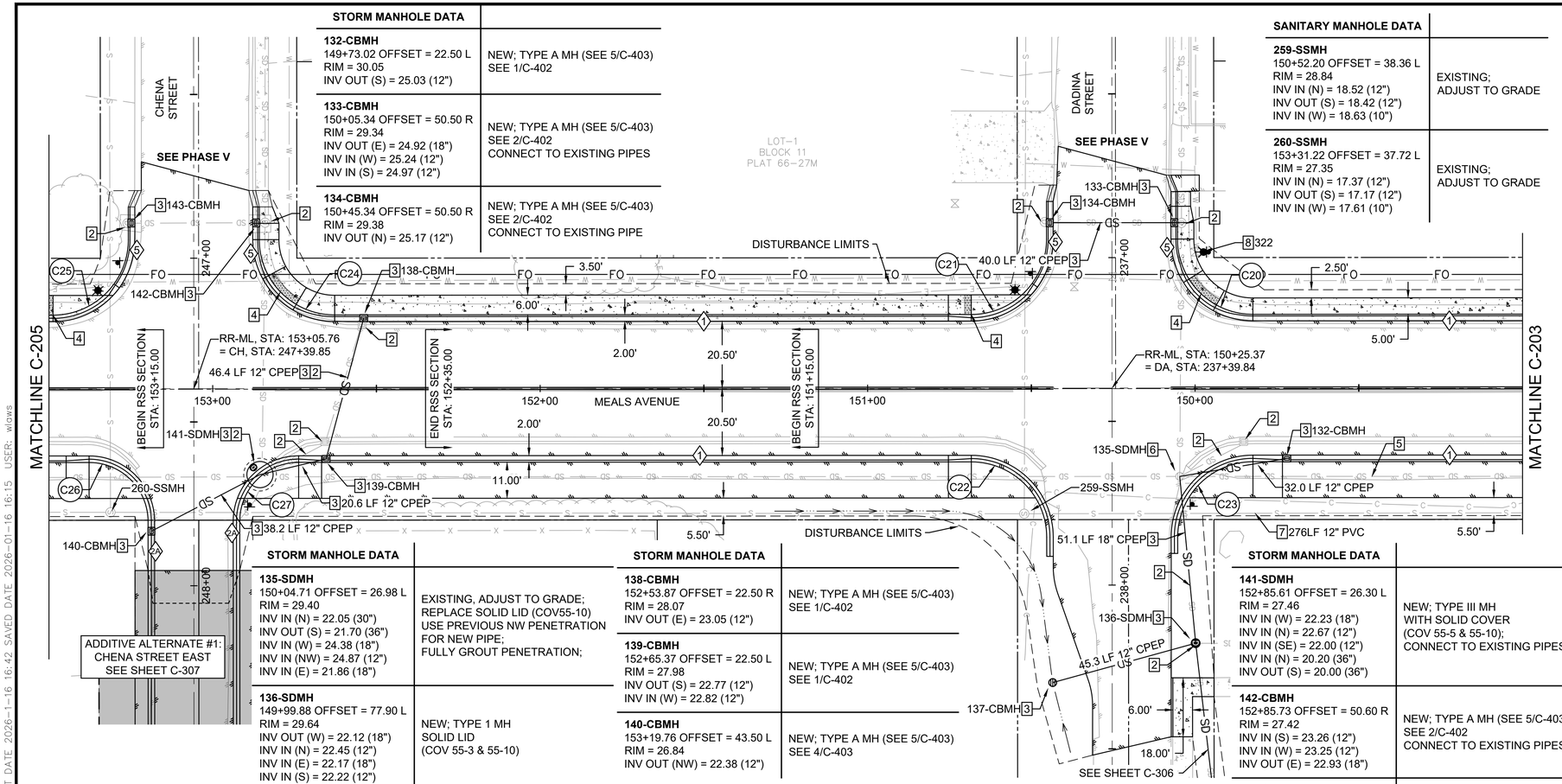
STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECI.848
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000
WWW.DOWL.COM

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-203



STORM MANHOLE DATA	
132-CBMH 149+73.02 OFFSET = 22.50 L RIM = 30.05 INV OUT (S) = 25.03 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
133-CBMH 150+05.34 OFFSET = 50.50 R RIM = 29.34 INV OUT (E) = 24.92 (18") INV IN (W) = 25.24 (12") INV IN (S) = 24.97 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
134-CBMH 150+45.34 OFFSET = 50.50 R RIM = 29.38 INV OUT (N) = 25.17 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
259-SSMH 150+52.20 OFFSET = 38.36 L RIM = 28.84 INV IN (N) = 18.52 (12") INV OUT (S) = 18.42 (12") INV IN (W) = 18.63 (10")	EXISTING; ADJUST TO GRADE
260-SSMH 153+31.22 OFFSET = 37.72 L RIM = 27.35 INV IN (N) = 17.37 (12") INV OUT (S) = 17.17 (12") INV IN (W) = 17.61 (10")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
135-SDMH 150+04.71 OFFSET = 26.98 L RIM = 29.40 INV IN (N) = 22.05 (30") INV OUT (S) = 21.70 (36") INV IN (W) = 24.38 (18") INV IN (NW) = 24.87 (12") INV IN (E) = 21.86 (18")	EXISTING, ADJUST TO GRADE; REPLACE SOLID LID (COV55-10) USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
136-SDMH 149+99.88 OFFSET = 77.90 L RIM = 29.64 INV OUT (W) = 22.12 (18") INV IN (N) = 22.45 (12") INV IN (E) = 22.17 (18") INV IN (S) = 22.22 (12")	NEW; TYPE 1 MH SOLID LID (COV 55-3 & 55-10)
137-CBMH 150+43.53 OFFSET = 89.90 L RIM = 27.75 INV OUT (N) = 22.65 (12")	NEW; TYPE 1 MH & FIELD INLET LID (COV 55-3 & 55-9)

STORM MANHOLE DATA	
138-CBMH 152+53.87 OFFSET = 22.50 R RIM = 28.07 INV OUT (E) = 23.05 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
139-CBMH 152+65.37 OFFSET = 22.50 L RIM = 27.98 INV OUT (S) = 22.77 (12") INV IN (W) = 22.82 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
140-CBMH 153+19.76 OFFSET = 43.50 L RIM = 26.84 INV OUT (NW) = 22.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 4/C-403

STORM MANHOLE DATA	
141-SDMH 152+85.61 OFFSET = 26.30 L RIM = 27.46 INV IN (W) = 22.23 (18") INV IN (N) = 22.67 (12") INV IN (SE) = 22.00 (12") INV IN (N) = 20.20 (36") INV OUT (S) = 20.00 (36")	NEW; TYPE III MH WITH SOLID COVER (COV 55-5 & 55-10); CONNECT TO EXISTING PIPES
142-CBMH 152+85.73 OFFSET = 50.60 R RIM = 27.42 INV IN (S) = 23.26 (12") INV IN (W) = 23.25 (12") INV OUT (E) = 22.93 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPES
143-CBMH 153+25.73 OFFSET = 50.60 R RIM = 27.40 INV OUT (N) = 23.43 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402 CONNECT TO EXISTING PIPE

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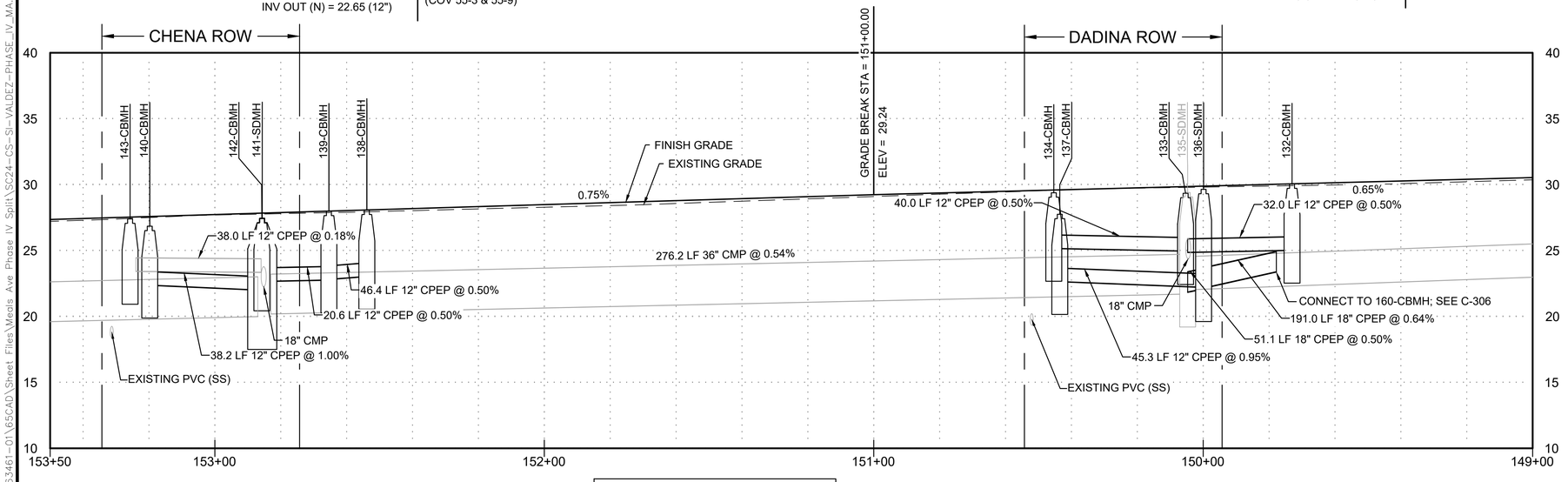
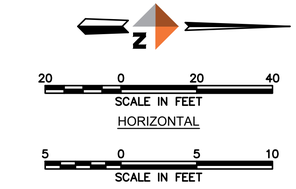
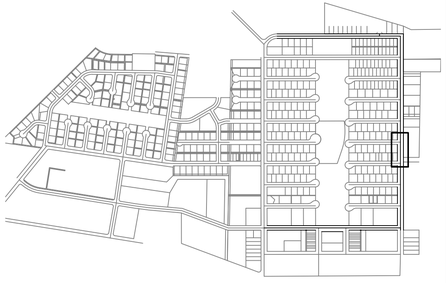


STATIONING RIGHT TO LEFT





KEY MAP
SCALE 1"=1000'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 133293
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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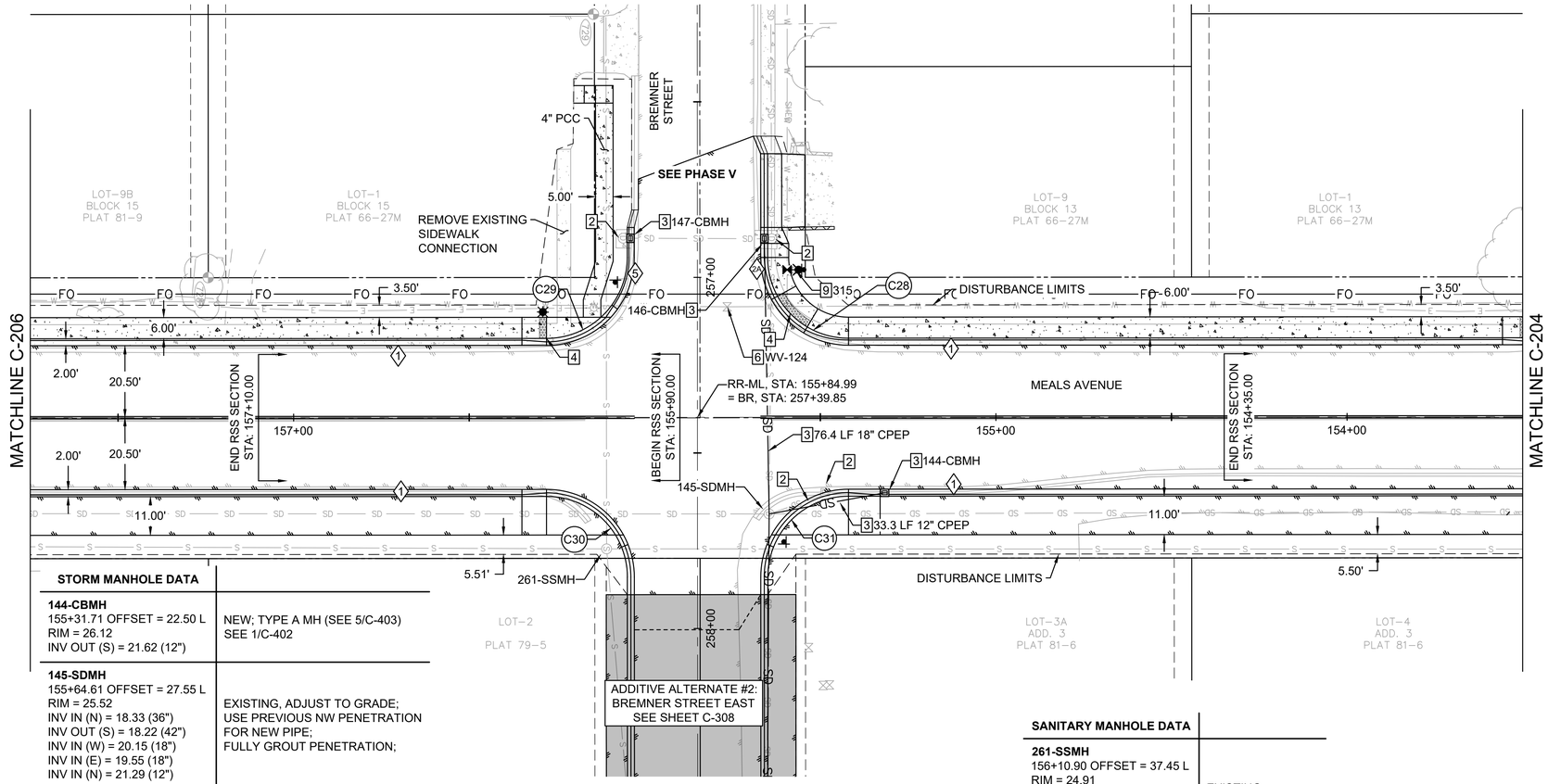
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

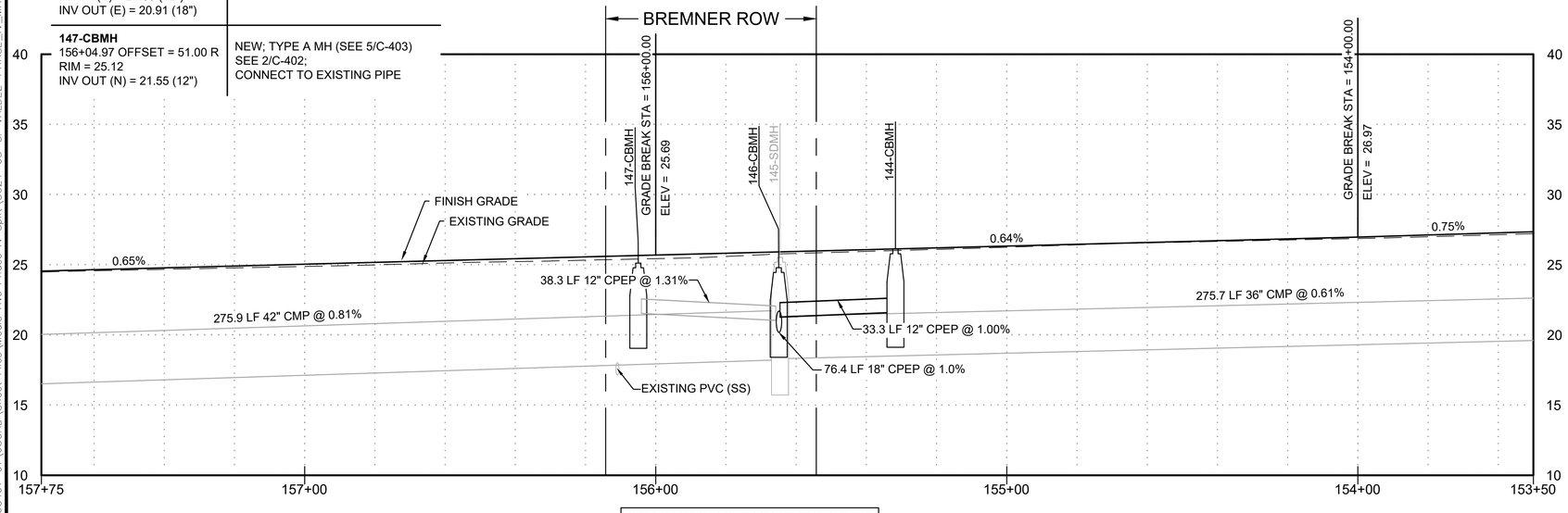
PROJECT	63461.01
DATE	01/16/2026

C-204



STORM MANHOLE DATA	
144-CBMH 155+31.71 OFFSET = 22.50 L RIM = 26.12 INV OUT (S) = 21.62 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402
145-SDMH 155+64.61 OFFSET = 27.55 L RIM = 25.52 INV IN (N) = 18.33 (36") INV OUT (S) = 18.22 (42") INV IN (W) = 20.15 (18") INV IN (E) = 19.55 (18") INV IN (N) = 21.29 (12")	EXISTING, ADJUST TO GRADE; USE PREVIOUS NW PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION;
146-CBMH 155+64.97 OFFSET = 50.90 R RIM = 24.79 INV IN (W) = 21.05 (12") INV IN (S) = 21.05 (12") INV OUT (E) = 20.91 (18")	NEW; TYPE A MH (SEE C-5/403) SEE 4/C-403; CONNECT TO EXISTING PIPES
147-CBMH 156+04.97 OFFSET = 51.00 R RIM = 25.12 INV OUT (N) = 21.55 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
261-SSMH 156+10.90 OFFSET = 37.45 L RIM = 24.91 INV IN (N) = 16.10 (12") INV OUT (S) = 15.98 (12") INV IN (W) = 16.62 (10") INV IN (E) = 16.61 (6")	EXISTING; ADJUST TO GRADE



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.
11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
JAN 9, 2026
REGISTERED PROFESSIONAL ENGINEER

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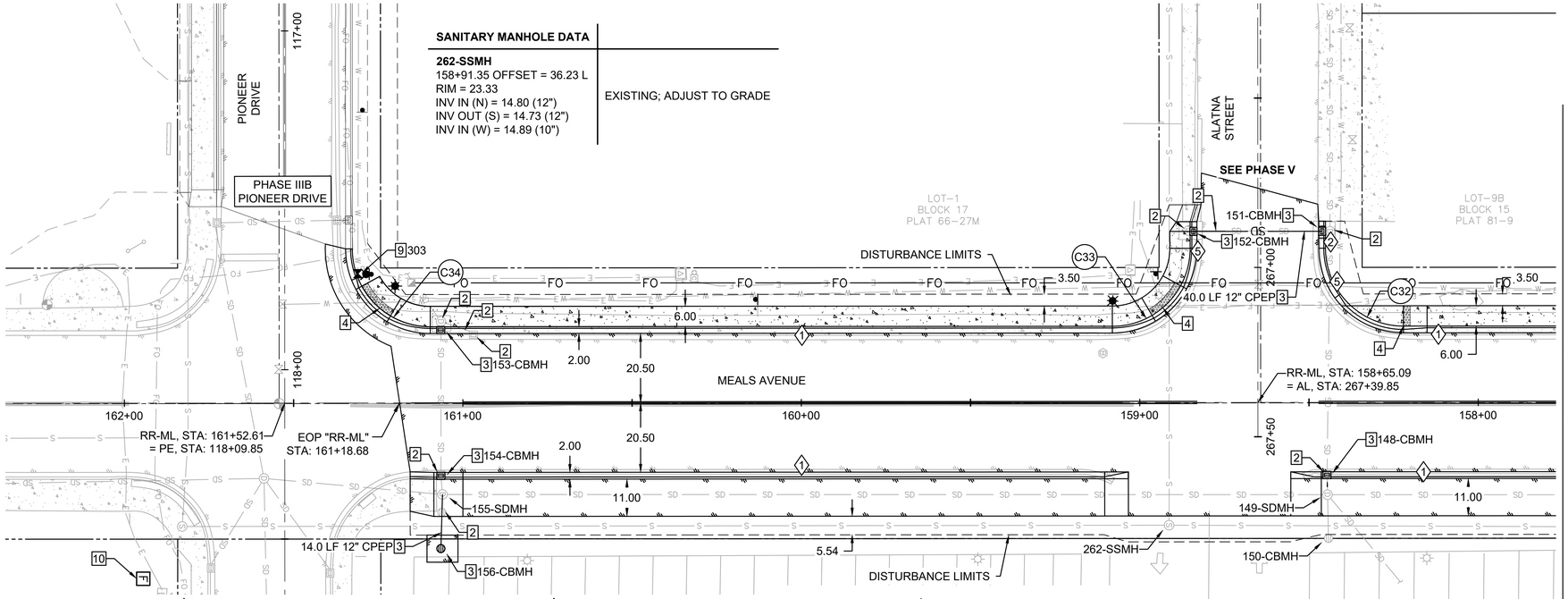
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

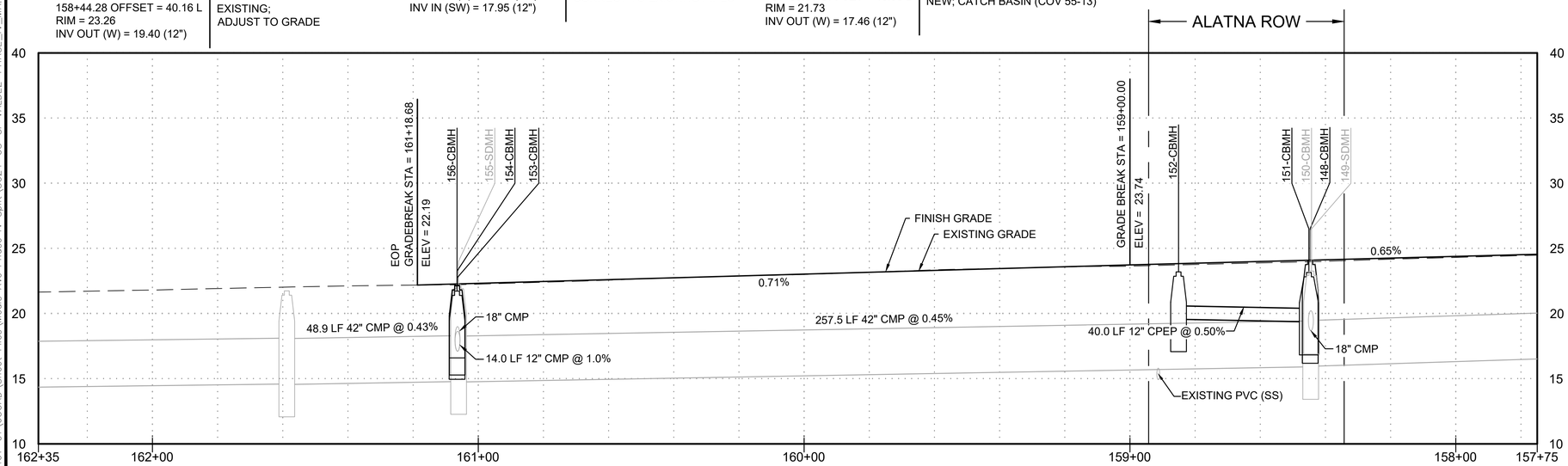
C-205



STORM MANHOLE DATA	
148-CBMH 158+44.69 OFFSET = 22.50 L RIM = 24.09 INV IN (W) = 18.75 (18") INV OUT (E) = 18.69 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
149-SDMH 158+44.53 OFFSET = 27.25 L RIM = 24.15 INV IN (N) = 15.98 (42") INV OUT (S) = 15.92 (42") INV IN (W) = 18.60 (18") INV IN (NE) = 17.09 (12") INV IN (E) = 19.24 (12")	EXISTING; ADJUST TO GRADE
150-CBMH 158+44.28 OFFSET = 40.16 L RIM = 23.26 INV OUT (W) = 19.40 (12")	EXISTING; ADJUST TO GRADE

STORM MANHOLE DATA	
151-CBMH 158+45.09 OFFSET = 50.50 R RIM = 23.16 INV IN (W) = 19.55 (18") INV OUT (E) = 19.33 (18") INV IN (S) = 19.38 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403; CONNECT TO EXISTING PIPES
152-CBMH 158+85.09 OFFSET = 50.50 R RIM = 23.20 INV OUT (N) = 19.58 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 2/C-402; CONNECT TO EXISTING PIPE
153-CBMH 161+06.45 OFFSET = 22.50 R RIM = 22.13 INV OUT (E) = 17.79 (18") INV IN (SW) = 17.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES

STORM MANHOLE DATA	
154-CBMH 161+06.51 OFFSET = 22.50 L RIM = 22.17 INV IN (W) = 17.20 (18") INV OUT (E) = 17.10 (18")	NEW; TYPE A MH (SEE 5/C-403) SEE 1/C-402 CONNECT TO EXISTING PIPES
155-SDMH 161+06.03 OFFSET = 27.01 L RIM = 22.24 INV IN (N) = 14.77 (42") INV OUT (S) = 14.79 (42") INV IN (E) = 17.32 (12") INV IN (W) = 16.94 (18")	EXISTING; ADJUST TO GRADE
156-CBMH 161+06.51 OFFSET = 43.00 L RIM = 21.73 INV OUT (W) = 17.46 (12")	NEW; CATCH BASIN (COV 55-13)



STATIONING RIGHT TO LEFT

GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
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4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

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9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
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11. FIBER OPTIC HANDHOLE, SEE DETAIL 2/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

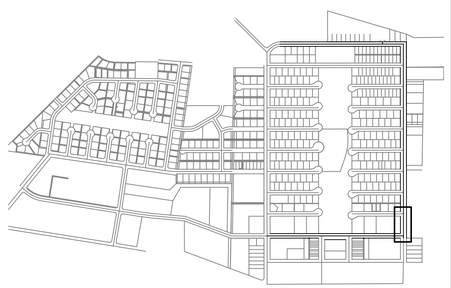
CURB TABLE

*SEE CURB DETAILS ON C-401

1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

SCALE IN FEET
20 0 20 40
HORIZONTAL

SCALE IN FEET
5 0 5 10
VERTICAL



KEY MAP
SCALE 1"=1000'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01.14.2026
REGISTERED PROFESSIONAL ENGINEER

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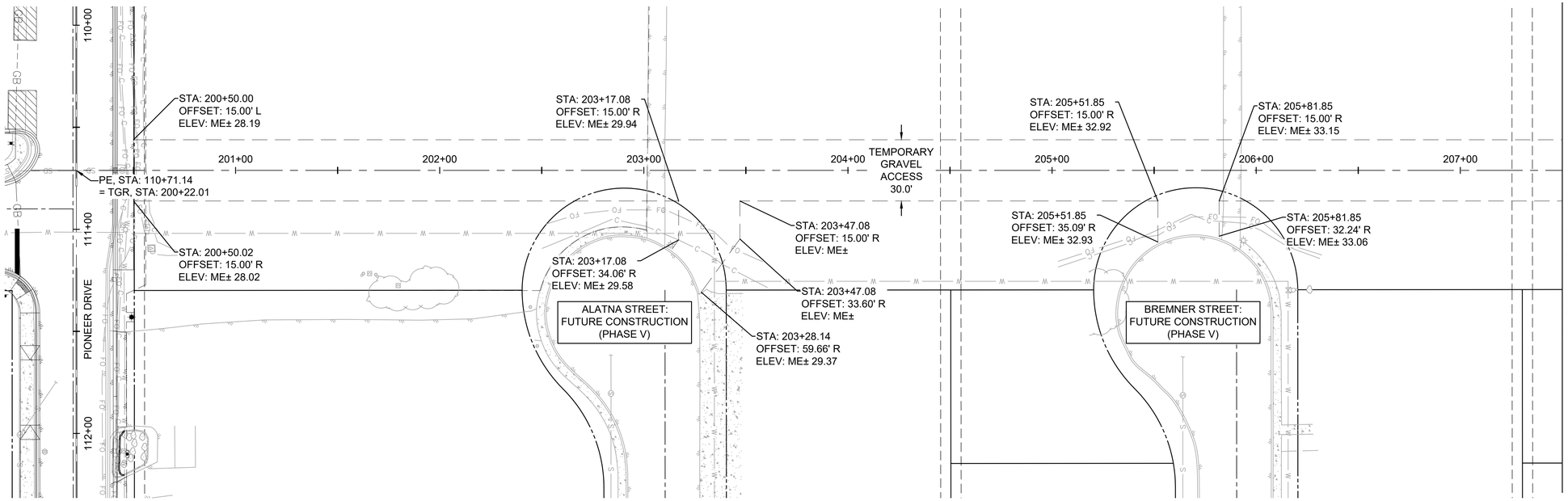
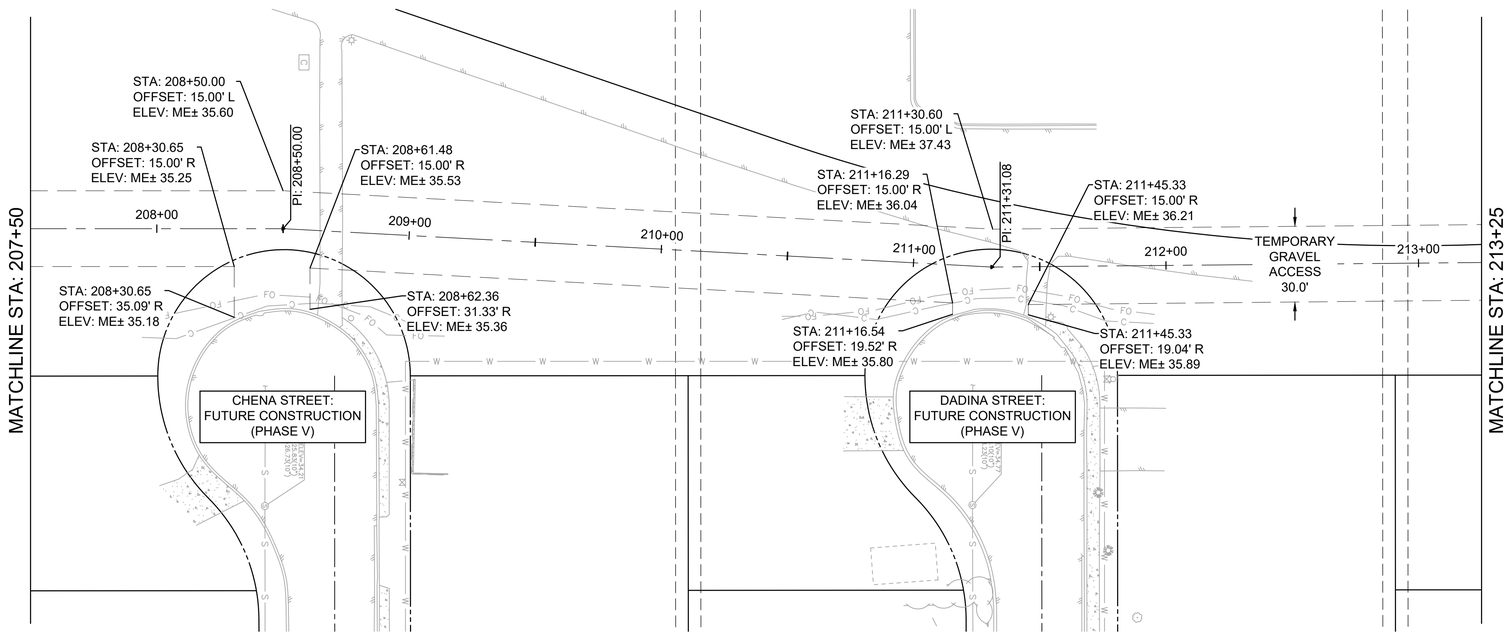
907-562-2000

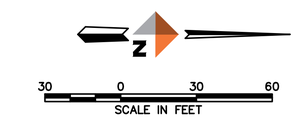
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
PLAN AND PROFILE
VALDEZ, ALASKA

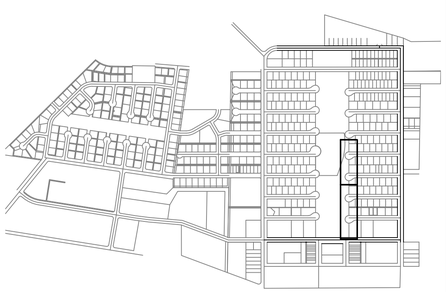
PROJECT 63461.01
DATE 01/16/2026

C-206









KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13293
01.14.2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

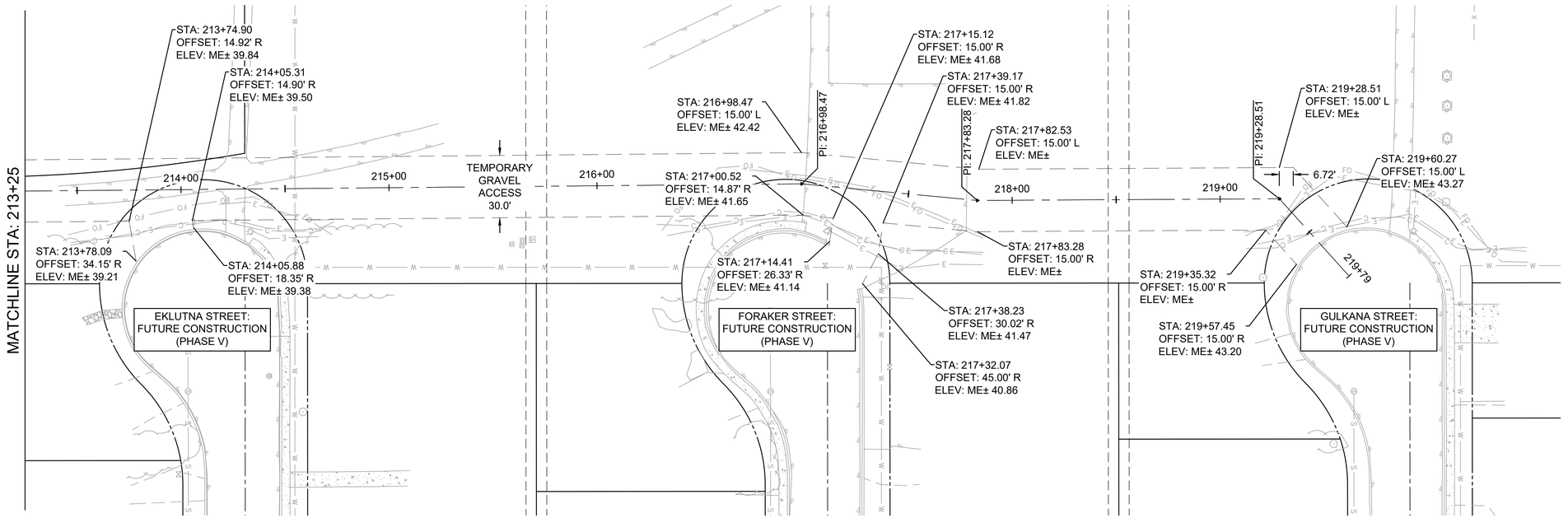
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

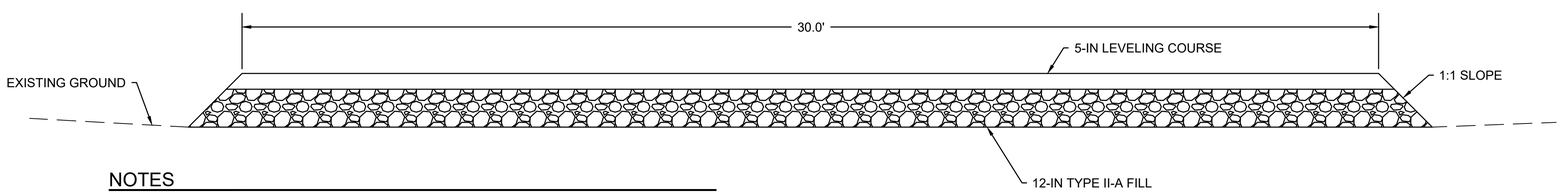
TEMPORARY GRAVEL ACCESS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-210

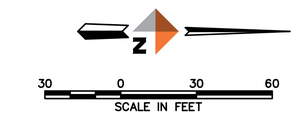


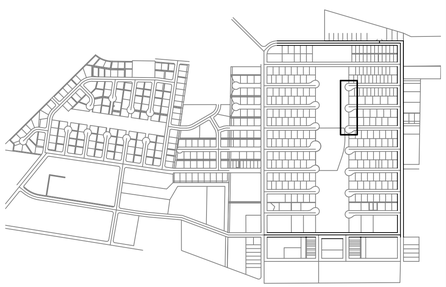


NOTES

1. ALL LAYERS ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR.
2. TEMPORARY ACCESS WILL BE REMOVED UPON COMPLETION OF VALDEZ PAVEMENT REHABILITATION PHASE IV MEALS AVENUE.
3. AFTER REMOVAL OF TEMPORARY ACCESS, DISTURBED AREAS SHALL BE FILLED WITH UNCLASSIFIED SOIL AND REGRADED. AREA TO BE STABILIZED WITH 2" TOPSOIL AND SEED.

TEMPORARY ACCESS ROAD SECTION





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

TEMPORARY GRAVEL ACCESS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-211

STA "RR-ML" 135+99.85
OFFSET: 22.50' L
TBC EL 38.11

STA "RR-ML" 135+89.38
OFFSET: 22.50' L
TBC EL 38.21

STA "RR-ML" 135+79.57
OFFSET: 22.18' L
ME EL ±38.19

TRANSITION TO EG IF ALTERNATE #4 IS NOT SELECTED.

PHASE IV
ROBE RIVER DRIVE
ALTERNATE #4

ROBE RIVER DRIVE

STA "RR-ML" 135+82.74
OFFSET: 0.00'
ME EL ±38.55

STA "RR-ML" 135+85.77
OFFSET: 21.65' R
ME EL ±38.21

STA "RR-ML" 135+99.85
OFFSET: 22.50' R
TBC EL 38.09

STA "RR-ML" 136+09.92
OFFSET: 22.50' R
TBC EL 38.02

STA "RR-ML" 136+21.05
OFFSET: 22.50' R
TBC EL 37.93

STA "RR-ML" 136+21.05
OFFSET: 27.50' R
SW EL 38.00

STA "RR-ML" 136+41.19
OFFSET: 27.50' R
SW EL 37.69

STA "RR-ML" 136+58.25
OFFSET: 27.50' R
SW EL 37.57

STA "RR-ML" 136+78.39
OFFSET: 27.50' R
SW EL 37.90

STA "RR-ML" 136+13.64
OFFSET: 28.08' L
SW EL 37.94

STA "RR-ML" 136+13.77
OFFSET: 22.50' L
TBC EL 37.81

STA "RR-ML" 136+41.19
OFFSET: 22.50' R
TBC EL 37.63

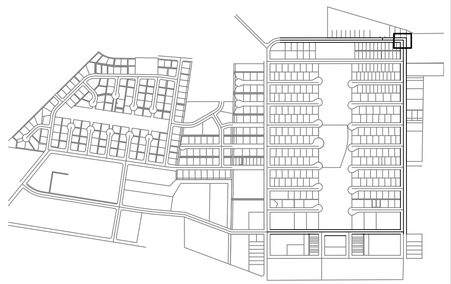
STA "RR-ML" 136+58.25
OFFSET: 22.50' R
TBC EL 37.51

STA "RR-ML" 136+78.39
OFFSET: 22.50' R
TBC EL 37.84

STA "RR-ML" 136+78.39
OFFSET: 33.50' L
SW EL 37.54

STA "RR-ML" 136+78.39
OFFSET: 22.50' L
TBC EL 37.34

PC: 135+99.85
136+00
PT: 136+78.39
137+00
MEALS AVENUE
2.00%
0.50%
1.15%
GB
38



KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-301

MEALS AVENUE

HANAGITA STREET

STA "RR-ML" 138+57.05
OFFSET: 27.50' R
SW EL 36.91

STA "RR-ML" 138+57.05
OFFSET: 22.50' R
TBC EL 36.83

STA "RR-ML" 138+64.05
OFFSET: 27.50' R
SW EL 36.50

STA "RR-ML" 138+64.05
OFFSET: 22.50' R
TBC EL 36.41

STA "RR-ML" 138+78.59
OFFSET: 27.50' R
TBC EL 36.41

STA "RR-ML" 138+83.21
OFFSET: 32.45' R
TBC EL 36.74

STA "RR-ML" 138+87.27
OFFSET: 45.50' R
TBC EL 36.80

STA "RR-ML" 138+89.27
OFFSET: 55.00' R
ME EL ±36.37

STA "RR-ML" 139+04.27
OFFSET: 20.50' R
TP EL 36.18

STA "RR-ML" 139+04.27
OFFSET: 55.00' R
ME EL ±36.74

STA "RR-ML" 139+23.77
OFFSET: 45.50' R
TBC EL 36.84

STA "RR-ML" 139+21.77
OFFSET: 55.00' R
ME EL ±36.56

STA "RR-ML" 139+28.77
OFFSET: 45.50' R
SW EL 36.90

STA "RR-ML" 139+27.29
OFFSET: 33.27' R
TBC EL 36.29

STA "RR-ML" 139+31.52
OFFSET: 35.93' R
SW EL 36.35

STA "RR-ML" 139+38.06
OFFSET: 29.74' R
SW EL 36.20

STA "RR-ML" 139+35.65
OFFSET: 25.37' R
TBC EL 36.14

STA "RR-ML" 139+46.78
OFFSET: 27.50' R
SW EL 36.42

STA "RR-ML" 139+47.00
OFFSET: 22.50' R
TBC EL 36.36

STA "RR-ML" 139+12.32
OFFSET: 20.50' L
TP EL 36.14

STA "RR-ML" 139+52.17
OFFSET: 22.50' L
TBC EL 35.95

STA "RR-ML" 138+53.04
OFFSET: 22.50' L
TBC EL 36.45

STA "RR-ML" 138+53.04
OFFSET: 33.50' L
TP EL 36.64

STA "RR-ML" 138+60.04
OFFSET: 33.50' L
TP EL 36.60

STA "RR-ML" 138+60.04
OFFSET: 22.50' L
TBC EL 36.42

STA "RR-ML" 138+84.65
OFFSET: 33.50' L
TBC EL 36.34

STA "RR-ML" 138+94.82
OFFSET: 59.44' L
ME EL ±36.96

STA "RR-ML" 139+08.60
OFFSET: 53.29' L
TP EL 36.94

STA "RR-ML" 139+22.38
OFFSET: 47.13' L
ME EL ±36.72

STA "RR-ML" 139+29.95
OFFSET: 33.50' L
TBC EL 36.22

STA "RR-ML" 139+52.17
OFFSET: 33.50' L
TP EL 36.06

STA "RR-ML" 139+59.17
OFFSET: 33.50' L
TP EL 36.46

STA "RR-ML" 139+59.17
OFFSET: 22.50' L
TBC EL 36.27

CONTRACTOR TO CONFIRM ELEVATIONS OF EAST HANAGITA STREET CONSTRUCTED WITH SENIOR HOUSING PROJECT IN SUMMER OF 2022

2.00% 2.00% 2.00% 2.00% 2.04% 1.01% 1.32% 1.75% 1.26% 1.33% 0.53% 0.53% 0.56% 1.05% 3.24% 2.43% 0.72% 0.71% 2.30%

1005 1006 711 712 1 2 2A 5 GB CB D S 36 37 139+00 140+00

N

10 0 10 20
SCALE IN FEET

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-302

STA "RR-ML" 141+42.35
OFFSET: 27.50' R
TBC EL 35.24
STA "RR-ML" 141+54.56
OFFSET: 26.01' R
TBC EL 34.55
STA "RR-ML" 141+51.91
OFFSET: 30.25' R
TBC EL 34.61
STA "RR-ML" 141+62.47
OFFSET: 34.37' R
TBC EL 34.42
STA "RR-ML" 141+58.10
OFFSET: 36.79' R
TBC EL 34.47
STA "RR-ML" 141+60.35
OFFSET: 45.50' R
TBC EL 34.06
STA "RR-ML" 141+65.35
OFFSET: 52.07' R
TBC EL 33.88
STA "RR-ML" 141+68.39
OFFSET: 57.07' R
ME EL ±33.88
STA "RR-ML" 141+65.35
OFFSET: 45.50' R
TBC EL 33.98
STA "RR-ML" 141+42.35
OFFSET: 22.50' R
TBC EL 35.16
SEE GRADING, DOES NOT RAMP UP PER TYPICAL DETAIL
STA "RR-ML" 141+33.90
OFFSET: 22.50' L
TBC EL 35.22
STA "RR-ML" 141+33.90
OFFSET: 33.50' L
TP EL 35.39
STA "RR-ML" 141+40.90
OFFSET: 33.50' L
TP EL 34.95
STA "RR-ML" 141+40.90
OFFSET: 20.50' L
TP EL 34.77
STA "RR-ML" 141+65.62
OFFSET: 33.50' L
TP EL 34.55
STA "RR-ML" 141+70.90
OFFSET: 50.72' L
TP EL 34.66
STA "RR-ML" 141+70.85
OFFSET: 57.15' L
ME EL ±34.70
STA "RR-ML" 141+85.35
OFFSET: 57.26' L
ME EL ±34.68
STA "RR-ML" 141+85.35
OFFSET: 61.61' R
ME EL ±34.17
STA "RR-ML" 141+85.35
OFFSET: 20.50' R
TP EL 34.43
STA "RR-ML" 142+03.24
OFFSET: 66.40' R
ME EL ±34.12
STA "RR-ML" 142+03.29
OFFSET: 57.07' R
ME EL ±34.01
STA "RR-ML" 142+00.85
OFFSET: 57.37' L
ME EL ±34.57
STA "RR-ML" 142+00.91
OFFSET: 50.28' L
TP EL 34.52
STA "RR-ML" 142+06.19
OFFSET: 33.50' L
TP EL 34.36
STA "RR-ML" 142+05.35
OFFSET: 52.07' R
TBC EL 34.10
STA "RR-ML" 142+05.35
OFFSET: 49.35' R
TBC EL 34.06
STA "RR-ML" 142+05.35
OFFSET: 45.50' R
TBC EL 34.08
STA "RR-ML" 142+10.52
OFFSET: 30.97' R
TBC EL 34.50
STA "RR-ML" 142+14.03
OFFSET: 27.50' R
TBC EL 34.03
STA "RR-ML" 142+28.35
OFFSET: 27.50' R
SW EL 34.17
STA "RR-ML" 142+35.35
OFFSET: 27.50' R
SW EL 34.53
STA "RR-ML" 142+30.91
OFFSET: 20.50' L
TP EL 34.07
STA "RR-ML" 142+28.35
OFFSET: 22.50' R
TBC EL 34.12
STA "RR-ML" 142+35.35
OFFSET: 22.50' R
TBC EL 34.45
STA "RR-ML" 142+30.91
OFFSET: 33.50' L
TP EL 34.25
STA "RR-ML" 142+37.91
OFFSET: 33.50' L
TP EL 34.59
STA "RR-ML" 142+37.91
OFFSET: 22.50' L
TBC EL 34.43

GULKANA STREET
MEALS AVENUE
141+00
142+00
1007
1008
2.00%
0.65%
1.75%
2.01%
1.76%
3.53%
1.64%
0.75%
0.55%
0.65%
0.90%
1.00%
0.52%
0.50%

10 0 10 20
SCALE IN FEET

KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-303

STA "RR-ML" 144+15.25
OFFSET: 27.50' R
SW EL 33.46

STA "RR-ML" 144+22.25
OFFSET: 27.50' R
SW EL 33.05

STA "RR-ML" 144+36.57
OFFSET: 27.50' R
TBC EL 32.83

STA "RR-ML" 144+40.08
OFFSET: 30.97' R
TBC EL 33.17

STA "RR-ML" 144+45.05
OFFSET: 42.51' R
TBC EL 32.96

STA "RR-ML" 144+45.25
OFFSET: 45.50' R
TBC EL 32.68

STA "RR-ML" 144+45.25
OFFSET: 50.00' R
TBC EL 32.61

STA "RR-ML" 144+47.25
OFFSET: 55.00' R
TP EL 32.55

STA "RR-ML" 144+48.18
OFFSET: 60.00' R
ME EL ±32.67

STA "RR-ML" 144+65.25
OFFSET: 64.58' R
ME EL ±32.93

FORAKER STREET

STA "RR-ML" 144+82.16
OFFSET: 58.00' R
TP EL 32.50

STA "RR-ML" 144+82.12
OFFSET: 69.09' R
ME EL ±32.66

STA "RR-ML" 144+83.25
OFFSET: 55.50' R
TP EL 32.45

STA "RR-ML" 144+85.25
OFFSET: 50.00' R
TBC EL 32.55

STA "RR-ML" 144+85.25
OFFSET: 45.50' R
TBC EL 32.61

STA "RR-ML" 144+90.25
OFFSET: 45.50' R
SW EL 32.70

STA "RR-ML" 144+93.00
OFFSET: 35.94' R
SW EL 32.68

STA "RR-ML" 144+88.76
OFFSET: 33.28' R
TBC EL 32.62

STA "RR-ML" 144+99.54
OFFSET: 29.75' R
SW EL 32.66

STA "RR-ML" 144+97.11
OFFSET: 25.37' R
TBC EL 32.60

STA "RR-ML" 145+08.25
OFFSET: 27.50' R
SW EL 33.00

STA "RR-ML" 144+15.25
OFFSET: 22.50' R
TBC EL 33.38

STA "RR-ML" 144+22.27
OFFSET: 22.50' R
TBC EL 32.97

STA "RR-ML" 144+65.25
OFFSET: 50.00' R
TP EL 32.55

STA "RR-ML" 144+65.25
OFFSET: 20.50' R
TP EL 32.73

STA "RR-ML" 145+08.25
OFFSET: 22.50' R
TBC EL 32.92

MEALS AVENUE

144+00

145+00

1009

1010

2.00%

0.75%

1.50%

0.52%

0.55%

0.94%

0.63%

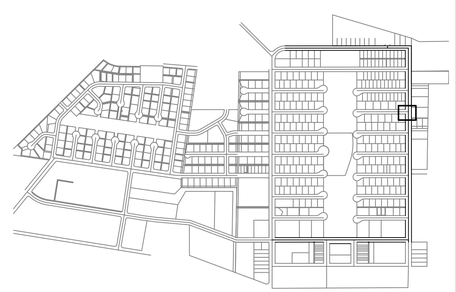
1.10%

0.71%

33

CB

GB



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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Anchorage, Alaska 99503
907-562-2000

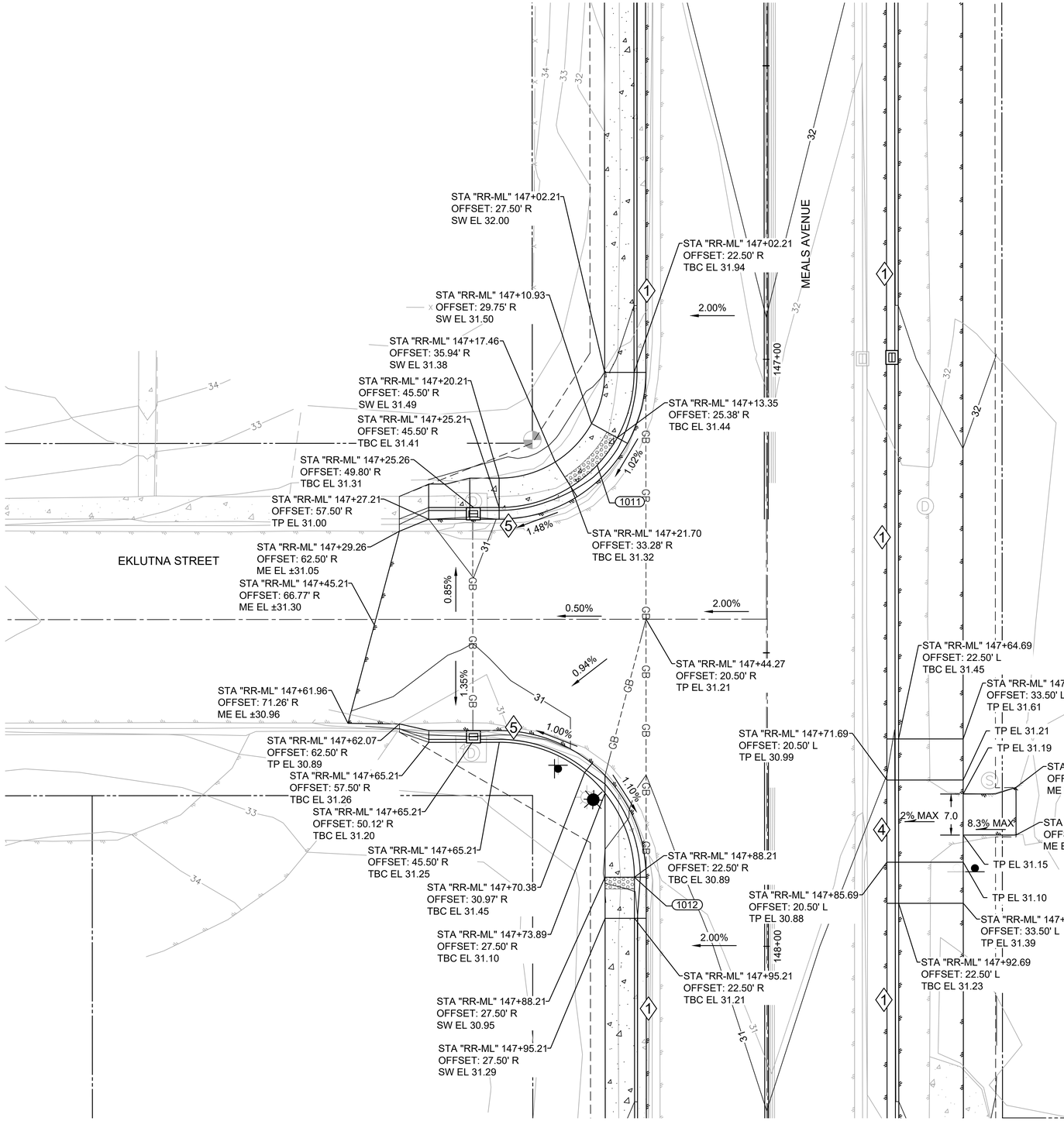
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

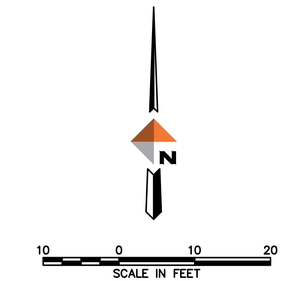
INTERSECTION GRADING

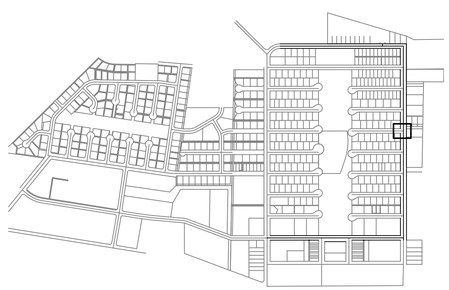
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-304







KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
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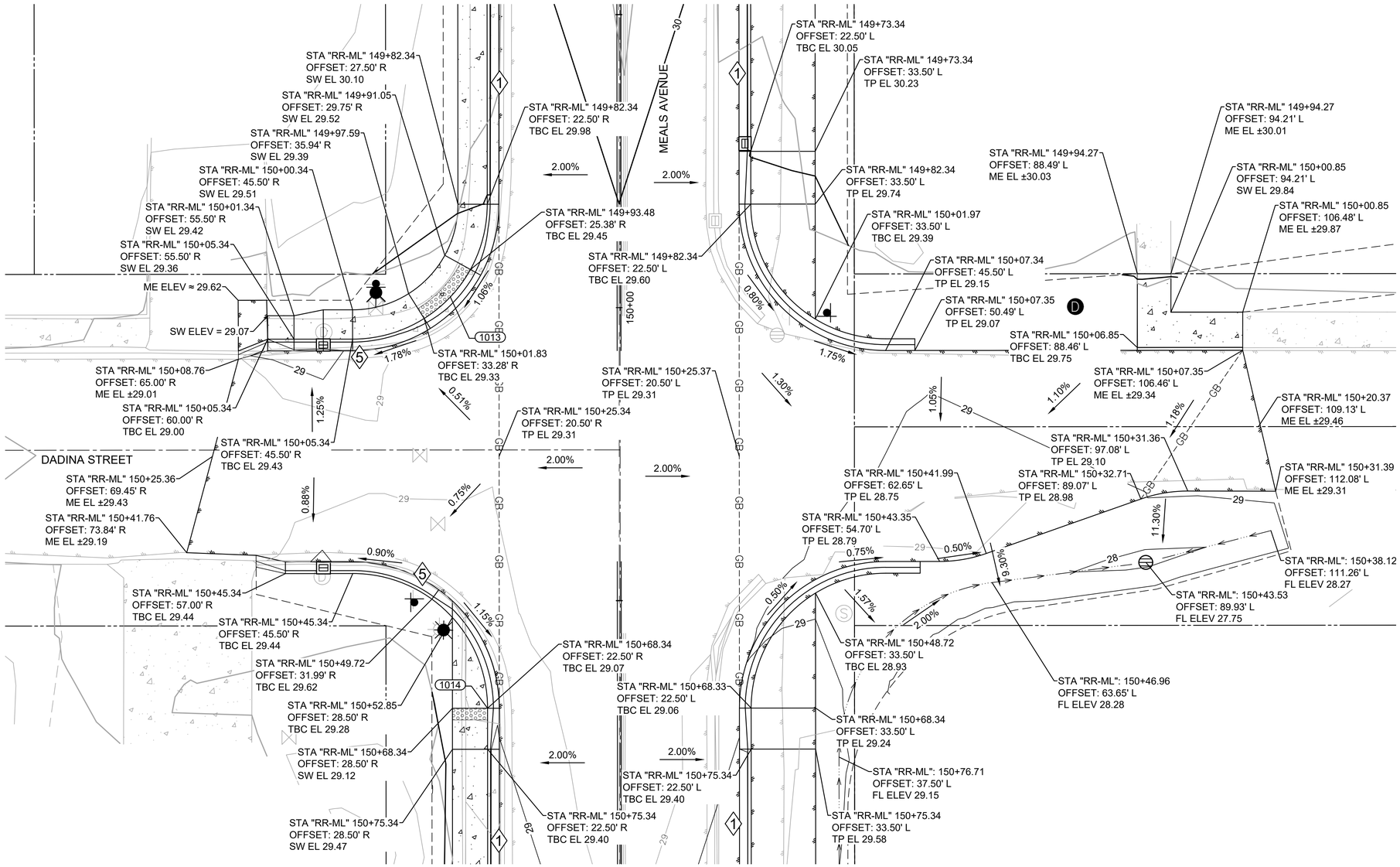
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

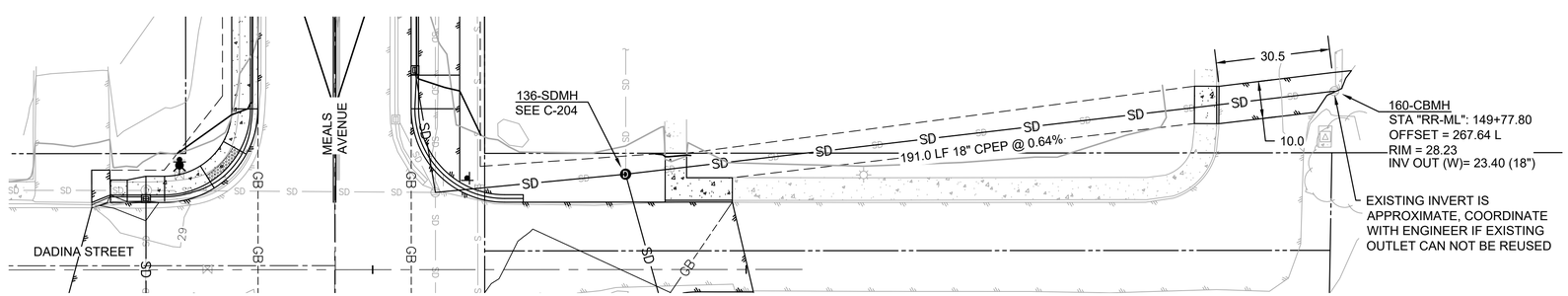
INTERSECTION GRADING

VALDEZ, ALASKA

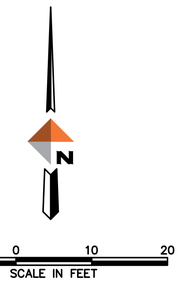
PROJECT	63461.01
DATE	01/16/2026

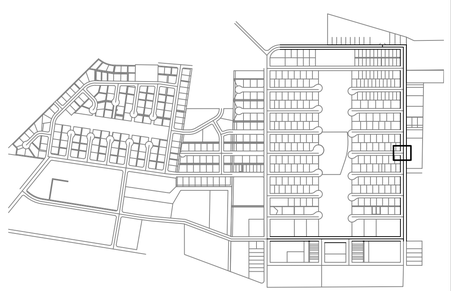
C-305





STORM PIPE MH134-MH160
SCALE: 1"=20'





KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 14, 2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
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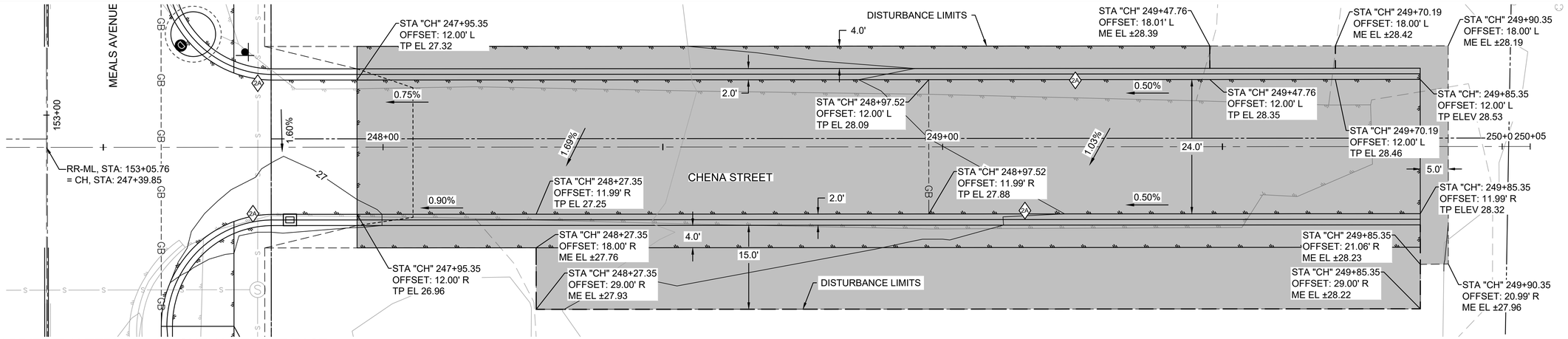
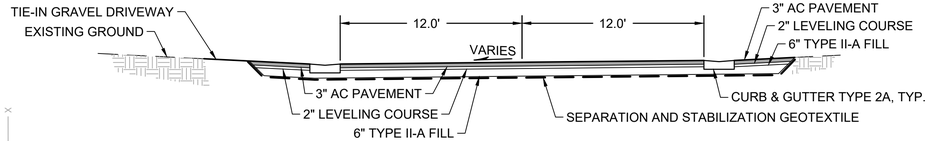
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

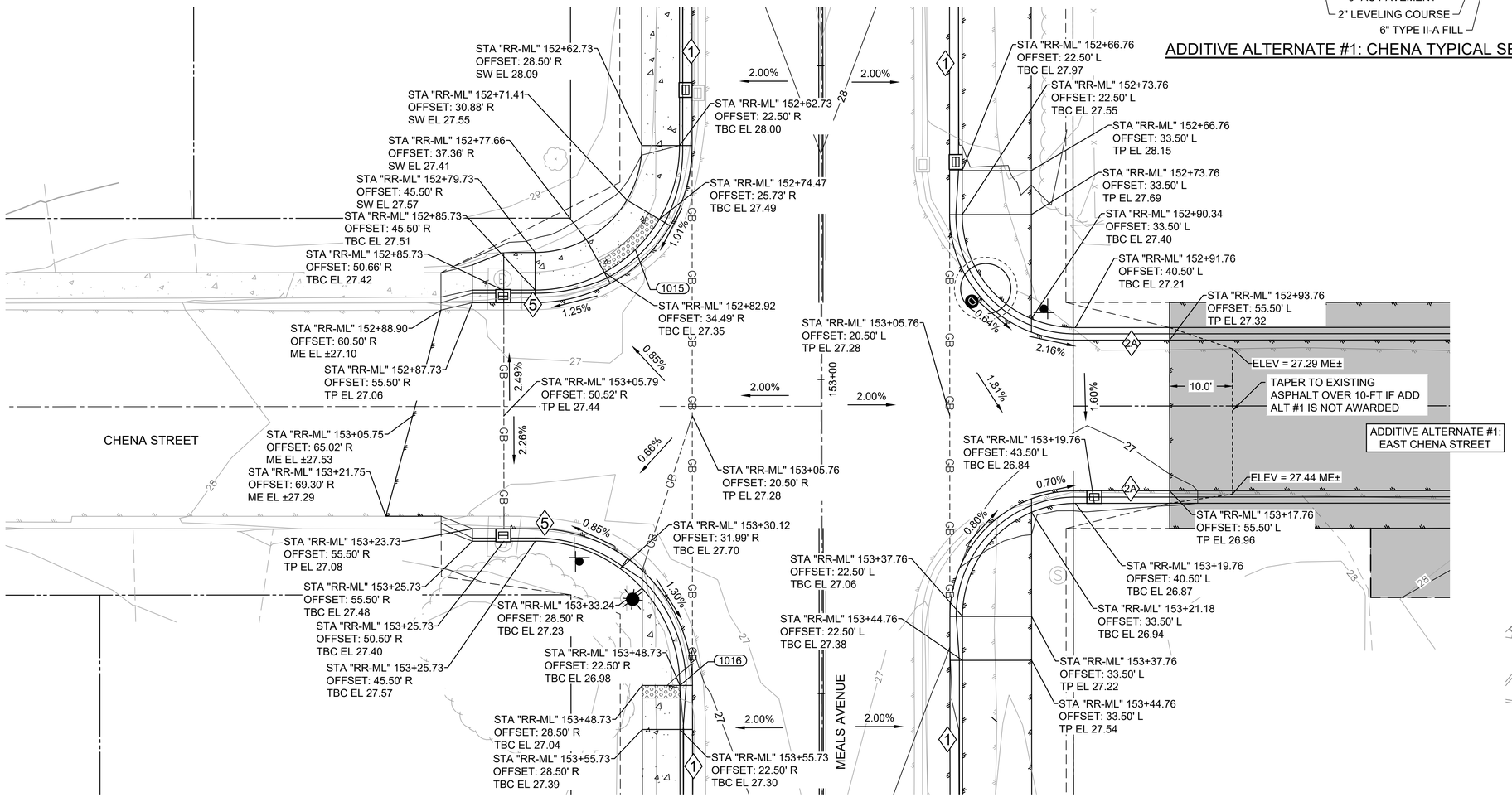
C-306

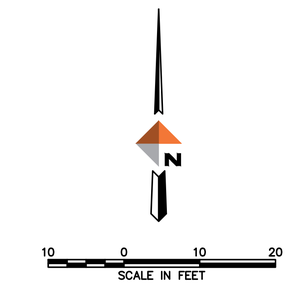


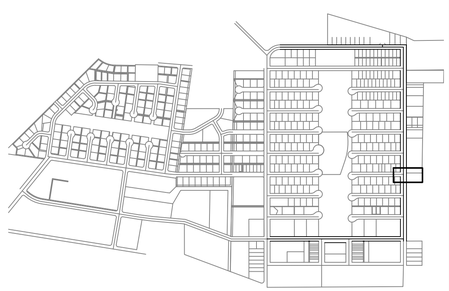
ADDITIVE ALTERNATE #1: CHENA STREET EAST



ADDITIVE ALTERNATE #1: CHENA TYPICAL SECTION







KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13293
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

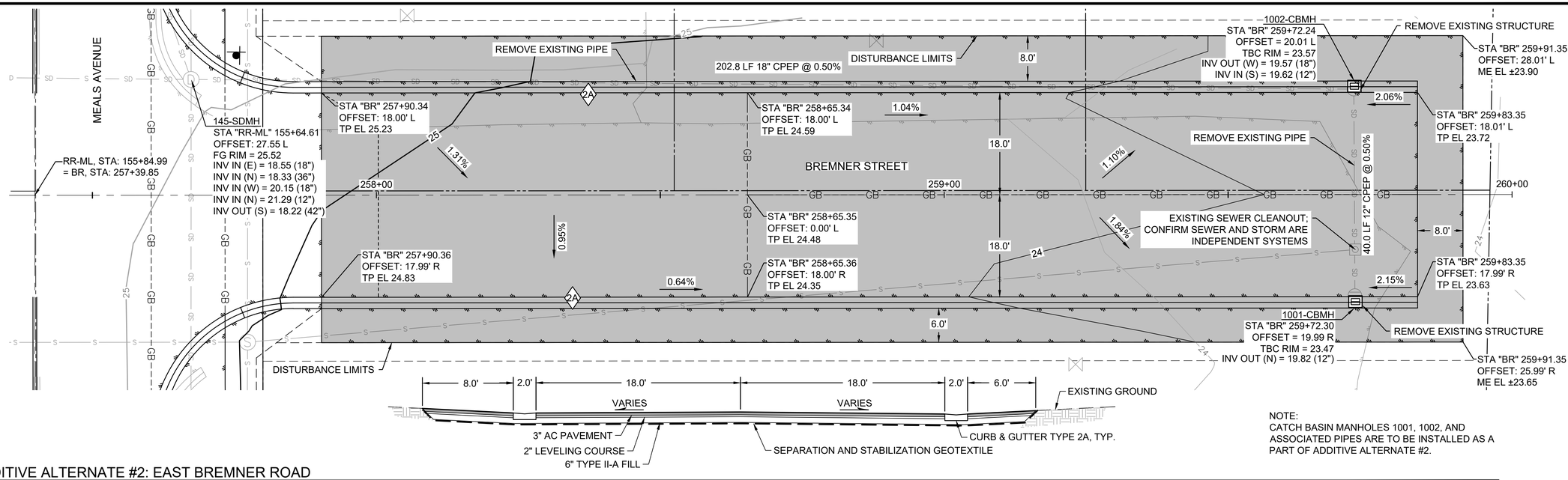
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING AND ADD ALT #1

VALDEZ, ALASKA

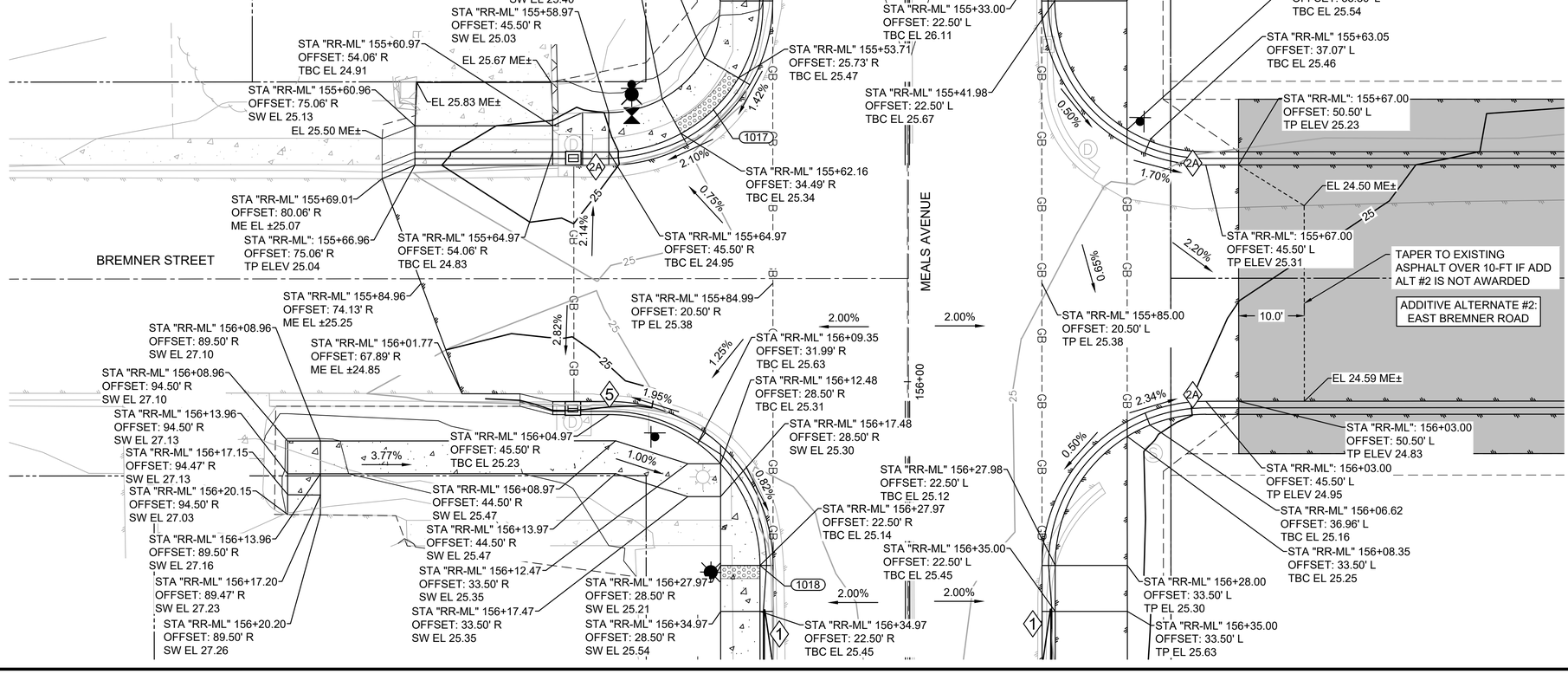
PROJECT	63461.01
DATE	01/16/2026

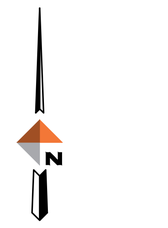
C-307

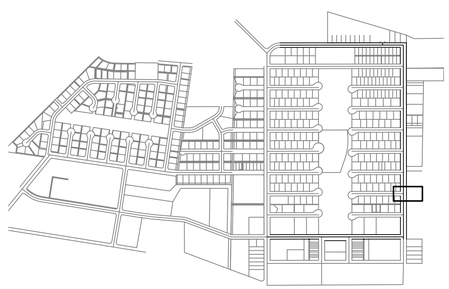


NOTE:
CATCH BASIN MANHOLES 1001, 1002, AND ASSOCIATED PIPES ARE TO BE INSTALLED AS A PART OF ADDITIVE ALTERNATE #2.

ADDITIVE ALTERNATE #2: EAST BREMNER ROAD







KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
NICHOLAS M. CONWAY
CE 13329
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

INTERSECTION GRADING AND ADD ALT #2

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-308

STA "RR-ML" 158+15.09
OFFSET: 28.50' R
SW EL 24.37

STA "RR-ML" 158+22.09
OFFSET: 28.50' R
SW EL 23.92

STA "RR-ML" 158+37.58
OFFSET: 28.50' R
TBC EL 23.63

STA "RR-ML" 158+45.09
OFFSET: 45.50' R
TBC EL 23.51

STA "RR-ML" 158+45.10
OFFSET: 52.01' R
TBC EL 23.16

STA "RR-ML" 158+45.09
OFFSET: 53.51' R
TBC EL 23.36

STA "RR-ML" 158+47.36
OFFSET: 58.50' R
ME EL ±23.03

STA "RR-ML" 158+65.09
OFFSET: 63.25' R
ME EL ±23.27

STA "RR-ML" 158+15.09
OFFSET: 22.50' R
TBC EL 24.28

STA "RR-ML" 158+22.11
OFFSET: 22.50' R
TBC EL 23.86

STA "RR-ML" 158+40.71
OFFSET: 31.99' R
TBC EL 23.93

STA "RR-ML" 158+65.09
OFFSET: 20.50' R
TP EL 23.55

STA "RR-ML" 158+46.39
OFFSET: 22.50' L
TBC EL 24.09

STA "RR-ML" 158+46.39
OFFSET: 33.50' L
TP EL 24.22

STA "RR-ML" 158+46.43
OFFSET: 39.00' L
ME EL ±22.84

STA "RR-ML" 158+55.55
OFFSET: 41.15' L
ME EL ±23.14

STA "RR-ML" 158+55.49
OFFSET: 33.50' L
TP EL 23.68

STA "RR-ML" 158+55.37
OFFSET: 20.50' L
TP EL 23.62

STA "RR-ML" 158+81.75
OFFSET: 67.71' R
ME EL ±22.95

STA "RR-ML" 158+85.09
OFFSET: 45.50' R
TBC EL 23.38

STA "RR-ML" 158+87.90
OFFSET: 34.49' R
TBC EL 23.42

EL 23.46 ME±

EL 23.54 ME±

STA "RR-ML" 158+85.09
OFFSET: 53.38' R
TBC EL 23.23

STA "RR-ML" 158+91.09
OFFSET: 45.50' R
SW EL 23.44

STA "RR-ML" 158+93.17
OFFSET: 37.36' R
SW EL 23.48

STA "RR-ML" 158+99.41
OFFSET: 30.88' R
SW EL 23.42

STA "RR-ML" 158+96.35
OFFSET: 25.72' R
TBC EL 23.36

STA "RR-ML" 159+08.09
OFFSET: 28.50' R
SW EL 23.74

STA "RR-ML" 159+08.09
OFFSET: 22.50' R
TBC EL 23.67

STA "RR-ML" 159+03.37
OFFSET: 20.50' L
TP EL 23.30

STA "RR-ML" 159+03.37
OFFSET: 33.50' L
TP EL 23.38

STA "RR-ML" 159+03.55
OFFSET: 41.15' L
ME EL ±22.98

STA "RR-ML" 159+10.63
OFFSET: 39.01' L
ME EL ±22.86

STA "RR-ML" 159+10.37
OFFSET: 33.50' L
TP EL 23.84

STA "RR-ML" 159+10.37
OFFSET: 22.50' L
TBC EL 23.67

ALATNA STREET

MEALS AVENUE

2.00%
2.52%
1.36%
1.35%
2.05%
1.22%
3.44%
0.50%
1.17%
4.52%
0.82%

158+00
159+00

STA "RR-ML" 161+09.61
OFFSET: 22.50' R
TBC EL 22.16

STA "RR-ML" 161+09.61
OFFSET: 28.51' R
SW EL 22.26

STA "RR-ML" 161+21.36
OFFSET: 25.73' R
TBC EL 21.90

STA "RR-ML" 161+18.29
OFFSET: 30.89' R
SW EL 21.96

STA "RR-ML" 161+24.54
OFFSET: 37.37' R
SW EL 21.89

STA "RR-ML" 161+32.61
OFFSET: 45.50' R
TBC EL 22.16

STA "RR-ML" 161+29.81
OFFSET: 34.50' R
TBC EL 21.83

STA "RR-ML" 161+40.58
OFFSET: 46.94' R
ME EL ±21.91

STA "RR-ML" 161+00.00
OFFSET: 33.50' L
TBC EL 22.45

STA "RR-ML" 161+00.00
OFFSET: 22.50' L
TBC EL 22.29

STA "RR-ML" 161+08.58
OFFSET: 22.50' L
TBC EL 22.13

STA "RR-ML" 161+08.58
OFFSET: 33.50' L
TP EL 22.29

STA "RR-ML" 161+15.58
OFFSET: 20.33' L
ME EL ±21.53

STA "RR-ML" 161+15.58
OFFSET: 31.97' L
ME EL ±21.92

RR-ML, STA: 161+52.61
= PE, STA: 118+09.85

PIONEER DRIVE

MEALS AVENUE

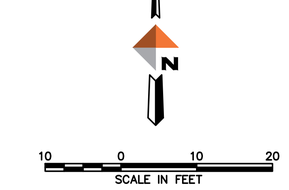
118+00

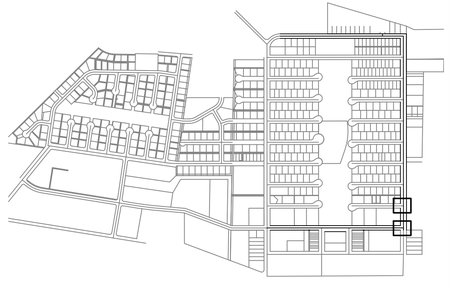
161+00

0.55%

1021
1019
1020

GB





KEY MAP
SCALE 1"=1000'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
06/16/2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
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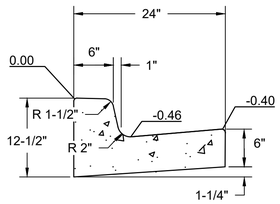
Anchorage, Alaska 99503
907-562-2000

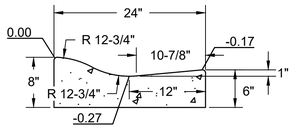
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
INTERSECTION GRADING
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

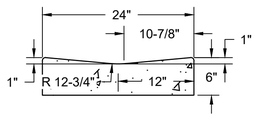
C-309



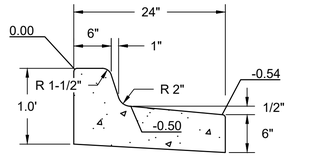
STANDING CURB AND GUTTER
TYPE 1



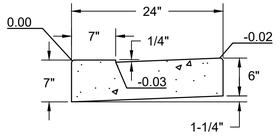
ROLLED CURB AND GUTTER
TYPE 2



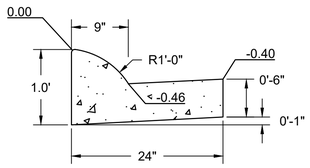
DEPRESSED ROLLED CURB
TYPE 2A



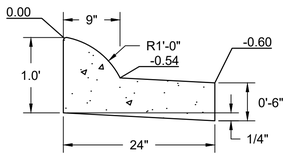
SHEDDING CURB AND GUTTER
TYPE 3



DEPRESSED CURB AND GUTTER
(USED AT CURB CUTS)
TYPE 4

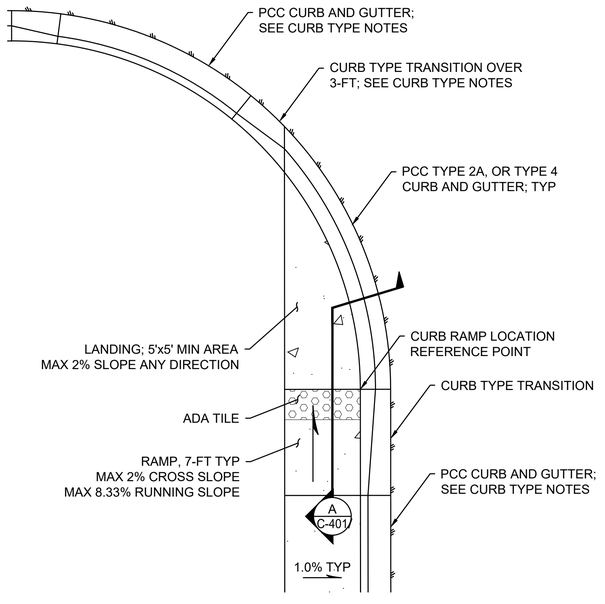


FULL HEIGHT ROLLED
CURB AND GUTTER
TYPE 5

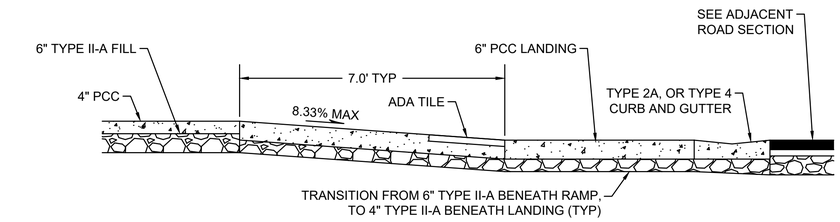


FULL HEIGHT ROLLED SHEDDING
CURB AND GUTTER
TYPE 6

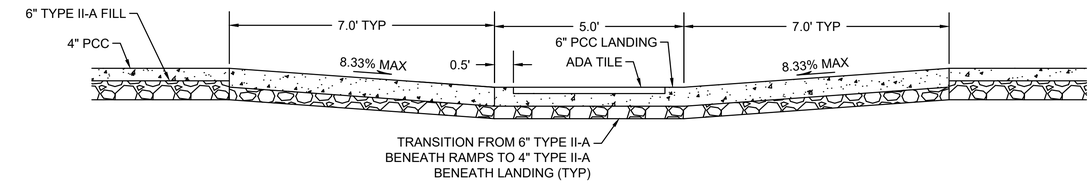
1 C-401 CURB AND GUTTER CROSS SECTIONS (SEE COV 30-1)
NTS



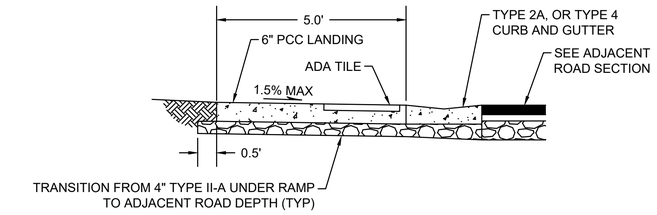
2 C-401 TYPE II PARALLEL CURB RAMP - PLAN, TYP
NTS



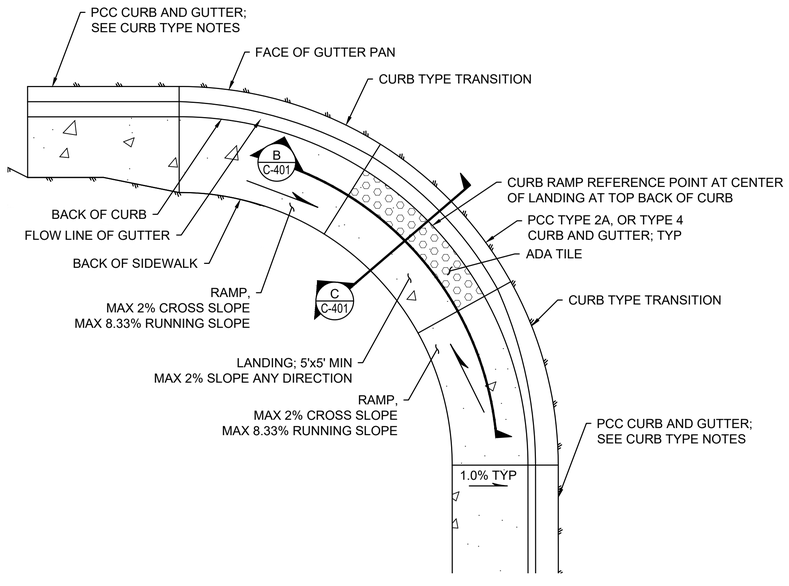
A C-401 PERPENDICULAR CURB RAMP-SECTION, TYP
NTS



B C-401 PARALLEL CURB RAMP, TYP
NTS



C C-401 PARALLEL CURB RAMP, TYP
NTS



3 C-401 TYPE I PARALLEL CURB RAMP, TYP
NTS

CURB TYPE NOTES:

1. USE TYPE 4 CURB AND GUTTER THROUGH LANDING WHEN TYPE 1 OR TYPE 5 CURB AND GUTTER ARE USED ON THE UPHILL SIDE OF RAMP.
2. USE TYPE 2A CURB AND GUTTER THROUGH LANDING WHEN TYPE 2 CURB AND GUTTER IS USED ON THE UPHILL SIDE OF RAMP.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
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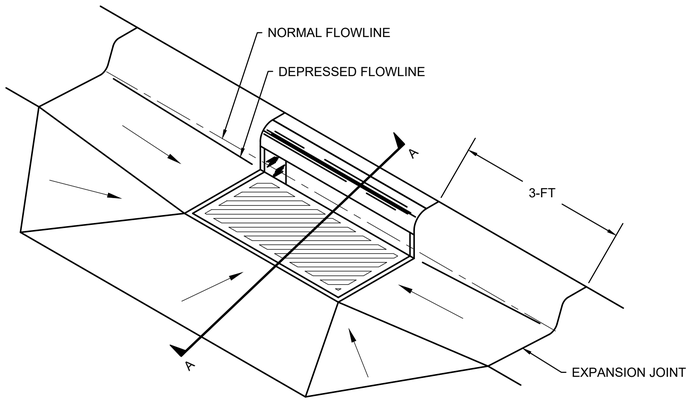
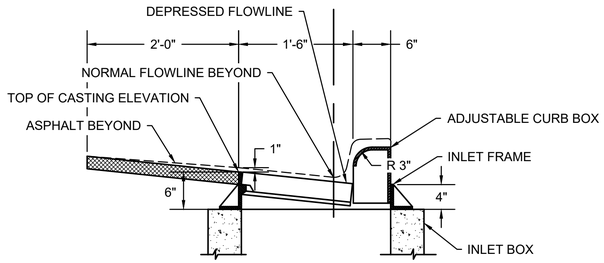
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
DETAILS
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

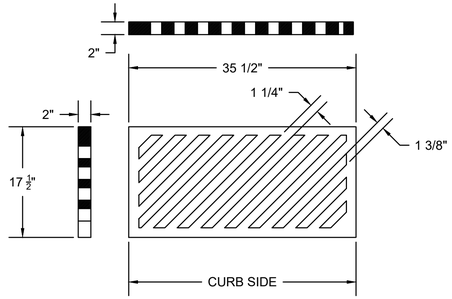
C-401

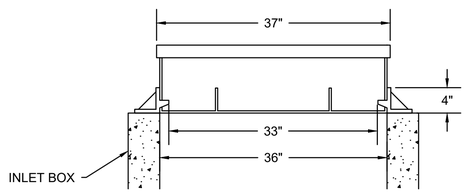




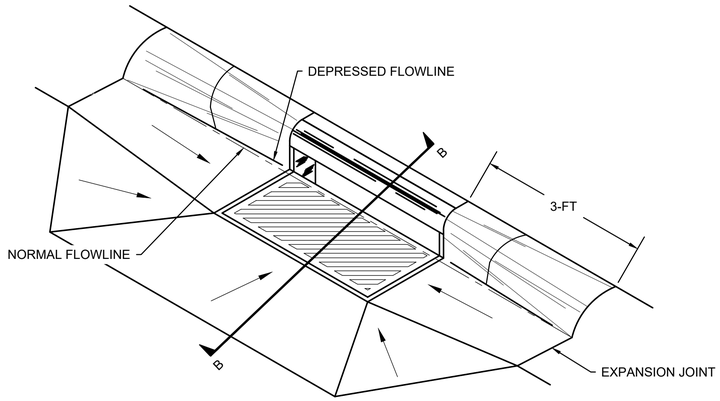
SECTION A - A

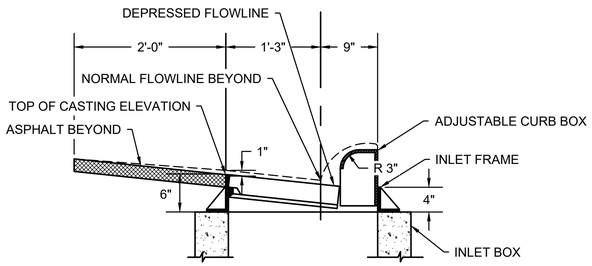
1 / C-402 TYPE 1 C&G FRAME AND GRATE
NTS





FRAME & GRATE DETAIL





SECTION B - B

2 / C-402 TYPE 5 C&G FRAME AND GRATE
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
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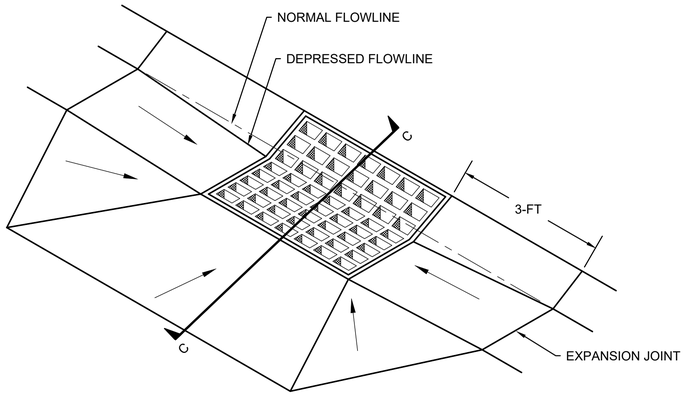
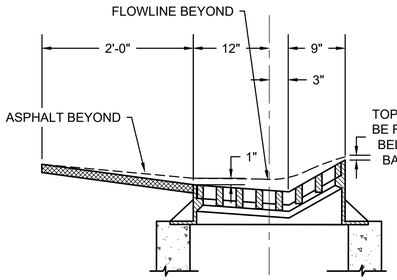
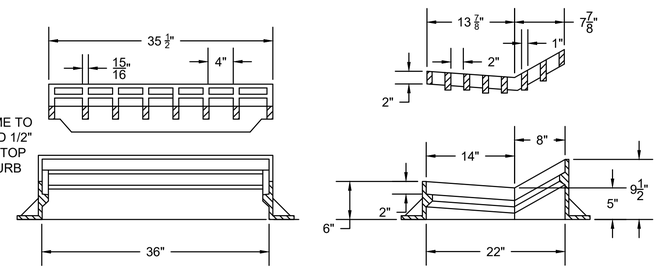
C-402

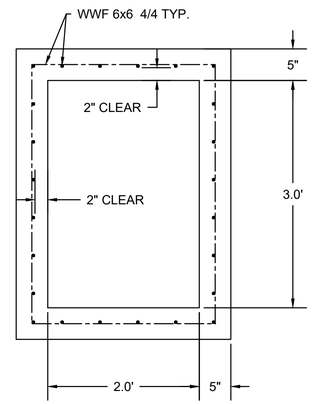




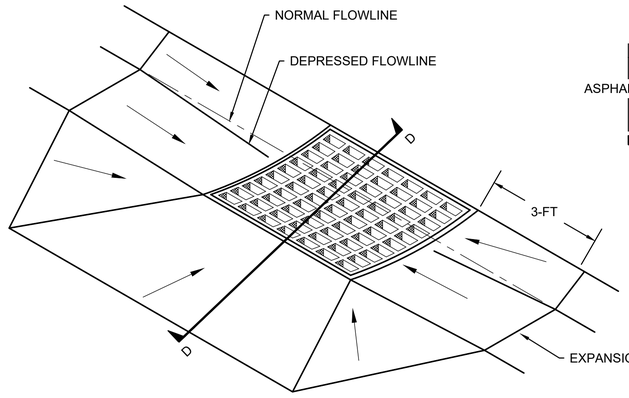
SECTION C - C

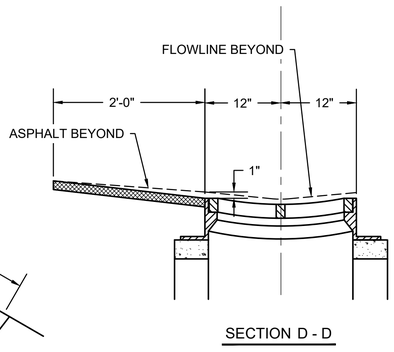


FRAME & GRATE DETAIL

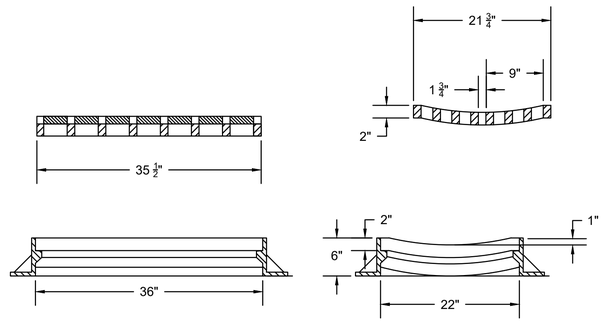


3 C-403 TYPE 2 CURB & GUTTER INLET
NTS





SECTION D - D



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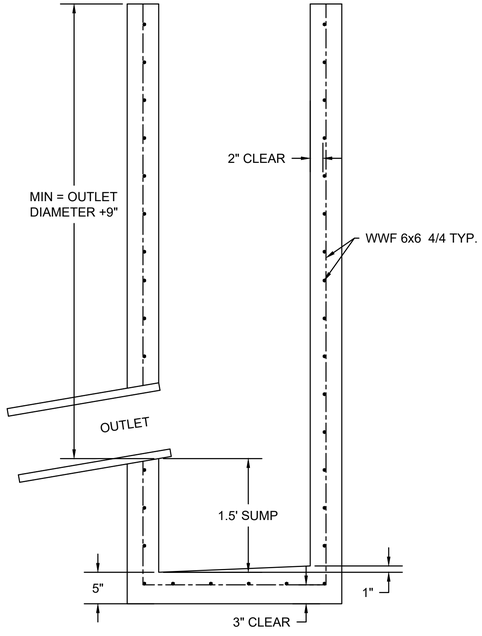

4 C-403 TYPE 2A/4 CURB & GUTTER
NTS

5 C-403 TYPE "A" INLET BOX
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE
DETAILS
VALDEZ, ALASKA

PROJECT	63461.01
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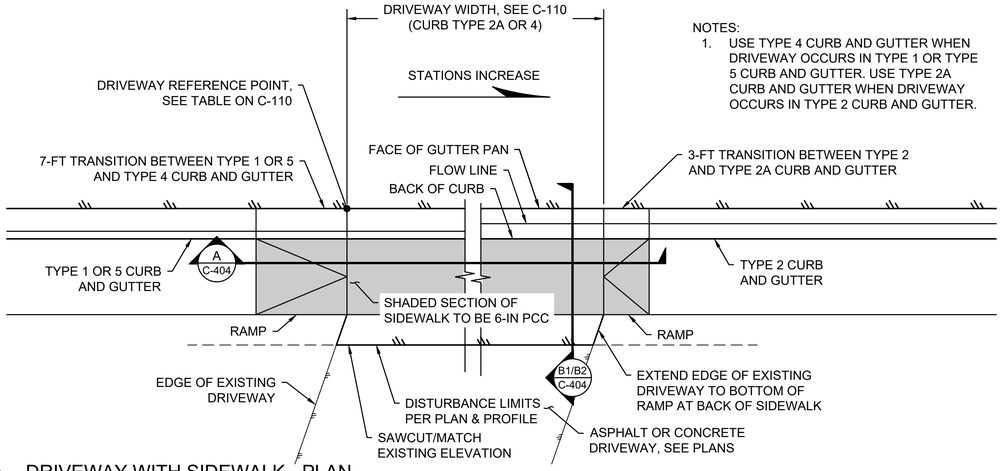
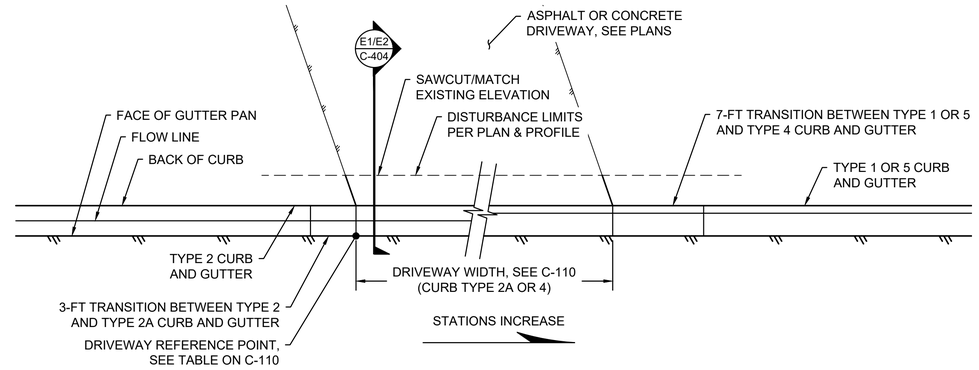
C-403

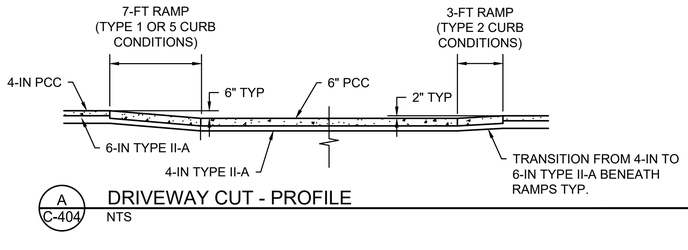


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

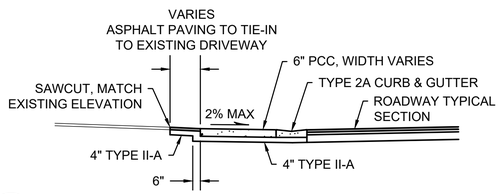
1 C-404 DRIVEWAY WITH SIDEWALK - PLAN
NTS



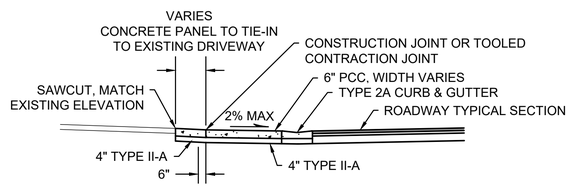
2 C-404 DRIVEWAY WITHOUT SIDEWALK - PLAN
NTS



A C-404 DRIVEWAY CUT - PROFILE
NTS

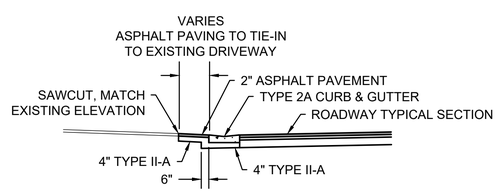


B1 C-404 ASPHALT DRIVEWAY W/SIDEWALK
NTS

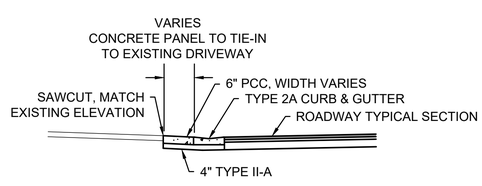


B2 C-404 CONCRETE DRIVEWAY W/SIDEWALK
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



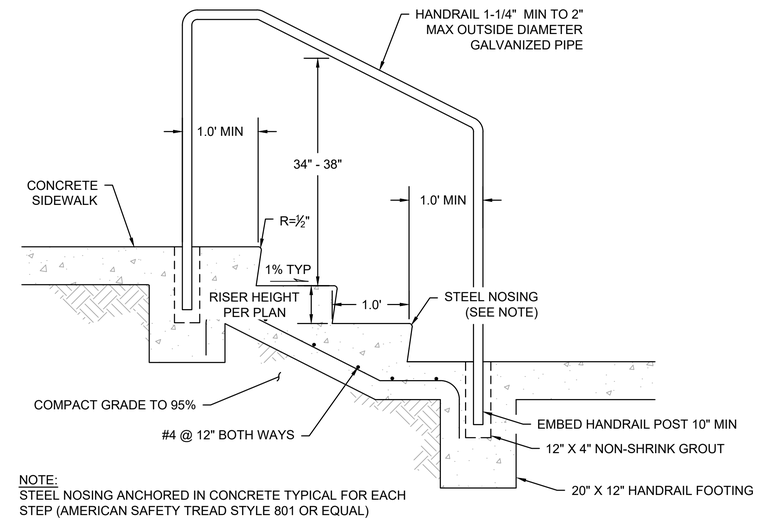
E1 C-404 ASPHALT DRIVEWAY W/OUT SIDEWALK
NTS



E2 C-404 CONCRETE DRIVEWAY W/OUT SIDEWALK
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 TYPICAL HANDRAIL
NTS

REVISIONS

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STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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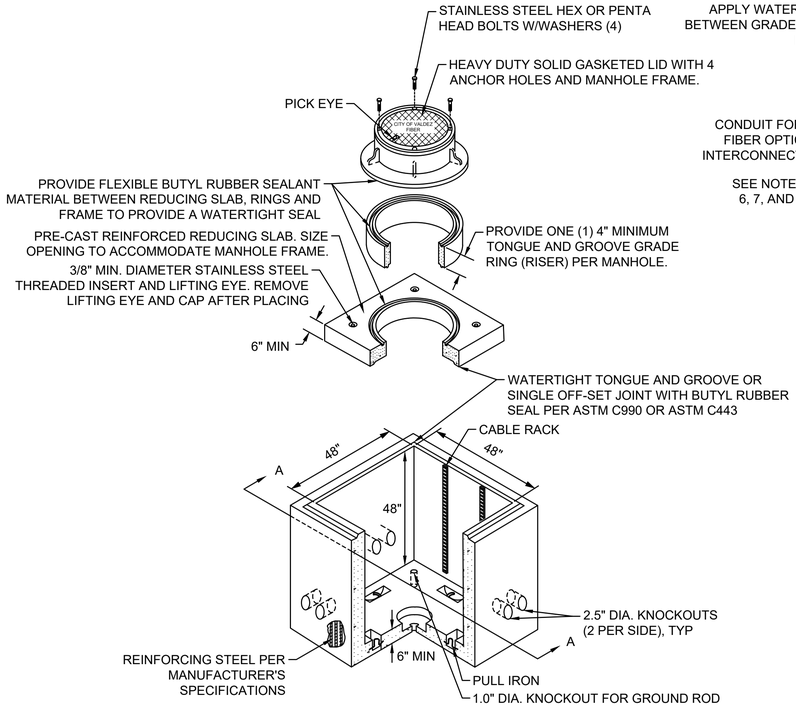
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

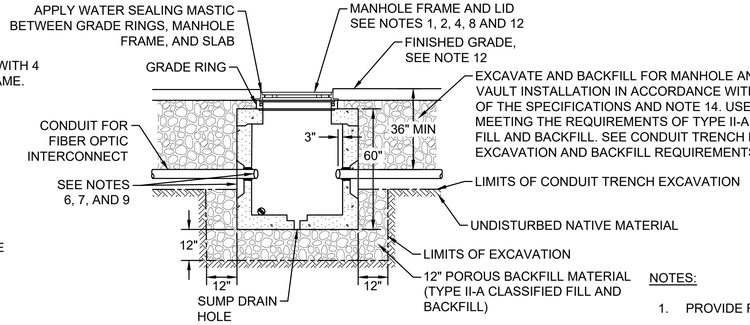
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

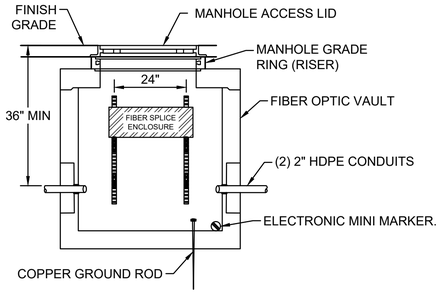
C-404



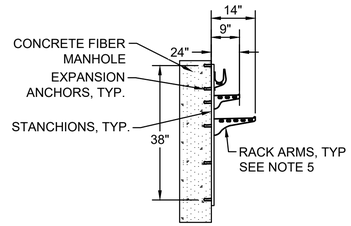
FIBER OPTIC WITH MANHOLE LID
NTS



SECTION A - A



FIBER OPTIC VAULT LAYOUT, TYPE 1
NTS

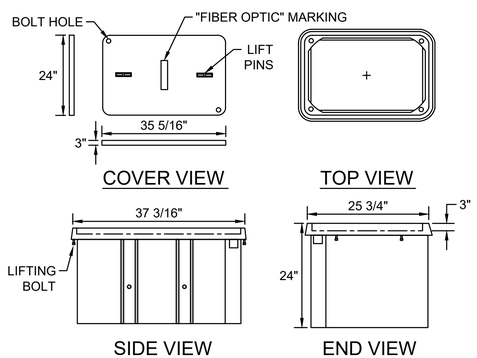


TYPICAL CABLE RACK
NTS

NOTES:

1. PROVIDE FIBER MANHOLE LIDS RATED FOR AASHTO HS-20-44 LOADING.
2. SUPPLY ALL LIDS WITH A HOLE OR SLOT FOR REMOVAL WITH A LEVER OR HOOK.
3. WHERE REQUIRED BY OSHA, PROVIDE A PORTABLE ENTRY LADDER MEETING OSHA REQUIREMENTS.
4. PROVIDE FIBER MANHOLE LIDS MARKED "CITY OF VALDEZ FIBER".
5. PROVIDE FIBER VAULTS WITH A HEAVY-DUTY NON-METALLIC CABLE STORAGE RACK SYSTEM. PROVIDE RACK ARMS OR STANCHIONS CAPABLE OF SUPPORTING A MINIMUM OF 250 LBS. INCLUDE A MINIMUM OF 36 INCH RACK STANCHIONS AND 4 RACK ARMS.
6. INSTALL CONDUITS INTO FIBER VAULTS AT THINWALL SECTIONS ONLY. CORE DRILL IN THE THINWALL SECTION TO CONDUIT SIZE PLUS ¼ INCH ALL AROUND. DO NOT "KNOCK OUT" THE THINWALL SECTION.
7. SEAL CONDUIT PENETRATIONS USING SIKA LEAKMASTER LV-1 OR APPROVED PRODUCT EQUIVALENT.
8. BOND AND GROUND ALL METALLIC COMPONENTS OF THE FIBER VAULT, INCLUDING RACK, FRAME AND LIDS.
9. PLUG CONDUITS ENDS TO EXCLUDE WATER UNTIL FIBER OPTIC CABLE IS INSTALLED.
10. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF VAULTS AND MANHOLES.
11. USE A SPLIT BOLT CONNECTOR TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
12. U.O.N., TOP OF FIBER VAULTS SHALL BE INSTALLED:
    A. FROM 0" TO 3/16" BELOW FINISHED GRADE WHEN LOCATED IN A SIDEWALK OR PATHWAY;
    B. 3/8" BELOW FINISHED GRADE WHEN LOCATED IN A PAVED PARKING LOT, MEDIAN, OR ROADWAY;
    C. OR AS DIRECTED BY THE ENGINEER.
13. DO NOT PLACE FIBER VAULTS IN THE BOTTOM OF DRAINAGE COLLECTION AREAS.
14. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH COV STANDARD SPECIFICATIONS, AND OSHA SAFETY STANDARDS AND REGULATIONS.

1 C-405 TYPE I 4'X4' FIBER OPTIC VAULT
NTS



2 C-405 FIBER OPTIC HANDHOLE VAULT
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
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Jan 14, 2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
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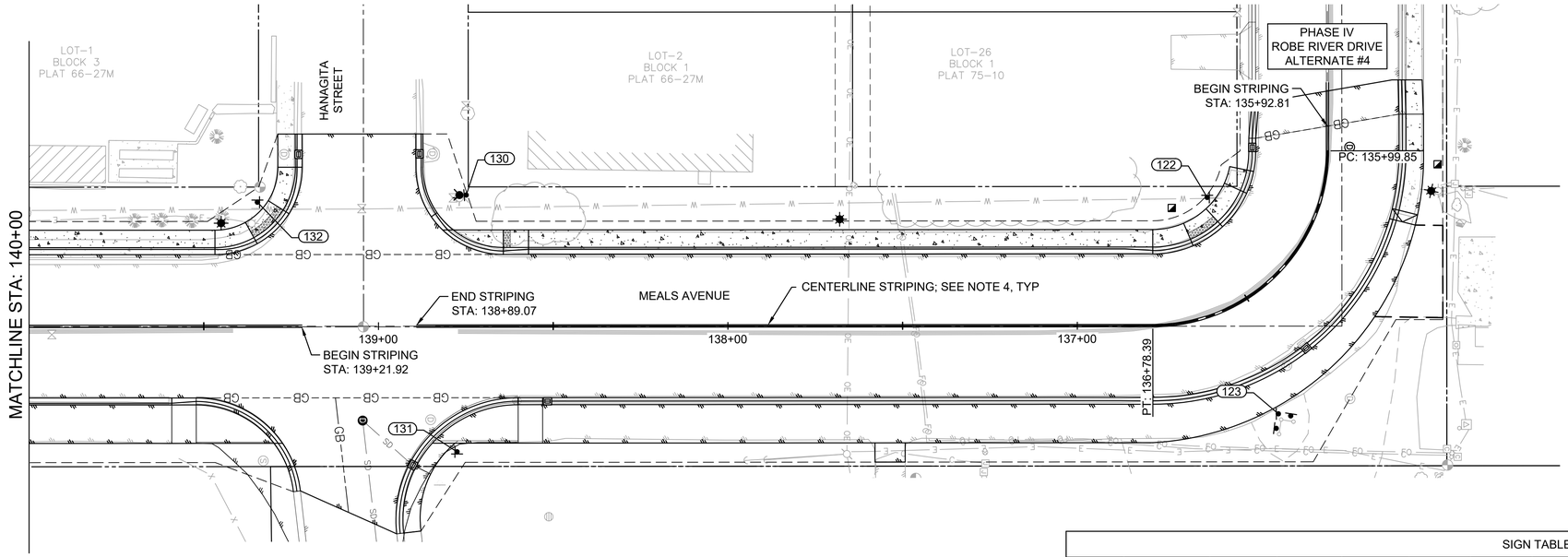
C-405



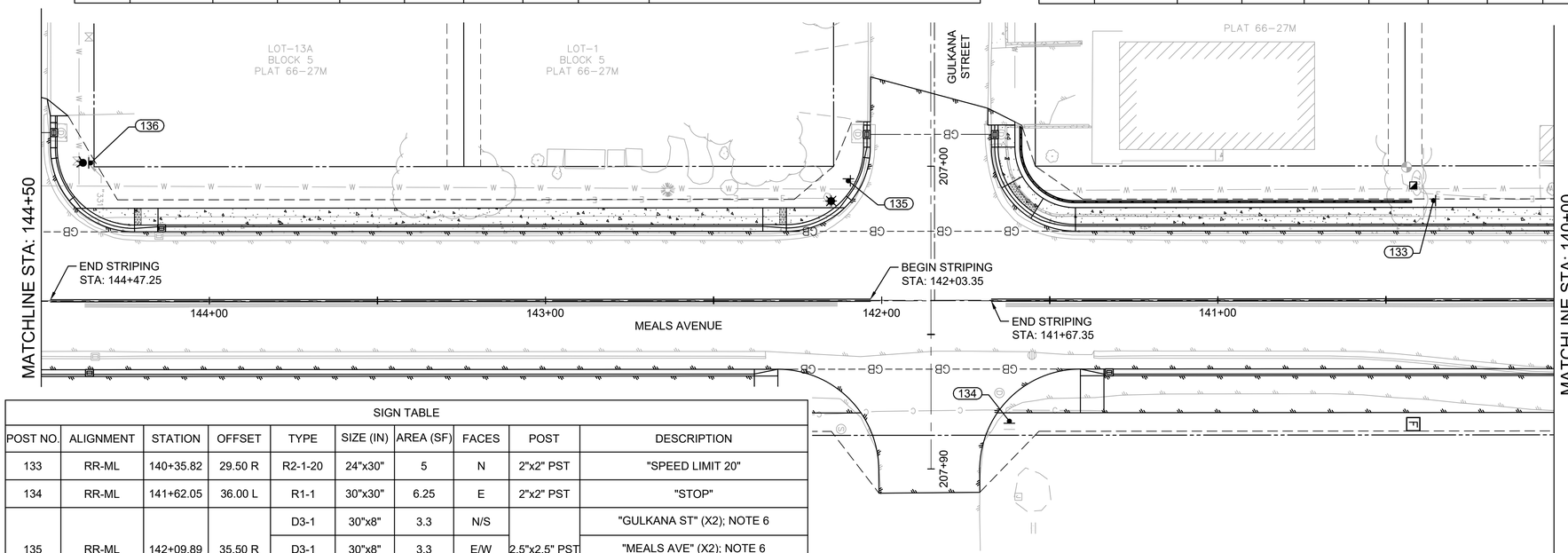
GENERAL NOTES

(206) SIGN POST

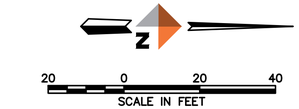
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-504.

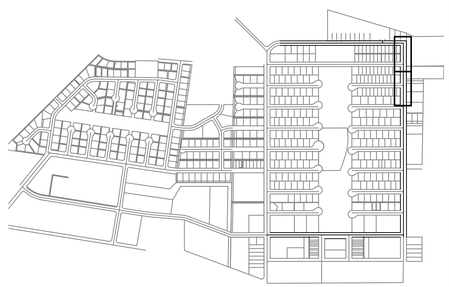
SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
130	RR-ML	138+74.88	37.50 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "344"; NOTE 1
131	RR-ML	138+77.54	36.00 L	R1-1	30"x30"	6.25	E	2"x2" PST	"STOP"
132	RR-ML	139+34.63	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"HANAGITA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"

SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
122	RR-ML	136+35.16	29.50 R	D3-1	42"x8"	4.7	N/S	2.5"x2.5" PST	"ROBE RIVER DR" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
123	RR-ML	136+56.12	33.40 L	W1-6R	60"x30"	12.5	W	3 - 2.5"x2.5" PST	DIRECTION ARROW RIGHT
				W1-6L	60"x30"	12.5	S		DIRECTION ARROW LEFT
				EM-1A	24"x24"	4	S		"TSUNAMI EVACUATION ROUTE"
				D9-301	24"x6"	1	S		BLUE LEFT ARROW



SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
133	RR-ML	140+35.82	29.50 R	R2-1-20	24"x30"	5	N	2"x2" PST	"SPEED LIMIT 20"
134	RR-ML	141+62.05	36.00 L	R1-1	30"x30"	6.25	E	2"x2" PST	"STOP"
135	RR-ML	142+09.89	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"GULKANA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
136	RR-ML	144+35.24	41.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "331"; NOTE 1





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01.16.2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

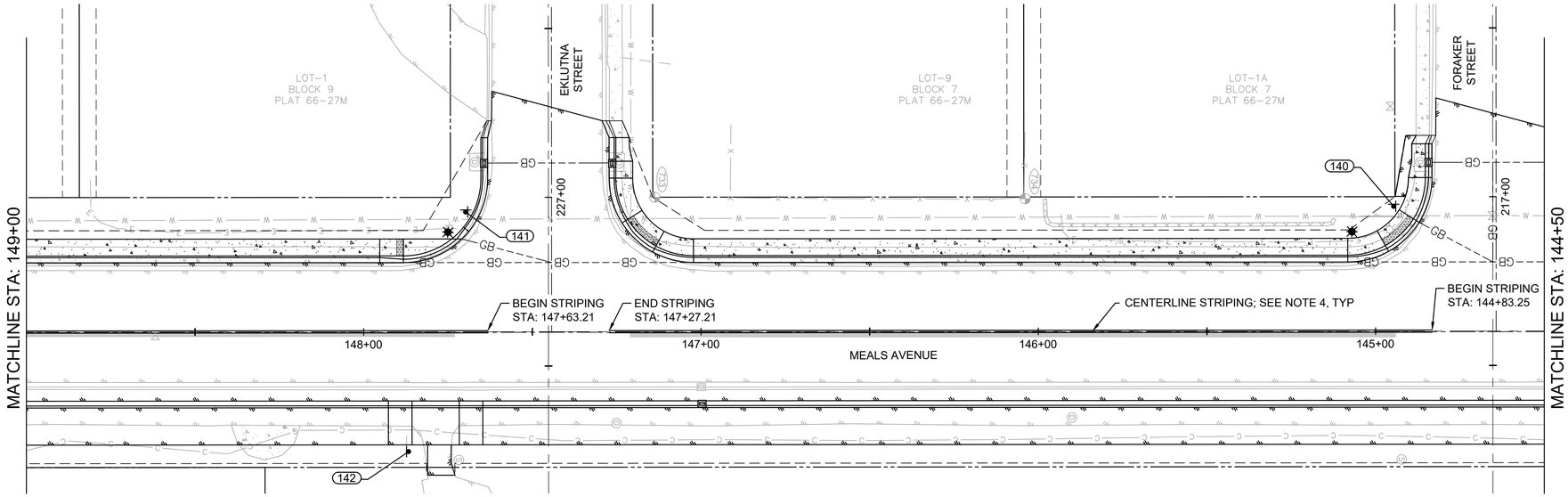
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGING AND STRIPING

VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

C-501



GENERAL NOTES

(206) SIGN POST

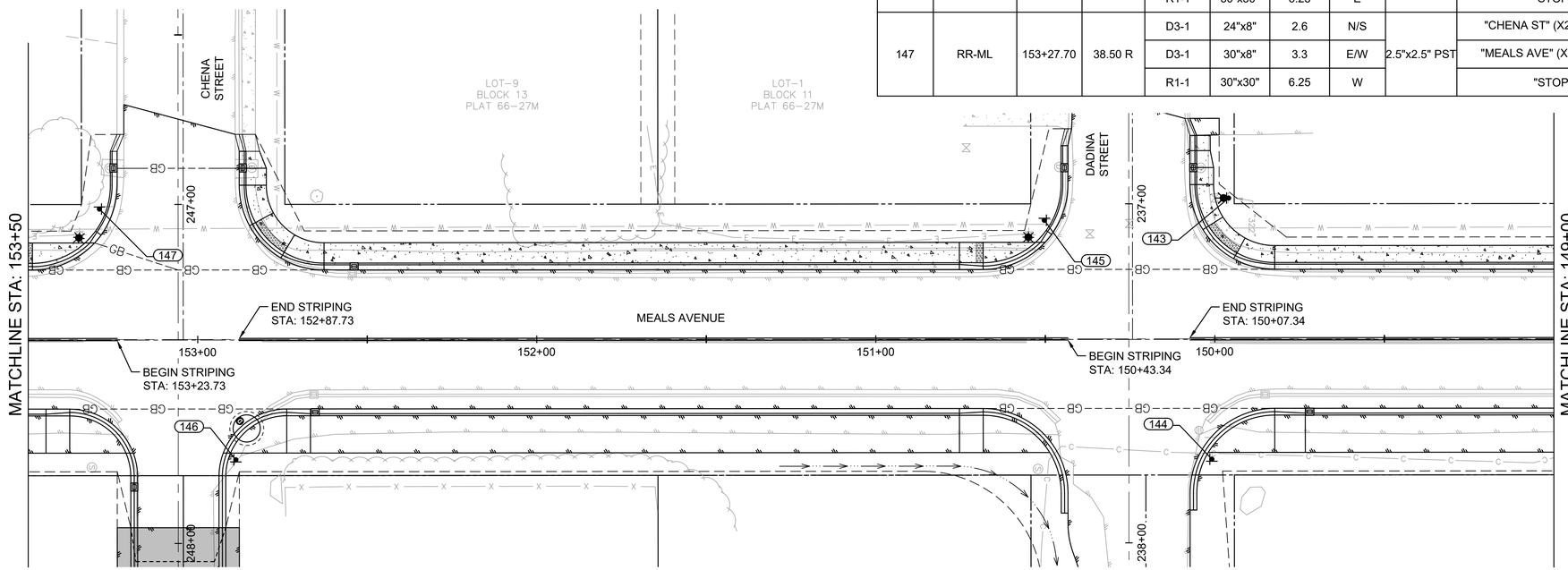
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-504.

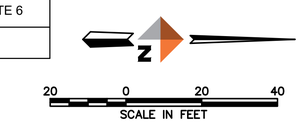
SIGN TABLE

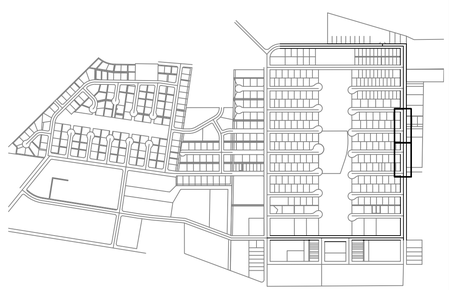
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
140	RR-ML	144+94.62	37.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"FORAKER ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
141	RR-ML	147+69.73	35.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"EKLUTNA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
142	RR-ML	147+86.72	35.50 L	D9-X	24"x12"	2	S	2"x2" PST	"ASSEMBLY OF GOD CHURCH" ARROW LEFT

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
143	RR-ML	149+95.40	41.50 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "322"; NOTE 1
144	RR-ML	149+98.42	35.50 L	D3-1	36"x8"	4	N/S	2.5"x2.5" PST	"E DADINA ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"
				EM-IA	24"x24"	4	S		"TSUNAMI EVACUATION ROUTE"
145	RR-ML	150+49.77	35.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"DADINA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
146	RR-ML	152+84.53	35.50 L	D3-1	30"x8"	3.3	N/S	2"x2" PST	"E CHENA ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"
147	RR-ML	153+27.70	38.50 R	D3-1	24"x8"	2.6	N/S	2.5"x2.5" PST	"CHENA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"







REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
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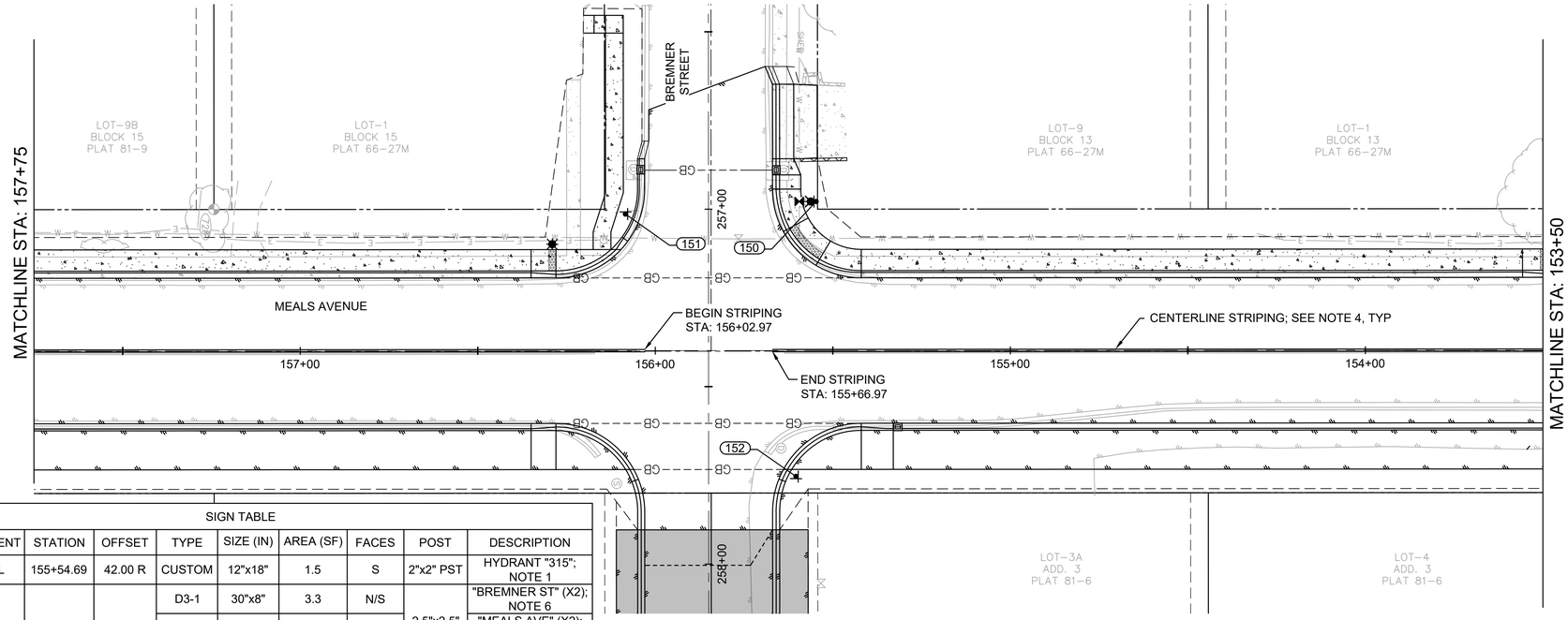
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

VALDEZ, ALASKA

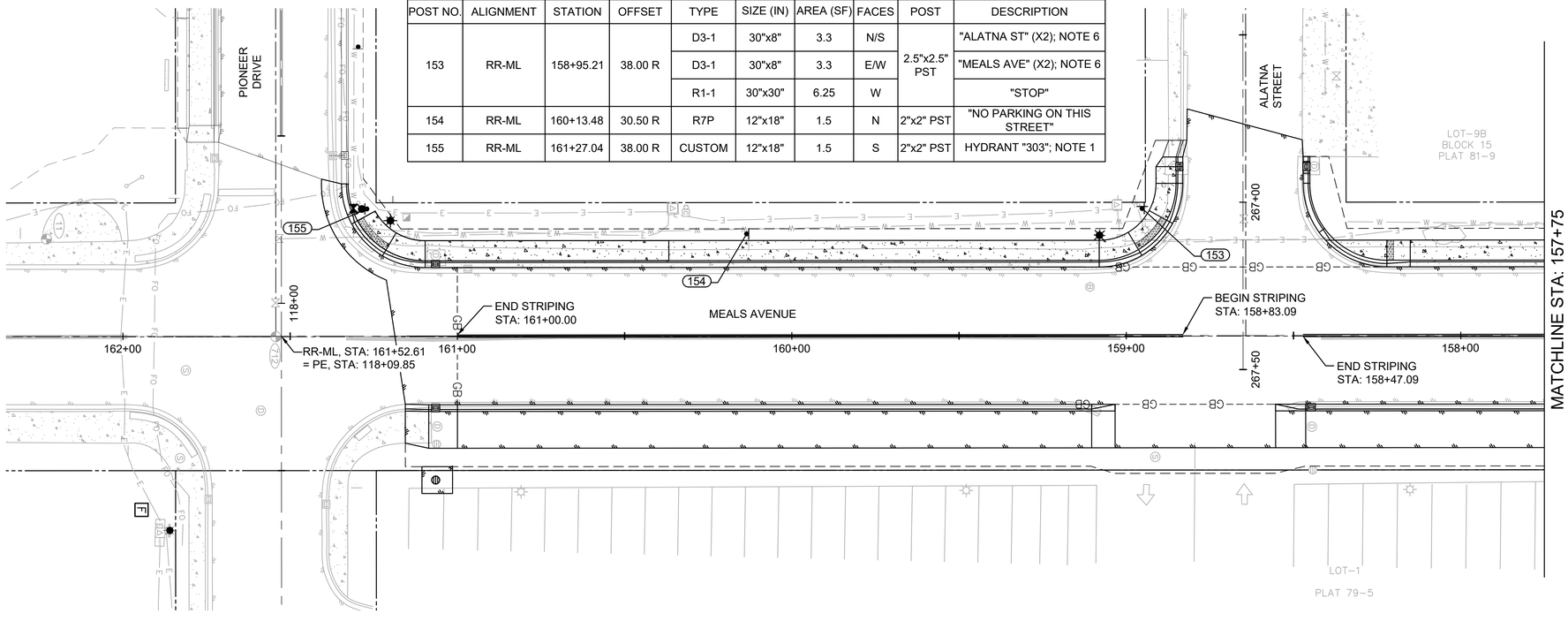
PROJECT 63461.01
DATE 01/16/2026

C-502



SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
150	RR-ML	155+54.69	42.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "315"; NOTE 1
151	RR-ML	156+08.36	38.50 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"BREMNER ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
152	RR-ML	155+60.38	35.50 L	D3-1	36"x8"	4	N/S	2.5"x2.5" PST	"E BREMNER ST" (X2); NOTE 6
				R1-1	30"x30"	6.25	E		"STOP"

SIGN TABLE									
POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
153	RR-ML	158+95.21	38.00 R	D3-1	30"x8"	3.3	N/S	2.5"x2.5" PST	"ALATNA ST" (X2); NOTE 6
				D3-1	30"x8"	3.3	E/W		"MEALS AVE" (X2); NOTE 6
				R1-1	30"x30"	6.25	W		"STOP"
154	RR-ML	160+13.48	30.50 R	R7P	12"x18"	1.5	N	2"x2" PST	"NO PARKING ON THIS STREET"
155	RR-ML	161+27.04	38.00 R	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "303"; NOTE 1



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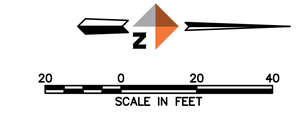

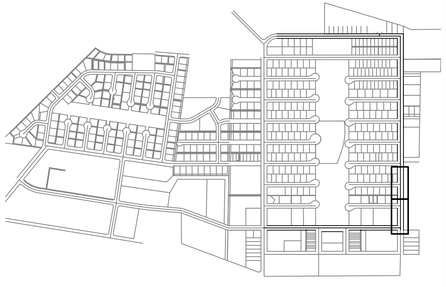

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STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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907-562-2000

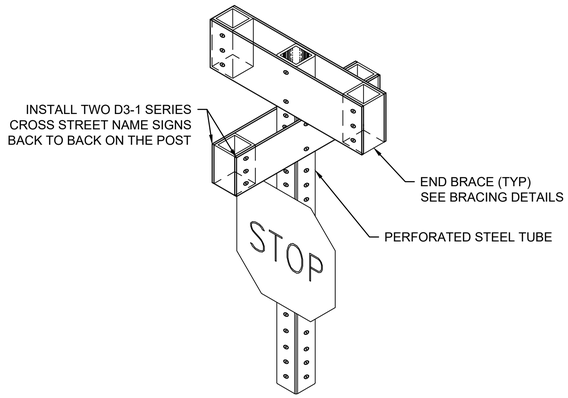
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

SIGNING AND STRIPING

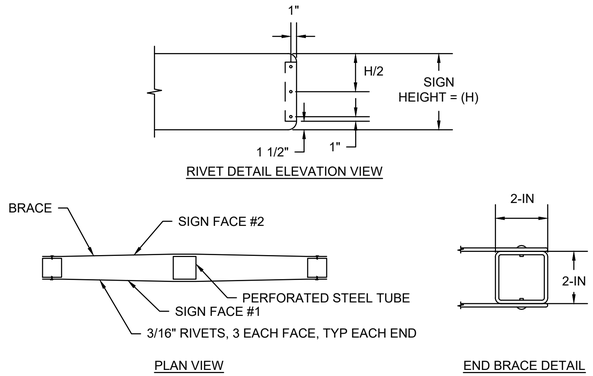
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-503



STREET NAME SIGN MOUNTING DETAIL



BRACING DETAILS

1 C-504 STREET SIGN MOUNTING

NTS

REVISIONS

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STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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SIGNING AND STRIPING

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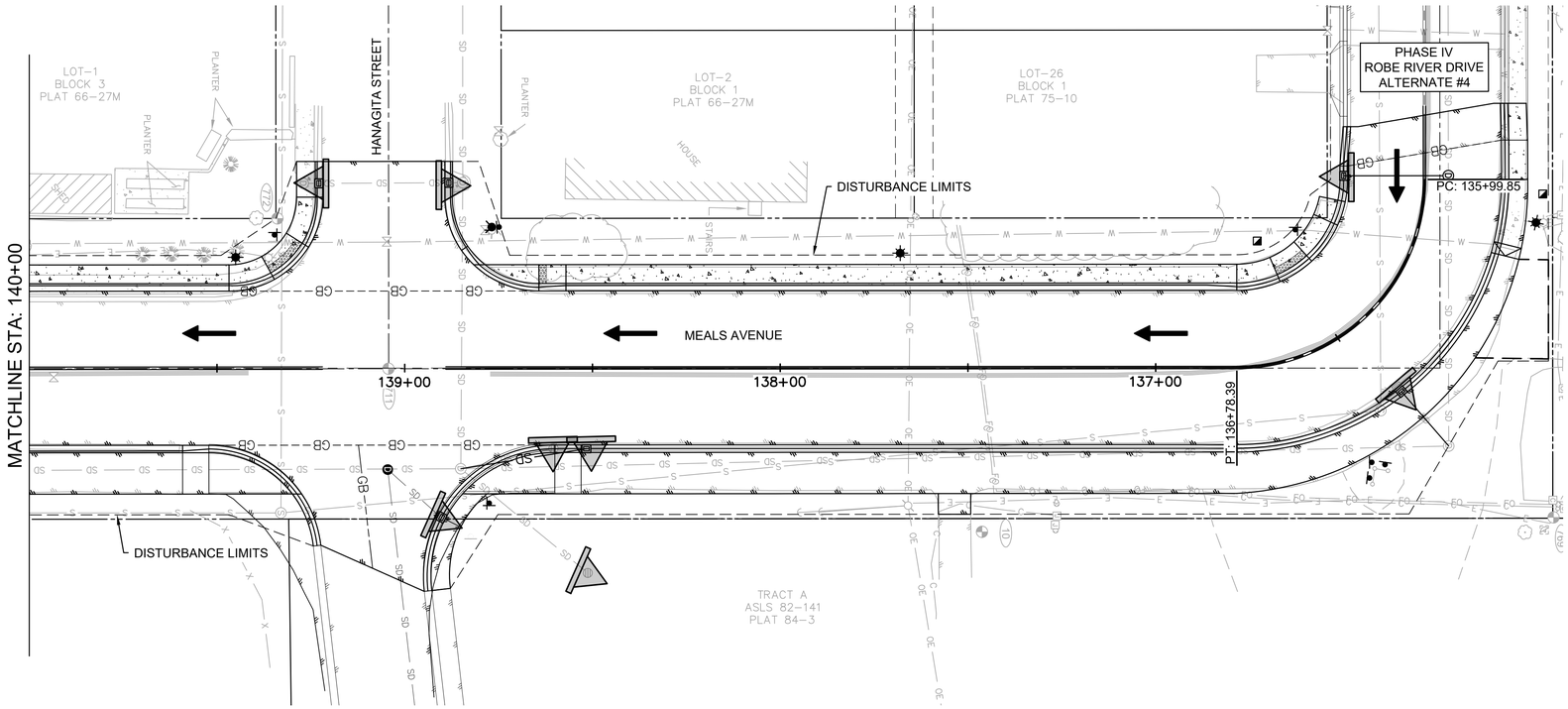


ESCP LEGEND

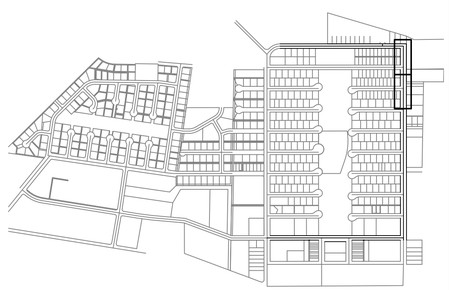
DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

GENERAL NOTES

1. REFER TO CONTRACTOR SWPPP REPORT FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs).
2. CONTRACTOR SHALL UTILIZE BMPs MOST APPROPRIATE FOR CONDITIONS ON-SITE. IF INSPECTION REVEALS EROSION CONTROL MEASURES ARE INSUFFICIENT, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT CORRECTIVE ACTION, AS NECESSARY, TO CORRECT THE DEFICIENCY.
3. ALL DISTURBED AREAS FOR THIS PROJECT ARE LOCATED AMID THE PROPOSED WORK SHOWN ON SHEETS C-601 THROUGH C-604.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES TO ENSURE THAT CONSTRUCTION ACTIVITIES HAVE MINIMAL IMPACTS ON THE NATURAL BUFFER AREAS OF THE RECEIVING WATER BODY. DISTURBED AREAS ADJACENT TO DRAINAGE OR IN-WATER WORK SHALL BE RESTORED TO THEIR FUNCTIONAL CAPACITY OR PLANNED DESIGN, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
5. VEGETATION SHALL REMAIN UNDISTURBED TO THE FULLEST EXTENT POSSIBLE.
6. ALL DISTURBED AREAS NOT RECEIVING HMA PAVEMENT, PORTLAND CEMENT CONCRETE, OR RIPRAP, SHALL RECEIVE HYDROSEED WITH MULCH AS A FINAL STABILIZATION MEASURE, UNLESS OTHER TREATMENTS ARE REQUIRED BY PERMIT CONDITIONS.
7. ON-SITE DUST CONTROL, INCLUDING WATERING AND SWEEPING, SHALL BE PROVIDED BY THE CONTRACTOR TO MINIMIZE AIR-BORNE DUST WHEN NECESSARY OR DIRECTED BY THE ENGINEER. ROUTINE SWEEPING MAY BE PERFORMED IN LIEU OF UTILIZING A STABILIZED CONSTRUCTION EXIT UNLESS CONDITIONS NECESSITATE A MUD MAT.
8. ANY CONCRETE WASHOUT AREAS UTILIZED BY THE CONTRACTOR SHALL BE DESIGNATED, MAINTAINED, AND LOCATED, TO THE EXTENT PRACTICABLE, AWAY FROM WATER OF THE U.S. AND STORM WATER CONVEYANCE CHANNELS.
9. ALL DISCHARGE FROM EXCAVATION DEWATERING ACTIVITIES WILL BE TREATED WITH THE APPROPRIATE CONTROL MEASURES, UNTREATED WATER FROM CONSTRUCTION DEWATERING OPERATIONS SHALL NOT BE DISCHARGED TO ANY RECEIVING WATERS NOR SHALL UNTREATED WATER BE ALLOWED TO RUN OFF-SITE, UNLESS THE WATER IS NON-DISCHARGED.
10. PROVIDE INLET PROTECTION FOR EXISTING CATCH BASINS UNTIL STRUCTURE IS REMOVED, TYP. PROVIDE INLET PROTECTION FOR PROPOSED CATCH BASINS ONCE INSTALLED.

N

20 0 20 40
SCALE IN FEET



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
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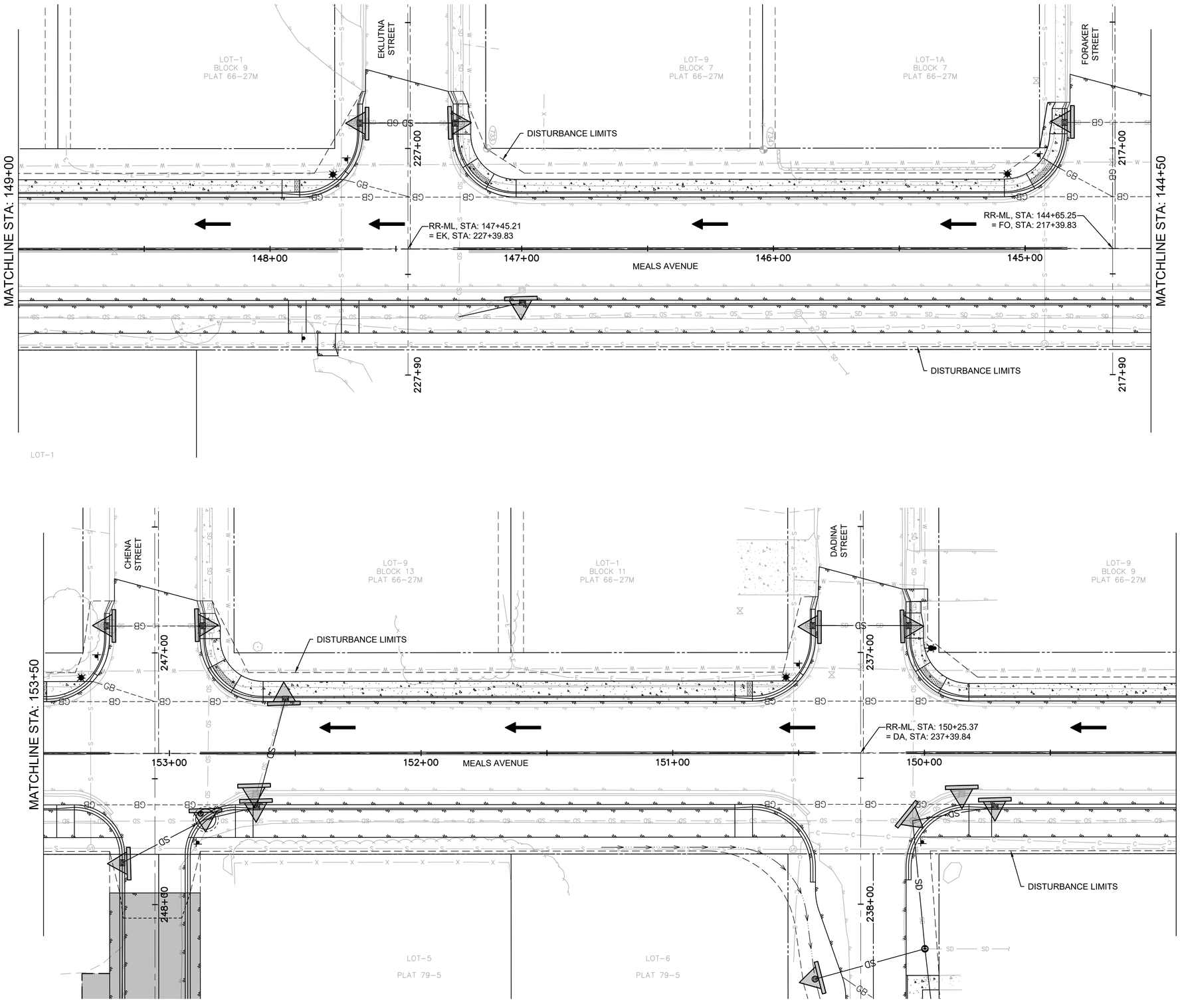
VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-601

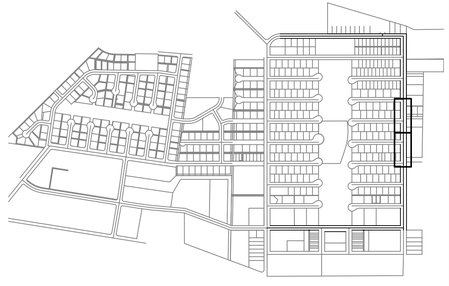


ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

N

20 0 20 40
SCALE IN FEET



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 133293
Jan 16, 2026
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PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-602

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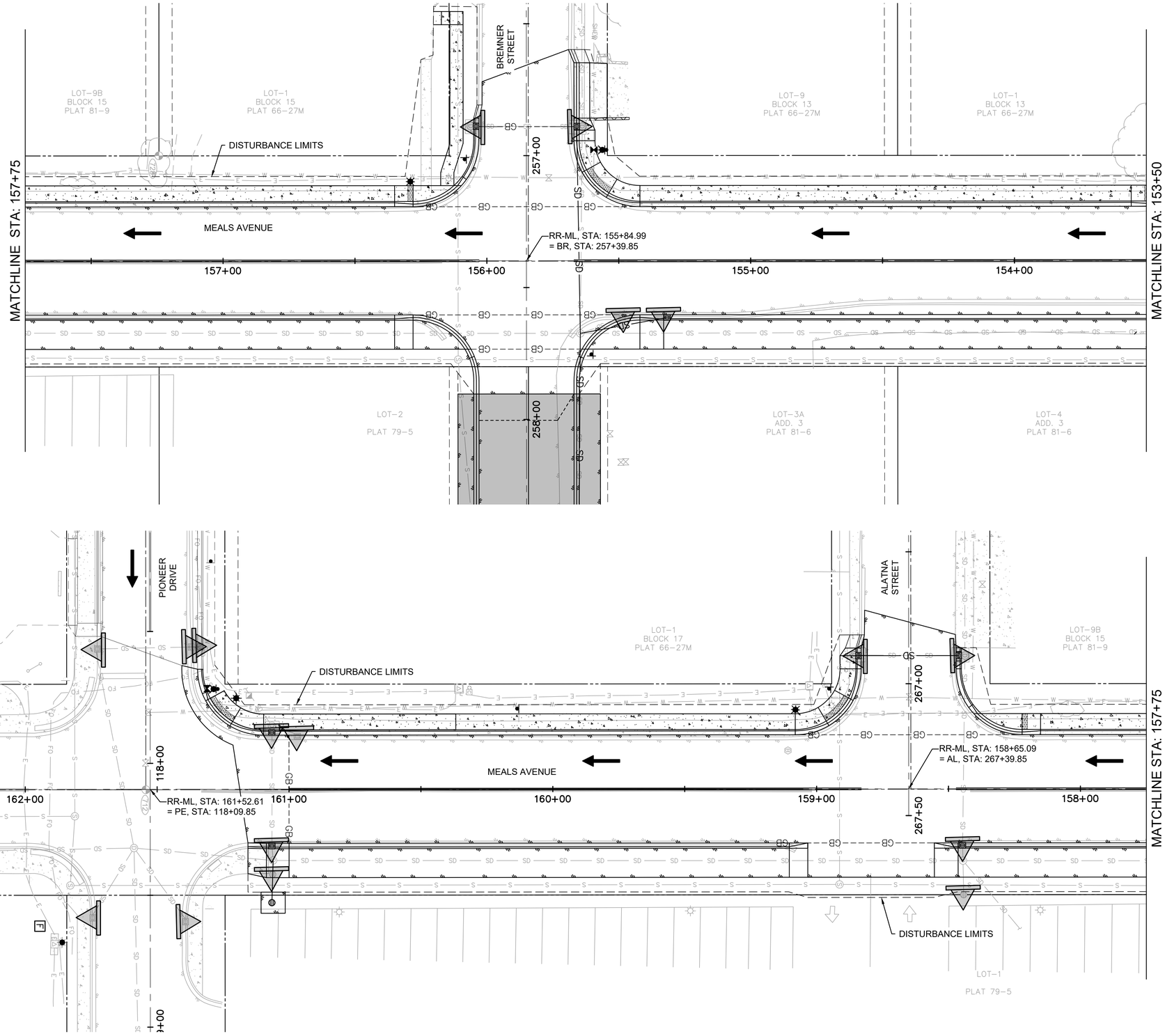
ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	



N

20 0 20 40
SCALE IN FEET

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN

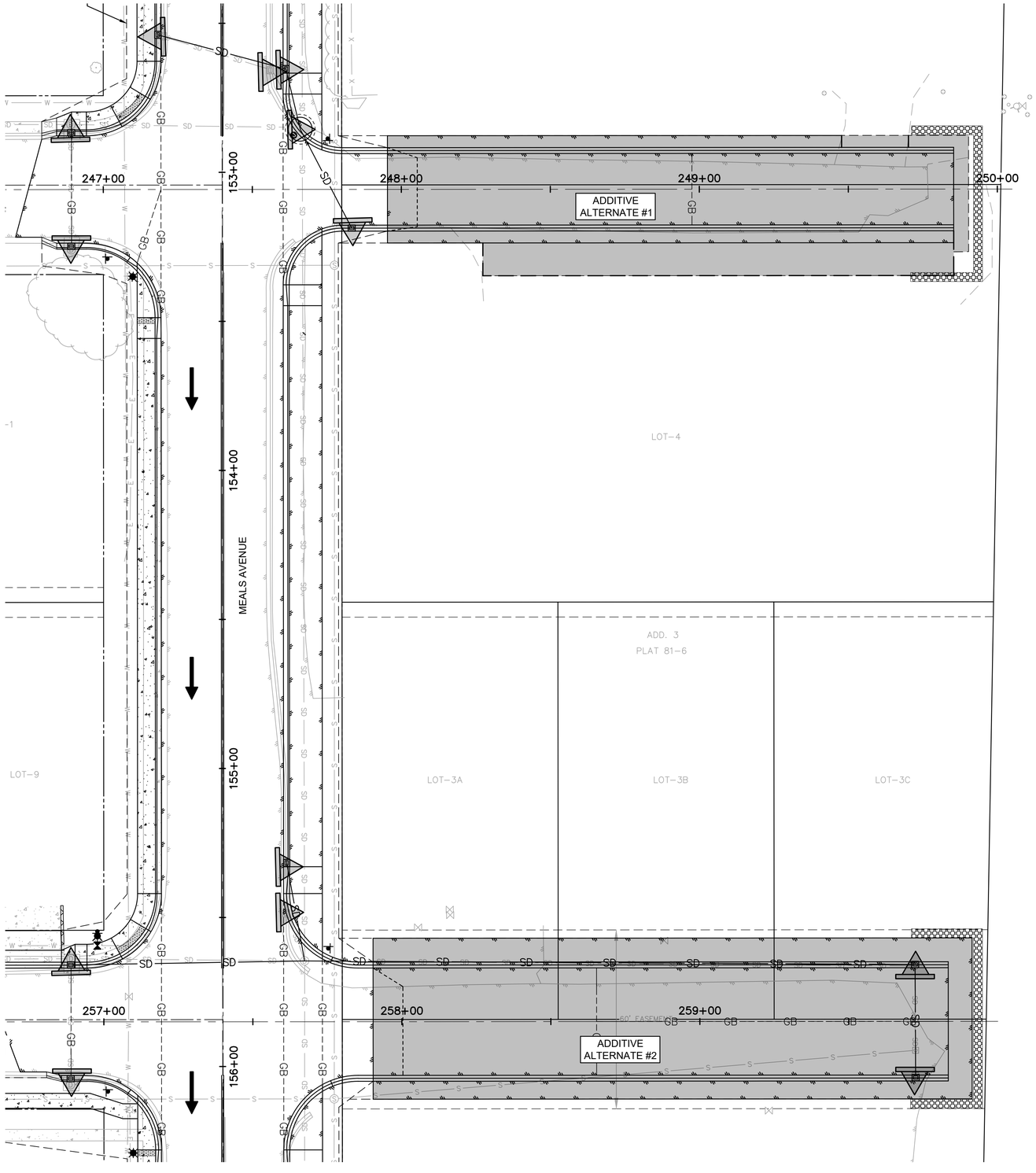
VALDEZ, ALASKA

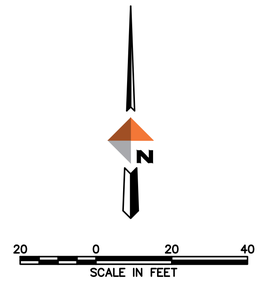
PROJECT	63461.01
DATE	01/16/2026

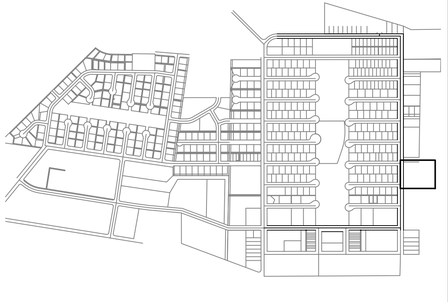
C-603

ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	







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SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-MEALS AVENUE

EROSION AND SEDIMENT CONTROL PLAN - ADD ALT #1 & #2

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-604

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LEGEND

⊖▭	POLE MOUNTED AREA LIGHT – OUTDOORS, WEATHERPROOF
⟨A⟩	FIXTURE TAG (LETTER INDICATES TYPE)
$	SINGLE POLE SWITCH
(P)	PHOTOCELL
⌒	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A–2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
—OH/E—	OVERHEAD ELECTRICAL LINE
—UG/E—	UNDERGROUND ELECTRICAL LINE
—UG/FO—	ADD ALT #5 UNDERGROUND FIBER OPTIC LINE (CONDUIT ONLY)
▬	PANEL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
J	JUNCTION BOX
▲	PADMOUNT UTILITY TRANSFORMER
◨	IN GRADE EXTERIOR JUNCTION BOX – TYPE 1A UON
◹	ADD ALT #5 IN GRADE EXTERIOR FIBER OPTIC HANDHOLE
⊠	ADD ALT #5 IN GRADE EXTERIOR FIBER OPTIC VAULT
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRSC	GALVANIZED RIGID STEEL CONDUIT
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT (ADDITIVE ALTERNATE #3)
K	KELVIN
L#	LIGHT POLE NUMBER (IE L1)
LED	LIGHT EMITTING DIODE
LM	LUMENS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	AS SHOWN	CREE – QUANTITY (1) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	LED STREET LIGHT, ALUMINUM HOUSING, TYPE 2 MEDIUM DISTRIBUTION, 40 LED, BACKLIGHT SHIELD, AND SILVER COLOR. MOUNT ON 25' POLE WITH 6' MAST ARM.	POLE/MAST ARM	27'–6" AFG	6000LM 4000K	120/240/277V	66
A2	AS SHOWN	CREE – QUANTITY (2) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	SAME AS TYPE A1 EXCEPT TWO FIXTURES MOUNTED ON ONE POLE.	POLE/MAST ARM	27'–6' AFG	6000LM 4000K EACH	120/240/277V	66 EACH

Voltage Drop Calculation — RSA Engineering, Inc.

Job Name:	**Valdez Pavement Management Phase IV**
Job Number:	**M2078**
Feeder/Circuit From:	**Panel 'ML'**
Feeder/Circuit To:	**Furthest Light Pole (Future L1 on Robe River)**
Date:	**1/16/2026**

Circuit Description

Circuit Length(1-WAY):	**3700** ft.	Includes loops in JBs
Load Current:	**5.225** amps	
Voltage:	**240** volts	

Circuit Type **2**
1. 1 phase, 2 wire (120V or 277V)
2. 1 phase, 3 wire line to line (208V or 480V, 1 ph)
3. 1 phase, 3 wire line to neutral
4. 3 phase, 3 or 4 wire line to lin (208V or 480V, 3ph)
5. 3 phase, 3 or 4 wire line to neutral

Power Factor **1**
1. 100%
2. 90%
3. 80%
4. 70%
5. 60%

Conductor Size # **4** AWG

Conductor Type **1** Copper
1. Copper
2. Aluminum

Conduit Type **2** Non-Magnetic
1. Magnetic
2. Non-Magnetic

Number of Parallel Runs **1** Set

Total Voltage Drop	**11.97 Volts**
Voltage Drop Percentage	**4.99 %**

LIGHT POLE SCHEDULE

POLE #	ALGN	STATION	OFFSET	SIDE	CIRCUIT
L6	RR-ML	136+07.00	30.50	L	ML-1,3
L7	RR-ML	137+68.00	30.50	R	ML-1,3
L8	RR-ML	139+45.00	29.50	R	ML-1,3
L9	RR-ML	142+15.00	29.50	R	ML-1,3
L10	RR-ML	145+07.00	29.50	R	ML-1,3
L11	RR-ML	147+75.00	29.50	R	ML-1,3
L12	RR-ML	150+55.00	30.00	R	ML-1,3
L13	RR-ML	153+35.00	30.00	R	ML-1,3
L14	RR-ML	156+29.00	30.00	R	ML-1,3
L15	RR-ML	159+08.00	30.00	R	ML-1,3
L26	RR-ML	161+86.00	58.00	L	EXIST

EXISTING LOADCENTER PANEL 'ML'

LIGHTING LOADCENTER — VOLTS: 120/240V,1PH,3W — ENCLOSURE: NEMA 3R — 100 A
TYPE: PANELBOARD — VOLT-AMPS — MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	20	**MEALS LTG L6-L15**	LTG	**363**	462			LTG	(E)MEALS/PION. LTG L16-L25	20	2	2	b
a	3	2	20	^^	LTG			**363**	462	LTG	^^	20	2	4	b
	5	2	20	SPARE							SPARE	20	2	6	
	7	2		^^							^^		2	8	
	9	1	-	SPACE							SPACE	-	1	10	
	11	1	-	SPACE							SPACE	-	1	12	
				TOTAL V-A			825		825			1,650	VA		
				TOTAL AMPS			7		7			7	A		

A.I.C. RATING: 10,000

	LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	1.65	0.00	0.00	0.00	0.00	0.00	1.7 KVA	7 A
DEMAND LOAD IN KVA:	2.06	0.00	0.00	0.00	0.00	0.00	2.1 KVA	9 A

PANEL NOTES:
a DENOTES A NEW LOAD ON EXISTING SPARE BREAKER.
b DENOTES EXISTING LOADS/BREAKER TO REMAIN.

PANEL OPTIONS:
MAIN LUGS ONLY

REVISIONS

REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE-13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL LEGEND, SCHEDULES AND CALCULATIONS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-001

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE CITY OF VALDEZ STANDARD SPECIFICATIONS (CVSS), INCLUDING ALL STATE AND LOCAL AMENDMENTS. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION. IN THE ABSENCE OF CVSS PERTAINING TO STREET LIGHTING SYSTEMS, REFERENCES TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) HAVE BEEN ADDED TO THESE SPECIFICATIONS AND DRAWINGS TO ASSIST WITH SPECIFIC CRITERIA. A COPY OF THE MASS CAN BE FOUND ONLINE AT MUNI.ORG.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DRAWINGS. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT. WHERE ABANDONED CONDUIT ENTERS BELOW GRADE, CUT CONDUIT TO A MINIMUM OF 6" BELOW GRADE, CAP OFF, AND REPAIR SURFACE.

D. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT SURFACES AFTER DEMOLITION. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

E. CONTRACTOR TO FIELD VERIFY ELECTRICAL ITEMS TO BE DEMOLISHED PRIOR TO START OF WORK. DEMOLISH CONDUITS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE SCHEDULED FOR DEMOLITION. WHERE CIRCUITS ARE SHARED WITH EQUIPMENT THAT IS EXISTING TO REMAIN, PROVIDE ALL WORK NECESSARY (INCLUDING EXTENDING AND RE-ROUTING CONDUITS) TO MAINTAIN ACCESS AND PROVIDE ELECTRICAL CONTINUITY TO EXISTING SYSTEMS AND CIRCUITRY

26 05 19 – WIRE AND CABLE

B. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

C. MATERIALS:
1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG.

C. INSTALLATION:
1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/240V CONDUCTORS BLACK, RED, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN CONDUIT AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

26 05 26 – GROUNDING AND BONDING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.

B. MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.

C. INSTALLATION:
1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR 6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN 6 AWG.
3. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: EQUIPMENT SUPPORT CHANNEL SHALL BE CORROSION RESISTANT STAINLESS STEEL OR FIBERGLASS. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO RESIST LATERAL EARTHQUAKE FORCES. .

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS
1. RIGID STEEL CONDUIT: ANSI C80.1, GALVANIZED RIGID STEEL CONDUIT (GRSC). FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT. PROVIDE PVC COATED RIGID CONDUIT WHERE EXPOSED OUTDOORS, 40 MIL EXTERIOR COATING AND 2 MIL INTERIOR COATING. CONDUIT FITTINGS SHALL MATCH CONDUIT TYPE (IE PVC COATED RIGIDE FITTINGS WHERE PVC COATED RIGID IS REQUIRED).
2. ADDITIVE ALTERNATE #3 AND #5 – HIGH DENSITY POLYETHYLENE CONDUIT (HDPE): NEMA TC 7, SCHEDULE 40, HDPE CONDUIT RATED FOR 90°C CABLE. FITTINGS AND CONDUIT BODIES: NEMA TC 7. HDPE TO HDPE COUPLINGS: UL LISTED, BUTT-FUSION, ELECTRO-FUSION, SELF-THREADING, OR DRIVE-ON TYPE. HDPE TO RIGID COUPLINGS: DURALINE #SHUR-LOCK II, OR EQUAL.
3. PROVIDE TYPE 1A CONCRETE JUNCTION BOXES IN-GRADE WHERE SHOWN ON DRAWINGS. TYPE 1A JUNCTION BOX CONSISTING OF REINFORCED CONCRETE RATED FOR A MINIMUM TEST LOAD OF 7500 POUNDS DISTRIBUTED OVER A 10"x10" AREA, LIGHT TRAFFIC RATED, CAST-IRON LID WITH "LIGHTING" LABEL, AND STAINLESS STEEL HARDWARE.
4. ADDITIVE ALTERNATE #5 – FIBER OPTIC HANDHOLE: POLYMER CONCRETE BOX AND COVER, JH AMERICAN ENCLOSURES #APC 243624, OR APPROVED EQUAL. SEE CIVIL DRAWINGS FOR DETAILS.
5. ADDITIVE ALTERNATE #5 – FIBER OPTIC VAULT: 48"x48"x48" CONCRETE VAULT WITH MANHOLE LID RATED FOR AASHTO HS-20-44 LOADING. SEE CIVIL DRAWINGS FOR DETAILS.

C. INSTALLATION:
1. INSTALL GALVANIZED RIGID STEEL CONDUIT UNDERGROUND AND ABOVE GRADE WHERE NOTE EXPOSED TO THE ELEMENTS (IE STUBBED UP UNDER EQUIPMENT), UNLESS OTHERWISE NOTED. PROVIDE PVC COATED RIGID STEEL CONDUIT WHERE EXPOSED OUTDOORS.
2. ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE CONDUIT APPROVED FOR USE IN UNDERGROUND APPLICATIONS ONLY.
3. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS
1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.
3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:
1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.
2. CONDUITS: LABEL CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

26 50 00 – LIGHTING FIXTURES

A. SUBMITTALS:
1. SUBMIT PRODUCT DATA ON LIGHT FIXTURES, POLES, ARMS, PILES, AND ALL ACCESSORIES FOR APPROVAL.
2. SUBMIT STRUCTURALLY ENGINEERED SHOP DRAWINGS AND CALCULATIONS, STAMPED AND SIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA, FOR LIGHT POLES/ARM ASSEMBLIES AND PILES. DRAWINGS AND CALCULATIONS SHALL STATE CONFORMANCE TO THE INTERNATIONAL BUILDING CODE (IBC), THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) REQUIREMENTS SPECIFIC TO THE PROJECT AREA.
3. FIXTURE SUBSTITUTIONS SHALL BE SUBMITTED WITH POINT-BY-POINT LIGHTING CALCULATIONS ON A 2'X2' GRID SHOWING COMPLIANCE WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) RECOMMENDED LIGHTING LEVELS AND UNIFORMITY THROUGHOUT THE PROJECT AREA. LIGHT FIXTURE SUBSTITUTIONS WILL NOT BE CONSIDERED WITHOUT THE REQUIRED LIGHTING CALCULATIONS. FIXTURE, POLE AND ARM APPROVED ALTERNATES WILL CONFORM TO THE SAME BASIC SHAPE/STYLE, TECHNICAL AND AESTHETIC CHARACTERISTICS, PROVIDE EQUAL OR BETTER ILLUMINATION/UNIFORMITY, CONSUME EQUAL OR LESS POWER, AND BE ACCOMPANIED BY AN EQUAL OR BETTER MANUFACTURER WARRANTY THAN THE SPECIFIED PRODUCTS.

B. MATERIALS:
1. LUMINAIRES: PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
2. LED DRIVERS: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT -40°F WHERE INSTALLED OUTDOORS.
3. LED LAMPS: UNLESS OTHERWISE SCHEDULED ON THE PLANS, PROVIDE NOMINAL 4000 K, WITH MINIMUM 75CRI AND A MINIMUM L70 LAMP LIFE OF 50,000 HOURS.
4. LIGHT POLES: POLES SHALL BE HOT-DIPPED GALVANIZED MEETING THE REQUIREMENTS OF MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) DETAIL 80-19, HEIGHT AS SHOWN ON THE FIXTURE SCHEDULE. MAST ARMS SHALL BE HOT-DIPPED GALVANIZED STEEL MEETING THE REQUIREMENTS OF MASS DETAIL 80-20, LENGTH AS SHOWN ON THE FIXTURE SCHEDULE. POLE BASES SHALL BE FIXED BASE PER MASS DETAIL 80-21. DRIVEN STEEL PILE FOUNDATIONS SHALL BE PER MASS DETAIL 80-13.

C. INSTALLATION:
1. LUMINAIRE POLES, MAST ARMS, AND BASES SHALL BE INSTALLED PER THE APPLICABLE PORTIONS OF THE MASS DIVISION 80, INCLUDING DETAILS 80-13, 80-19, 80-20, 80-21, AND 80-25.
2. PROVIDE LUMINAIRE DISCONNECTING MEANS IN DRIVER CHANNEL OF EACH LIGHT FIXTURE. WHERE THE LUMINAIRE IS FED FROM A MULTI-WIRE BRANCH CIRCUIT, PROVIDE MULTI-POLE DISCONNECT TO SIMULTANEOUSLY BREAK ALL SUPPLY CONDUCTORS TO THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA – DAVIN K. BLUBAUGH – EE-13893 – 01/16/26 – REGISTERED PROFESSIONAL ENGINEER

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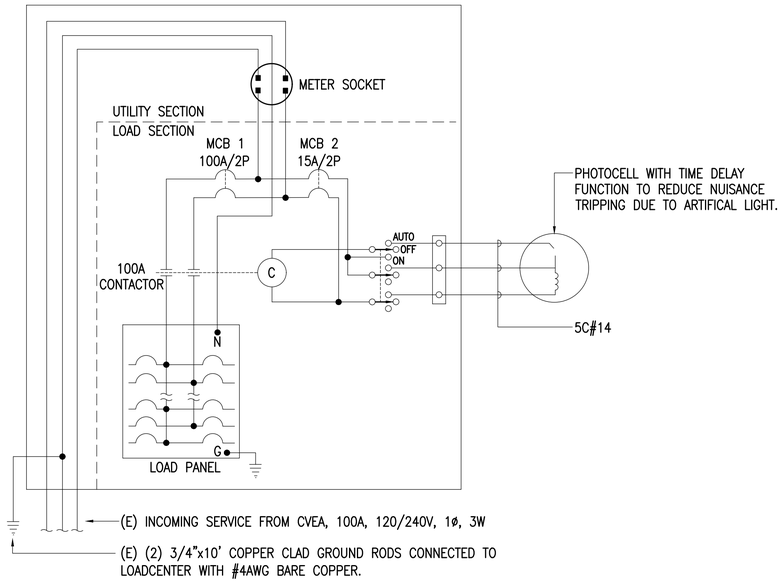
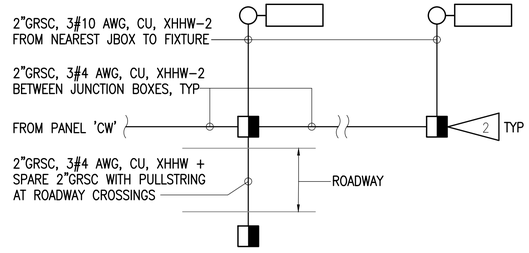
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL SPECIFICATIONS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-002

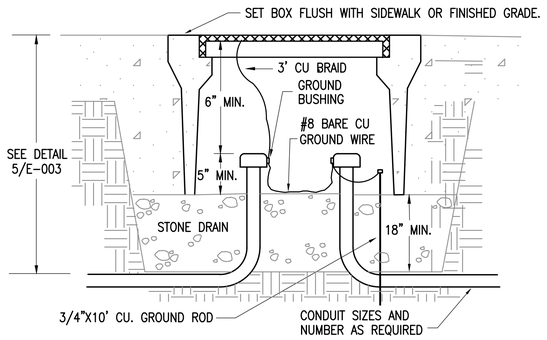


1 EXISTING LOADCENTER TYPICAL WIRING DIAGRAM
NO SCALE

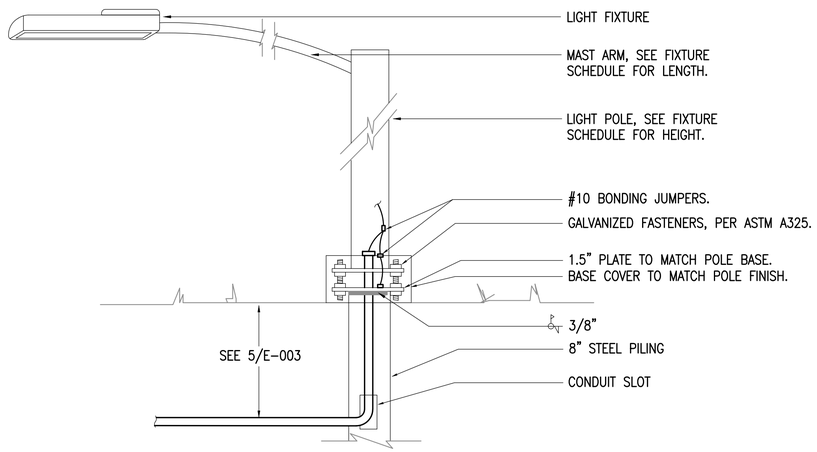


ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE MAY BE UTILIZED IN PLACE OF GRSC FOR UNDERGROUND APPLICATIONS ONLY.

3 STREET LIGHTING SCHEMATIC
NO SCALE



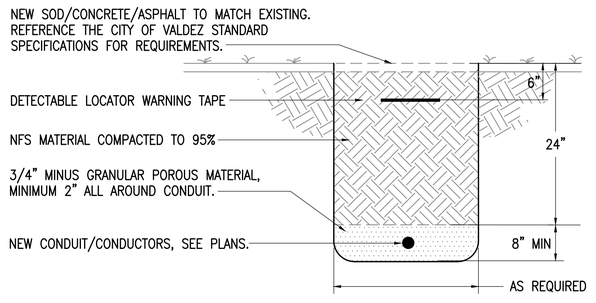
4 EXTERIOR TYPE 1A JUNCTION BOX 1
NO SCALE



DETAIL NOTES FOR LIGHT POLE BASES:

1. REFERENCE SPECIFICATION SECTION 26 50 00 FOR LIGHT POLE, MAST ARM, AND DRIVEN PILE REQUIREMENTS.

2 TYPICAL LIGHT POLE BASE DETAIL
NTS



5 TYPICAL TRENCHING DETAIL
NO SCALE

SHEET NOTES:

1. PROVIDE A 36" LOOP WITHIN THE STREET LIGHTING CONDUCTORS AT EACH JUNCTION BOX TO PROVIDE SLACK FOR FUTURE MAINTENANCE PURPOSES.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE-13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL DETAILS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-003

1387

GENERAL NOTES:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

D. CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY LOCATES WITHIN THE VICINITY OF THEIR EXCAVATION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

E. REFERENCE THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR ALL REQUIREMENTS RELATED TO TRENCHING, EXCAVATION, BACKFILL, CONCRETE, ASPHALT, AND GRASS/SOD PRIOR TO BEGINNING WORK.

F. UNLESS OTHERWISE NOTED DEMOLISH LIGHT FIXTURES, POLES, BASES/PILES, AND ALL ASSOCIATED EXPOSED CONDUIT AND WIRE AS SHOWN. DEMOLISH UNDERGROUND WIRING WITHIN CONDUIT TO SOURCE. DEMOLISH UNDERGROUND CONDUIT AND/OR DIRECT BURIED CABLE TO EXTENT NECESSARY AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.

G. UNLESS OTHERWISE NOTED DEMOLISH LIGHT POLES AND BASES/PILES COMPLETE, AND BACKFILL AND COMPACT ALL HOLES.

H. UTILITY TRANSFORMERS POWERING THE EXISTING STREET LIGHTING ARE NOT SHOWN ON THESE SHEETS. ALL UTILITY TRANSFORMERS SHALL REMAIN. DEMOLISH STREET LIGHTING CONDUIT AND CONDUCTORS AS SHOWN/NOTED.

D. REFERENCE THE DETAILS ON SHEET E-003 FOR ADDITIONAL LIGHTING AND LIGHTING CONDUIT/WIRING REQUIREMENTS.

E. LOCATIONS OF NEW LIGHT POLES SHOWN ON E-001 SCHEDULE. LOCATIONS OF JUNCTION BOXES, AND UNDERGROUND CONDUIT ROUTING IS APPROXIMATE ONLY. ADJUST LOCATIONS IN THE FIELD TO AVOID EXISTING UNDERGROUND UTILITIES.

F. ADDITIVE ALTERNATE #5 – ALL UNDERGROUND FIBER OPTIC LINES SHOWN (UG/FO) SHALL BE (2) RUNS OF 2" HDPE CONDUIT. ONLY A SINGLE LINE IS SHOWN FOR CLARITY, BUT (2) SHALL BE PROVIDED. ROUTE CONDUIT IN COMMON TRENCH WITH THE NEW LIGHTING CONDUIT TO FURTHEST EXTENT PRACTICAL. COORDINATE THE FINAL LOCATION OF ALL HANDHOLES AND VAULTS WITH THE COV PRIOR TO EXCAVATION.

1 ELECTRICAL SITE PLAN AND OVERALL MAP
1"=200'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spur Road, Suite 200
Anchorage, AK 99518
Phone (907) 276-0521
Corporate No.: AECC542

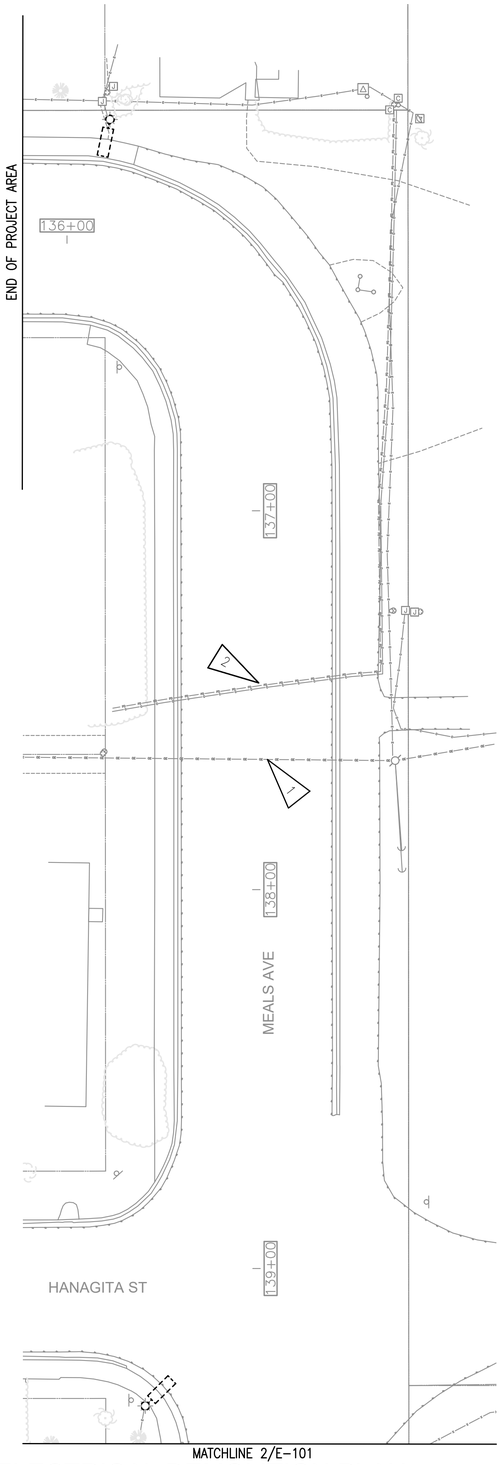
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL SITE PLAN AND OVERALL MAP

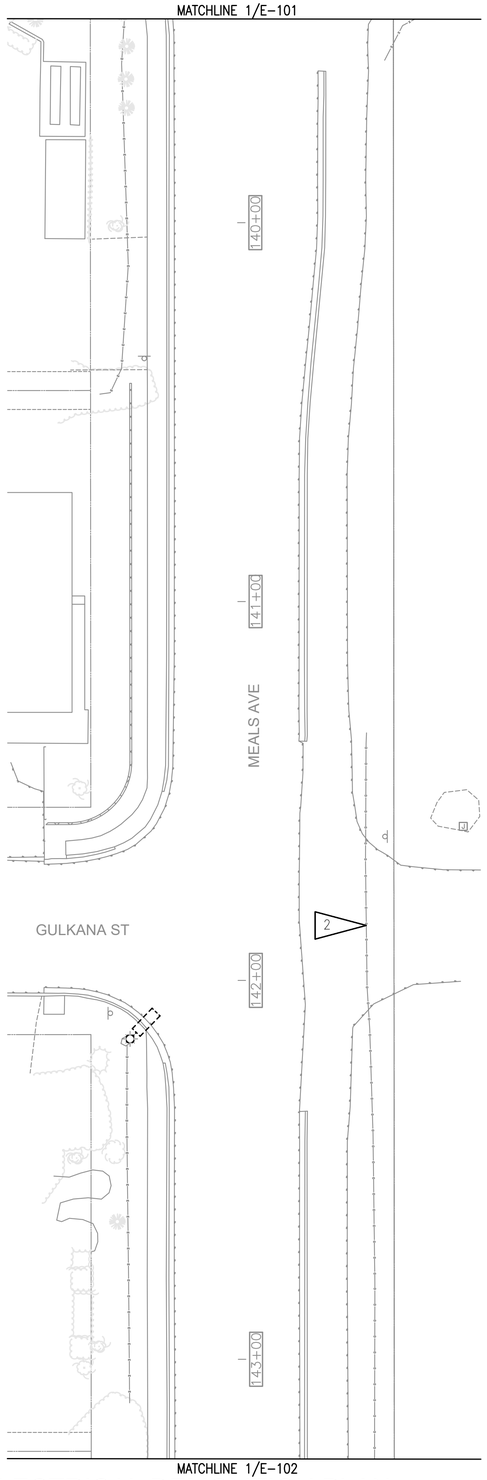
VALDEZ, ALASKA

RSA PROJECT	M2078
DATE	01/16/2026

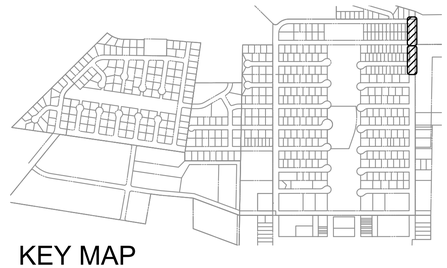
E-004



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
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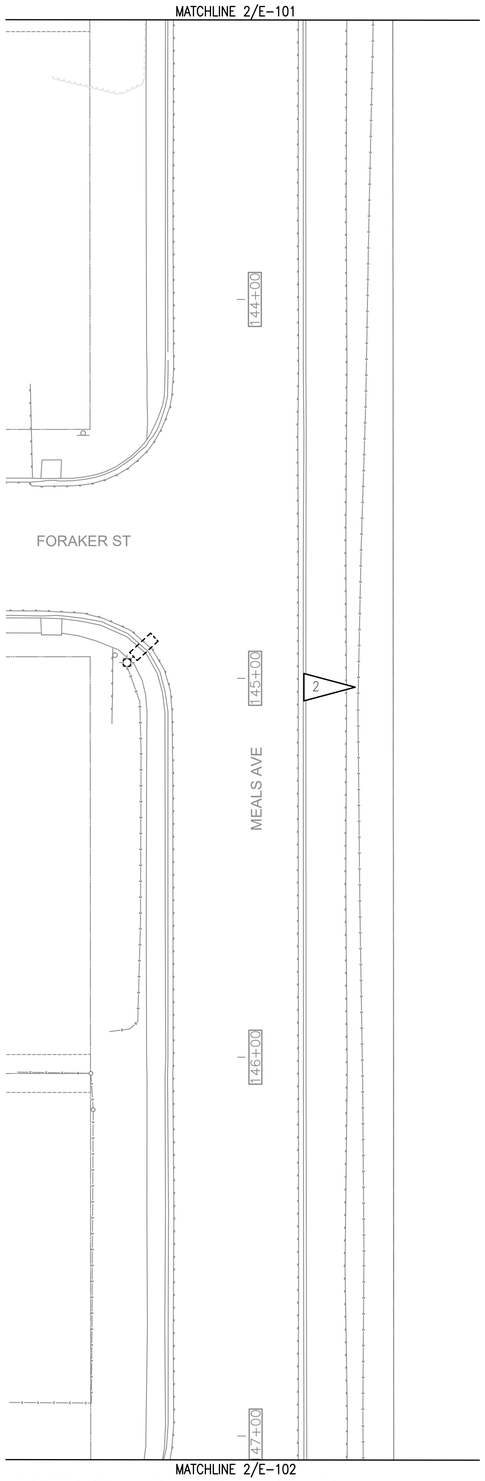
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL DEMOLITION PLANS

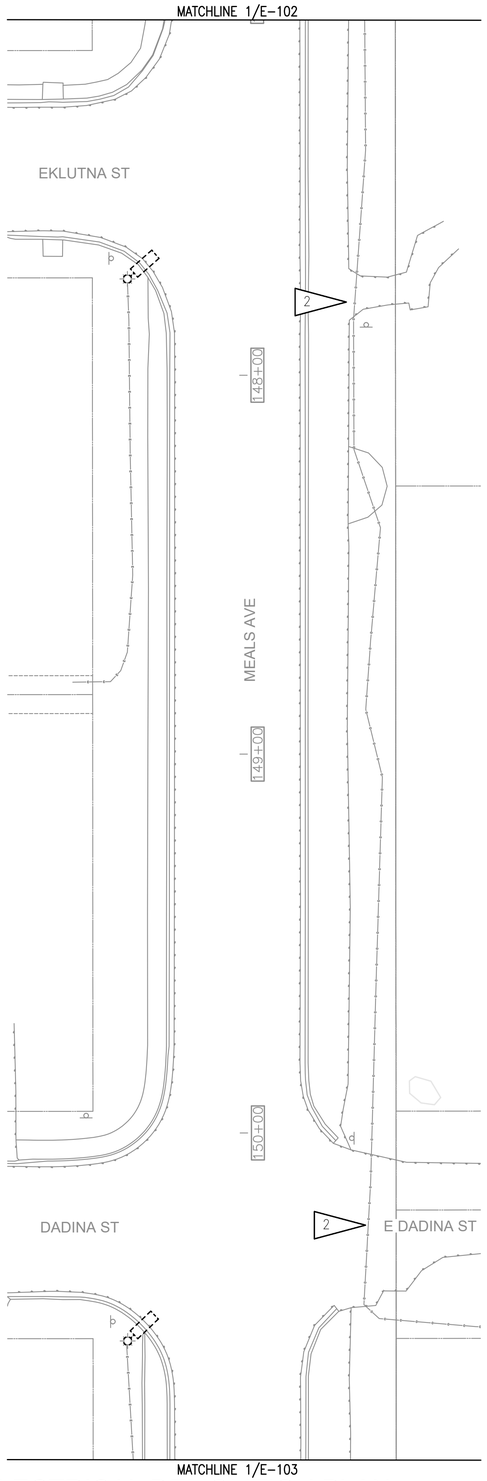
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

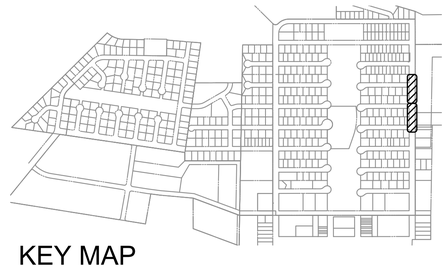
E-101



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. NOT USED.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
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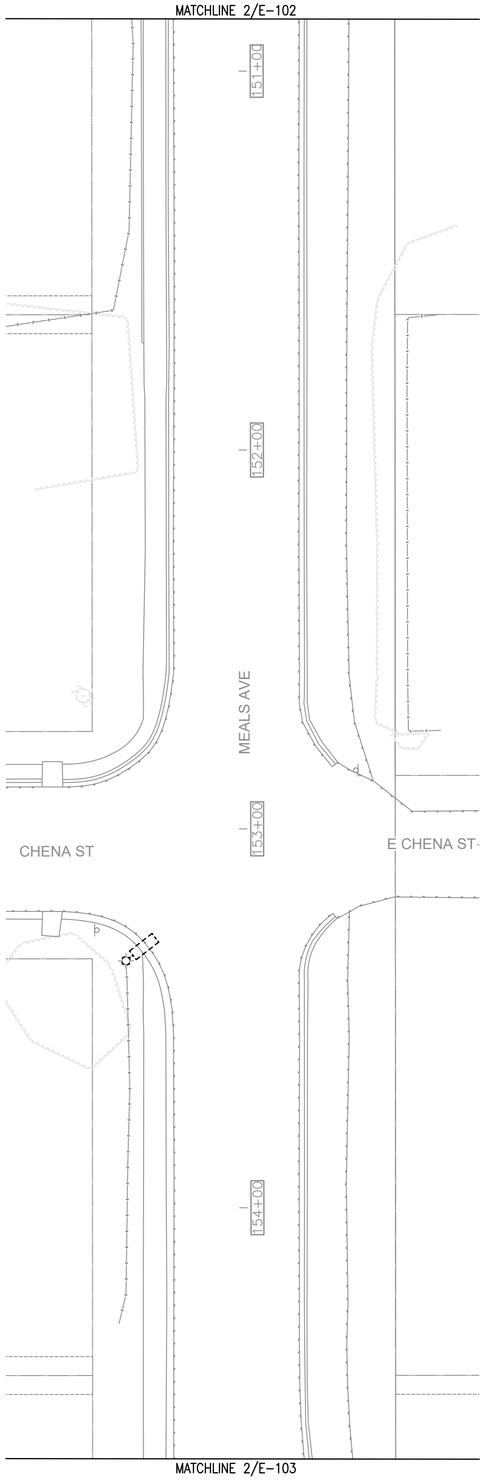
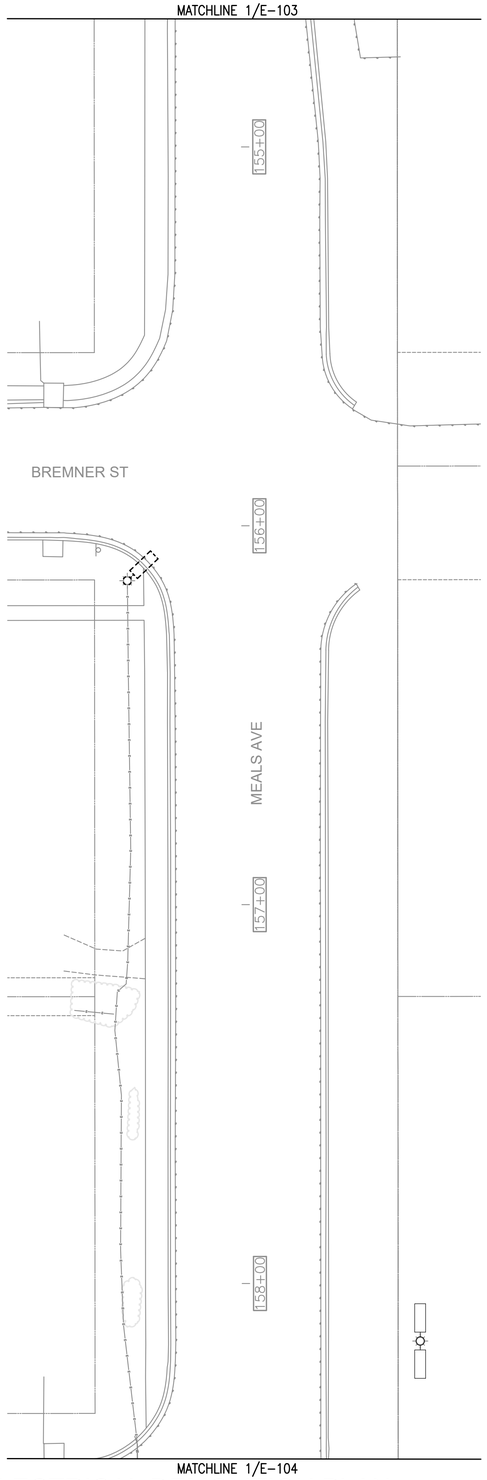
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

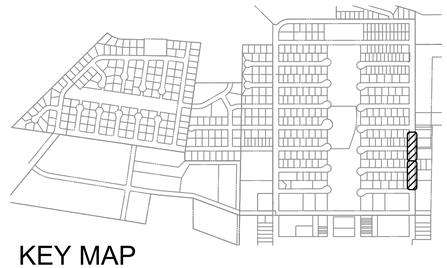
E-102



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

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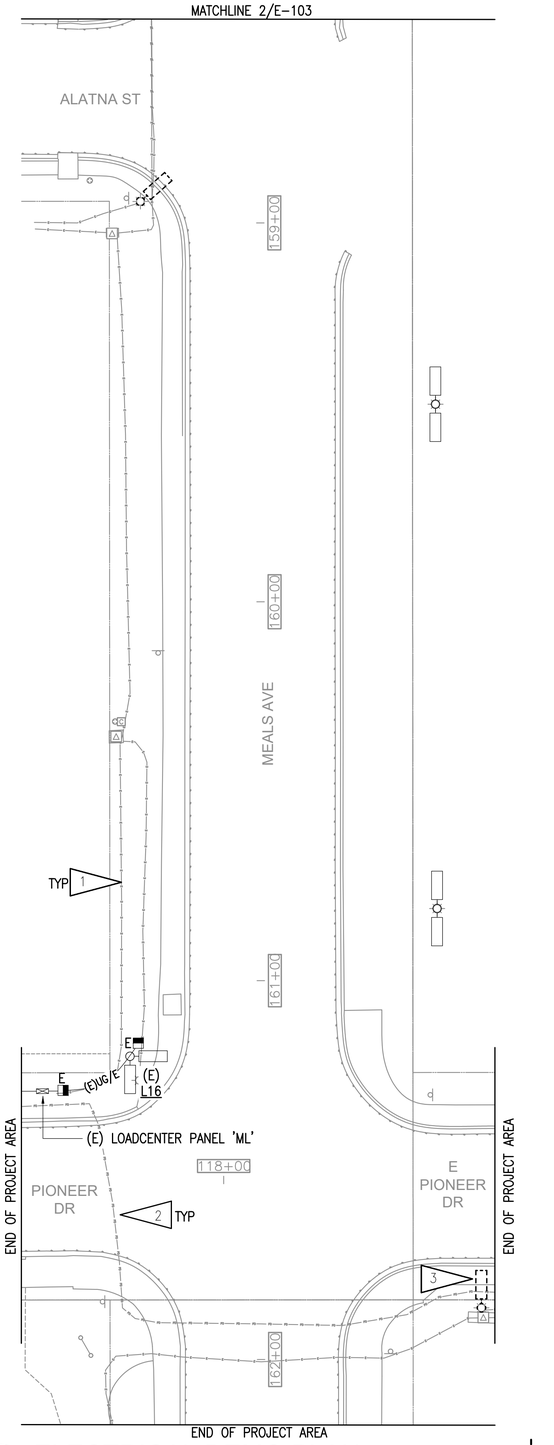
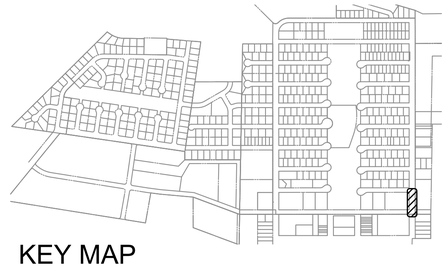
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-103



1 ELECTRICAL DEMO PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. DEMOLISH FIXTURE AND POLE ONLY IN LOCATION NOTED. SALVAGE CONDUIT AND WIRE FOR REUSE WITH NEW POLE/FIXTURE IN SAME LOCATION.

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

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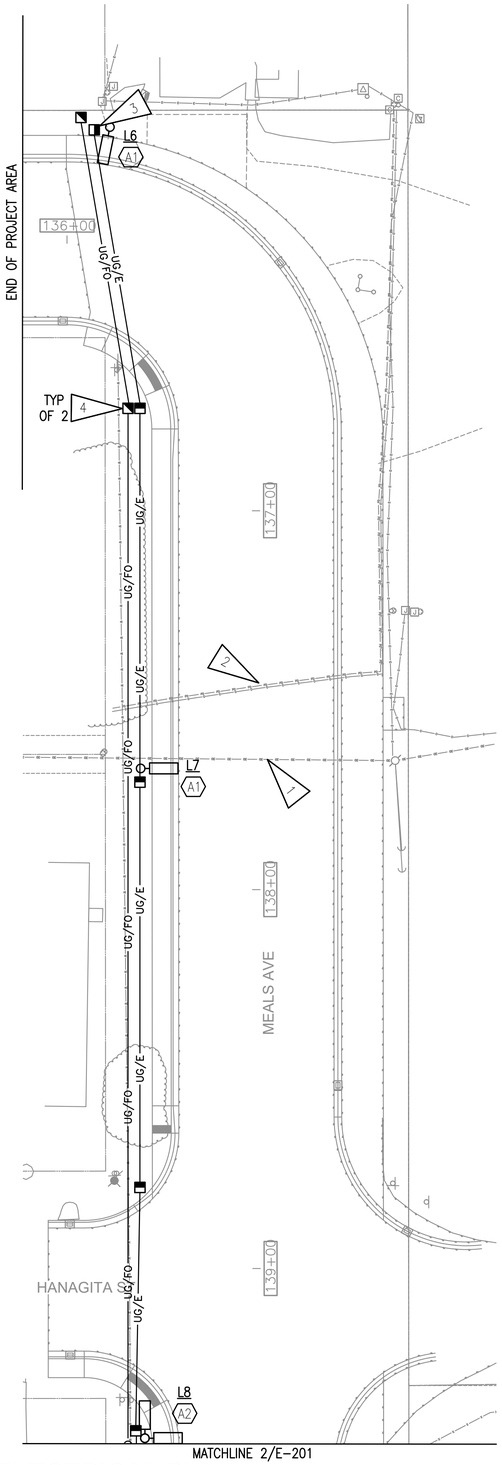
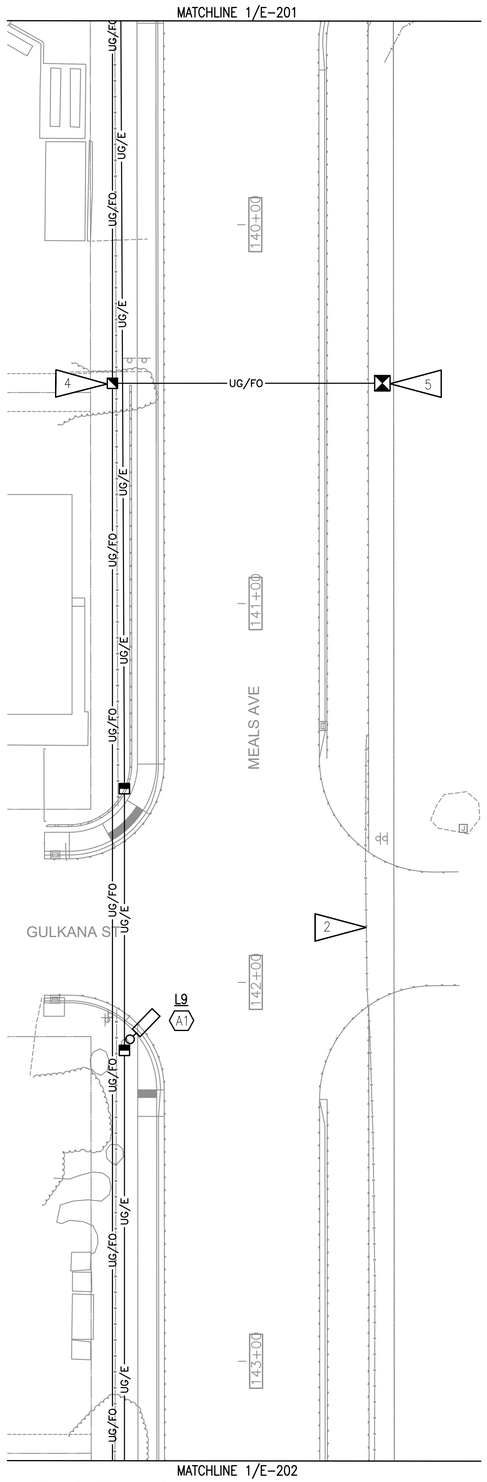
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL DEMOLITION PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

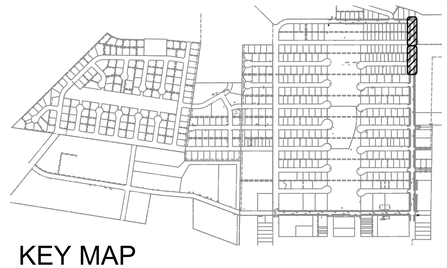
E-104



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROVIDE PROVISIONS WITHIN JUNCTION BOX NOTED FOR FUTURE EXTENSION OF LIGHTING CONDUIT AND CONDUCTORS DOWN ROBE RIVER AVENUE.
4. FIBER OPTIC HANDHOLE, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.
5. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.

REVISIONS		
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
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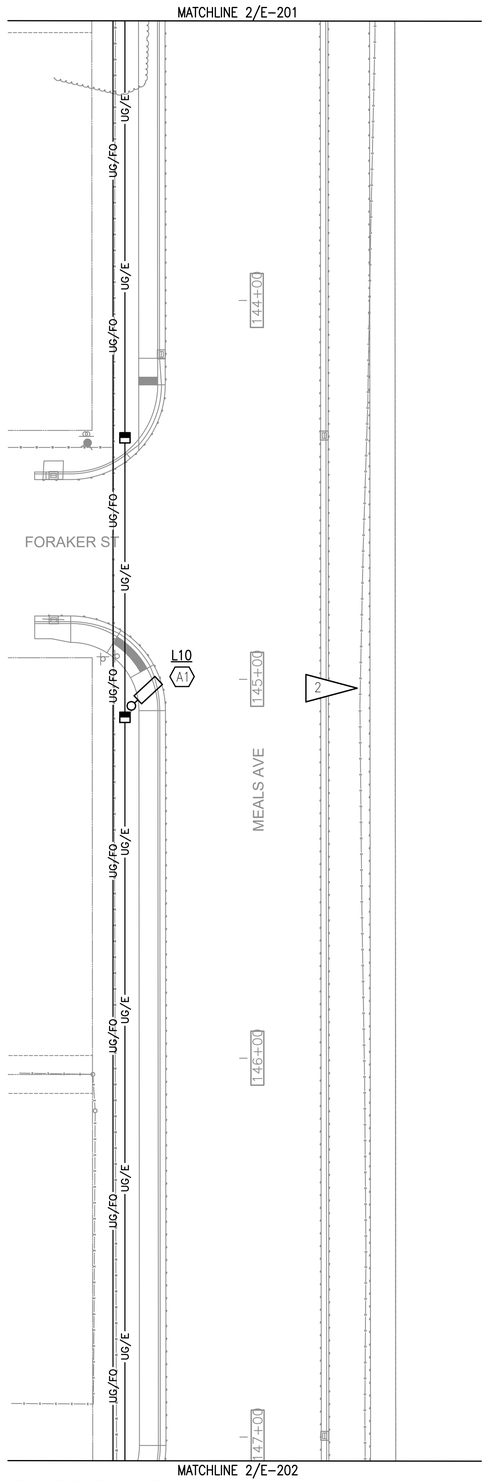
Corporate No.: AECC542

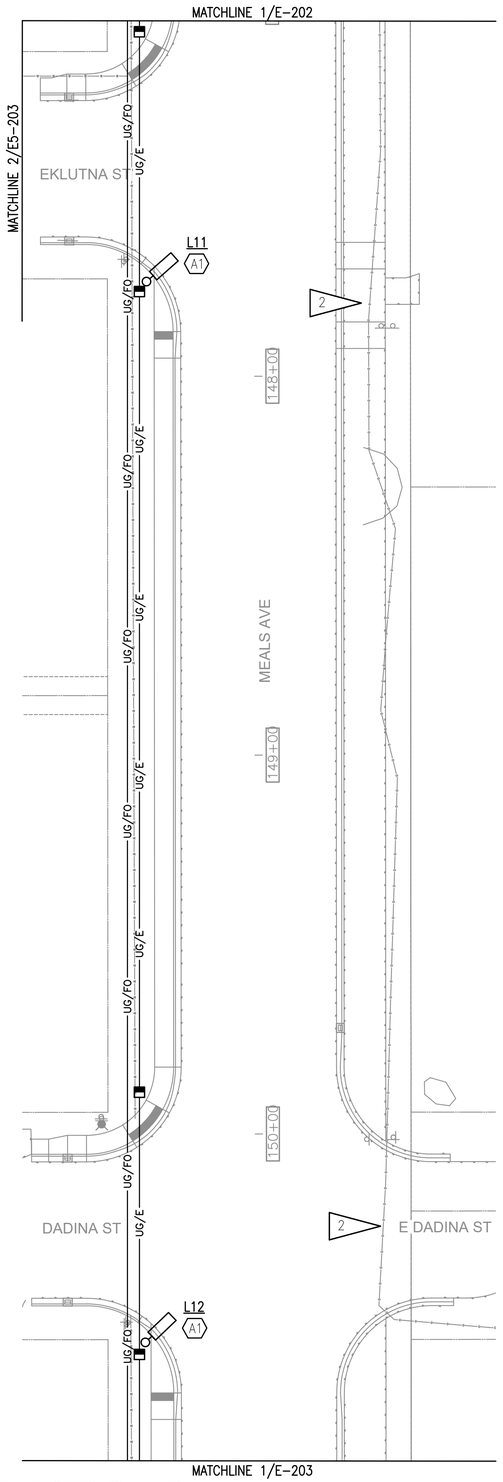
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE
ELECTRICAL PLANS
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

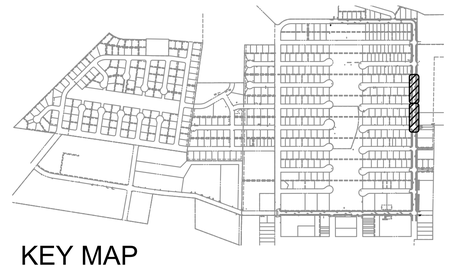
E-201



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. NOT USED.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
11/14/25
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spreading Lane, Suite 200
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Phone (907) 276-0521
Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

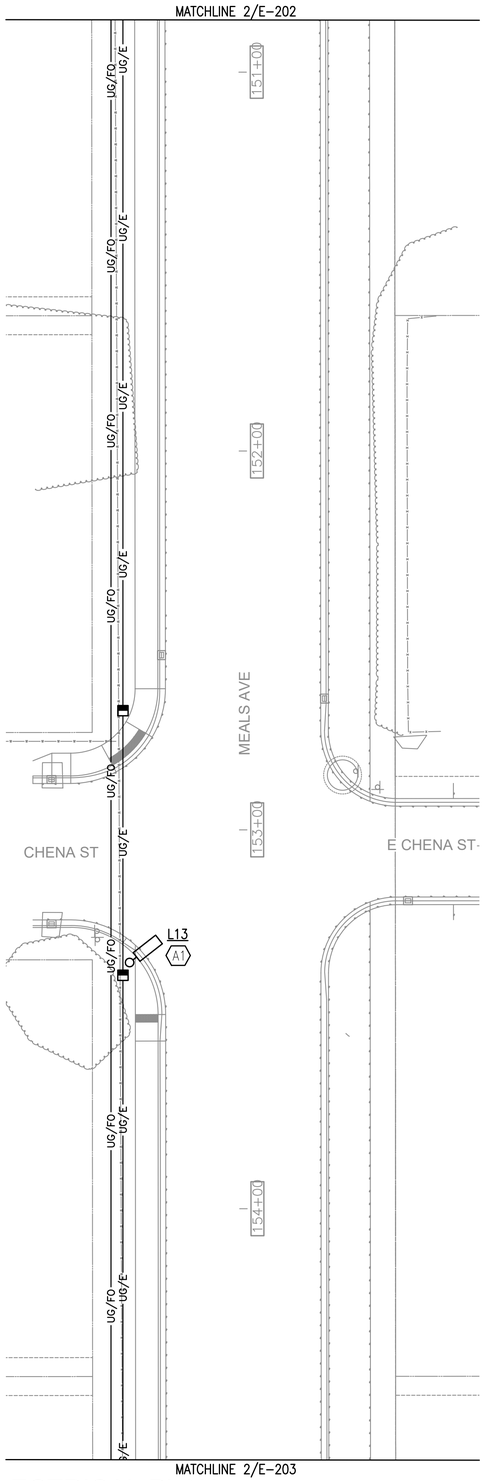
ELECTRICAL PLANS

VALDEZ, ALASKA

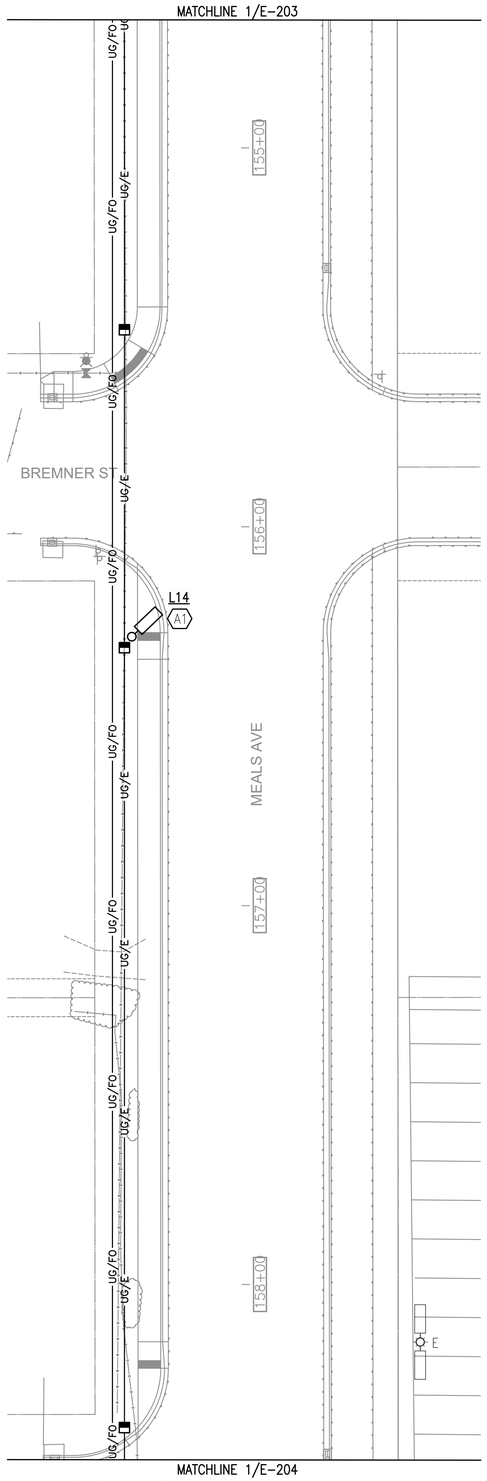
RSA PROJECT M2078
DATE 01/16/2026

E-202

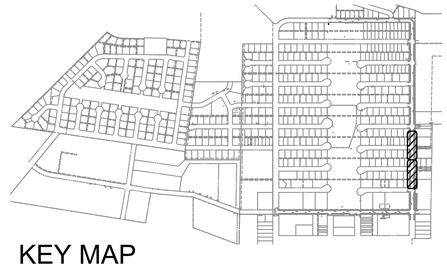
G:\2022\M2078\M2078-E2SERIES-PHIV-MEALS.dwg PLOT DATE 2026-1-16 16:27 SAVED DATE 2026-01-16 16:22 USER: nic villa-fuerte



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spreading Lane, Suite 200
Anchorage, AK 99518
Phone (907) 276-0521
Corporate No.: AECC542

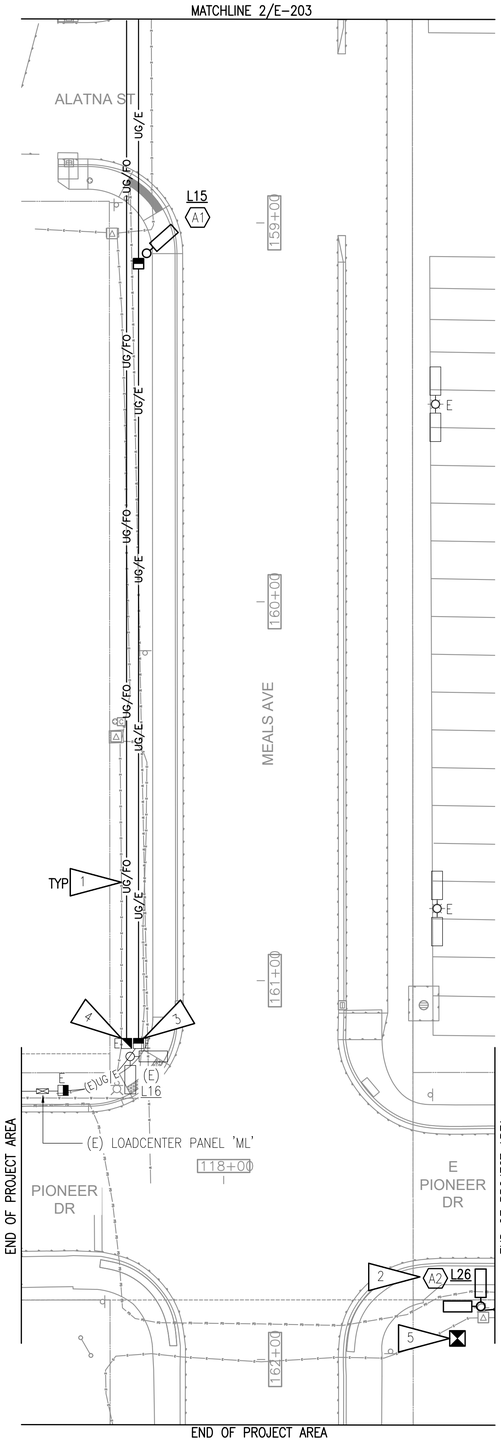
VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

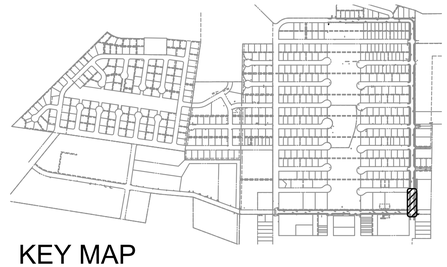
VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-203



1 ELECTRICAL PLAN
1"=20'



KEY MAP
1"=1000'

GENERAL NOTES:

A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROVIDE NEW POLE AND FIXTURES IN LOCATION NOTED AND RECONNECT TO EXISTING SALVAGED CONDUIT AND WIRE.
3. ROUTE NEW LIGHTING CONDUIT/CONDUCTORS INTO EXISTING IN-GRADE JUNCTION BOX.
4. ROUTE NEW FIBER OPTIC CONDUITS INTO EXISTING FIBER OPTIC HANDHOLE.
5. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING. NO UNDERGROUND CONDUIT WILL BE ROUTED TO THIS VAULT UNDER THIS PROJECT.

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA
DAVIN K. BLUBAUGH
EE-13893
REGISTERED PROFESSIONAL ENGINEER
11/14/25

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Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - MEALS AVENUE

ELECTRICAL PLANS

VALDEZ, ALASKA

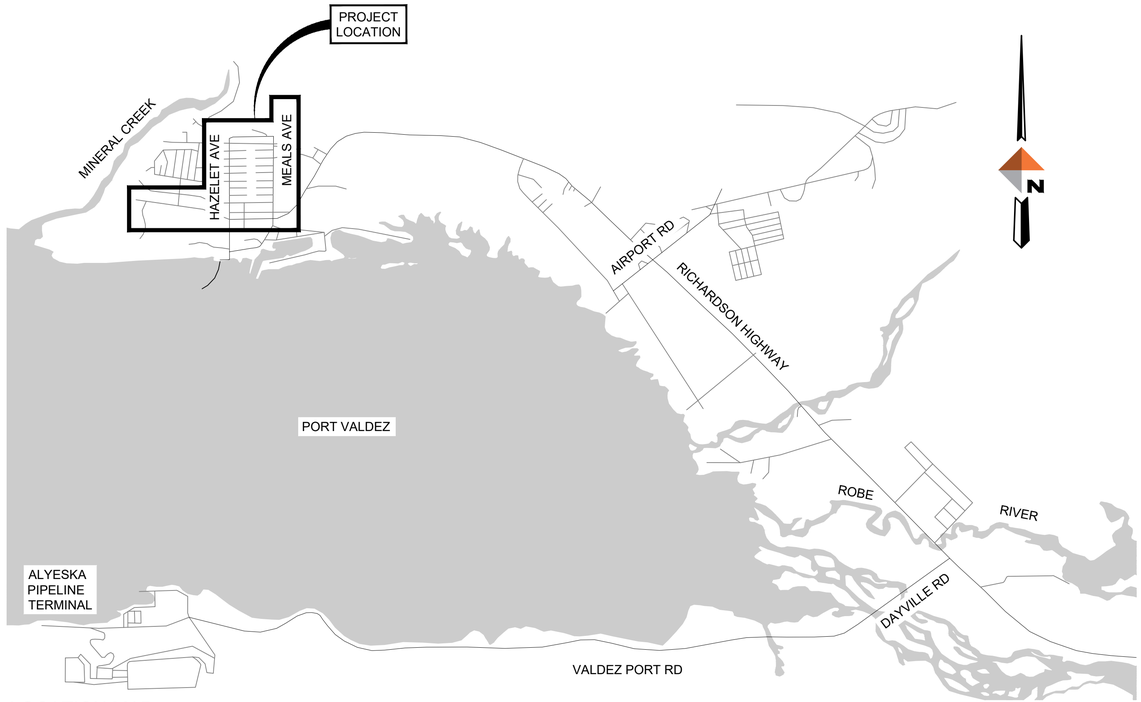
RSA PROJECT M2078
DATE 01/16/2026

E-204

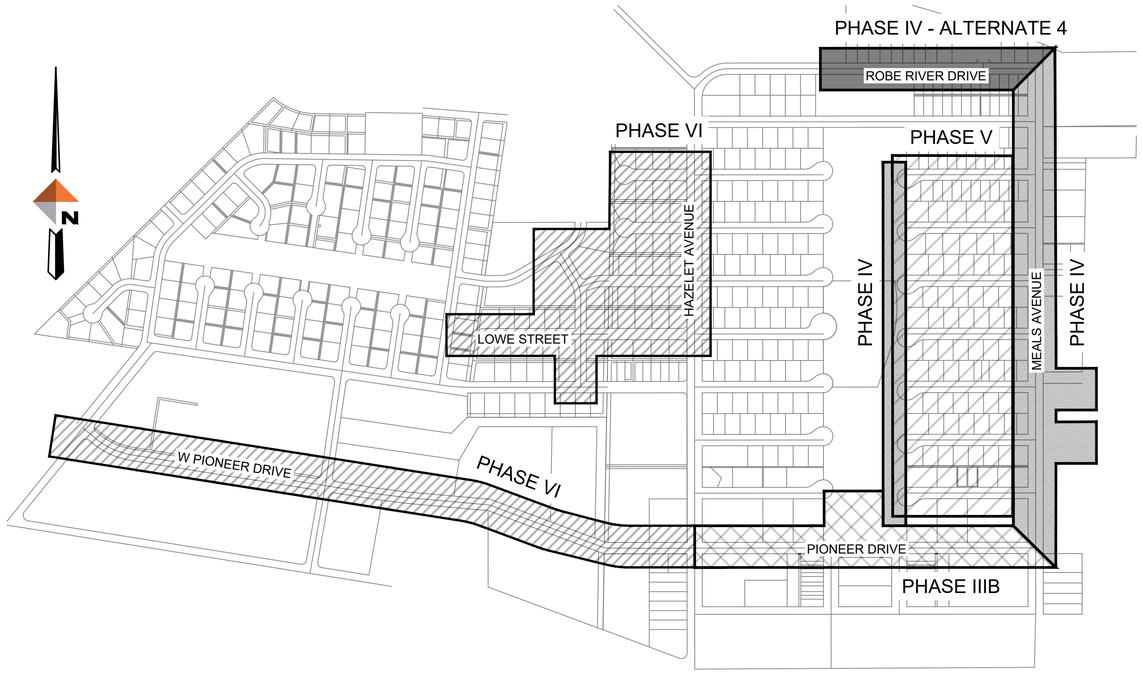
VALDEZ PAVEMENT REHABILITATION

PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PROJECT NUMBER 22-310-1115



LOCATION MAP
VALDEZ, AK



VICINITY MAP

SHEET INDEX

PREPARED FOR:

CITY OF VALDEZ, ALASKA
GATEWAY TO THE INTERIOR

PREPARED BY:

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01-16-2026
REGISTERED PROFESSIONAL ENGINEER

DOWL
AECL848
WWW.DOWL.COM
5015 Business Park Blvd, Suite 4000
Anchorage, Alaska 99503
907-562-2000

VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - - ALTERNATE 4

COVER SHEET

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-001

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF VALDEZ, 2003 STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.
2. EXISTING GROUND CONTOURS BASED ON DOWL TOPOGRAPHIC SURVEY PERFORMED JUNE, 2022. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. SOILS INFORMATION IS DERIVED FROM SOILS INVESTIGATION PERFORMED BY DOWL. SEE GEOTECHNICAL REPORT DATED JULY, 2022 AND TITLED VALDEZ PAVEMENT REHABILITATION, PHASES IV-VI, VALDEZ, ALASKA GEOTECHNICAL EXPLORATION AND RECOMMENDATIONS.
4. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. COORDINATE UTILITY RELOCATION WITH SERVICE PROVIDERS. EXERCISE CAUTION DURING EXCAVATION.
5. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION, RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.
6. VERIFY INVERTS AND LOCATIONS OF ALL UTILITY CONNECTION POINTS PRIOR TO INSTALLING PIPE. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. ADJUST ALL EXISTING MANHOLES AND VALVE BOXES, WITHIN THE LIMITS OF CONSTRUCTION, TO 1/2" BELOW FINISHED GRADE.
8. ELEVATIONS SHOWN ARE TO PIPE INVERT, FLOW LINE, OR FINISH PAVEMENT SURFACE, UNLESS NOTED OTHERWISE.
9. DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT, GRADE BREAK, EDGE OF CONCRETE, BACK OF CURB, OR FACE OF SIDEWALK UNLESS NOTED OTHERWISE.
10. ALL CURB RADII ARE MEASURED AT THE BACK OF CURB, EDGE OF CONCRETE, OR FACE OF SIDEWALK.
11. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
12. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND ENVIRONMENTAL PROTECTION AGENCY ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVAL TO THE ENGINEER.
13. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
14. THE AUTOCAD FILE FOR THIS SITE PLAN WILL BE PROVIDED TO THE CONSTRUCTION SURVEYOR FOR USE IN STAKING THE LOCATION OF THE SITE IMPROVEMENTS. LAYOUT INFORMATION IS PROVIDED IN THIS PLAN SET FOR THE SURVEYOR TO CHECK AGAINST. THE SURVEYOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
15. THE CONTRACTOR SHALL PROVIDE CONTROLS TO LIMIT SEDIMENT DISCHARGE DUE TO SOIL EROSION. THESE CONTROLS SHALL INCLUDE REGULAR SWEEPING OF STREETS ADJACENT TO THE SITE THAT ACCUMULATE SITE SOILS. ADDITIONAL CONTROLS MAY BE REQUIRED IF THESE MEASURES PROVE INADEQUATE. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
16. KEEP SITE FREE OF LITTER.
17. THE CONTRACTOR SHALL ENSURE UNINTERRUPTED GARBAGE PICKUP AND MAIL SERVICE TO ALL RESIDENCES IMPACTED BY THIS PROJECT.
18. ALL EXISTING PIPES (6-INCH DIAMETER AND LARGER) TO BE ABANDONED WITHIN THE ROADWAY CORRIDOR SHALL BE REMOVED AND DISPOSED OF, OR FILLED WITH CEMENTITIOUS SLURRY, UNLESS OTHERWISE NOTED.
19. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON-SITE, AND SHALL KEEP DAILY REDLINES FOR ANY CHANGES TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO RECORD HORIZONTAL AND VERTICAL LOCATIONS FOR ALL UTILITIES NOT SHOWN ON THE PLANS, BUT ENCOUNTERED DURING THE WORK.
20. EXISTING PIPE LOCATIONS ARE DERIVED FROM SURVEY RECORD DRAWINGS, UTILITY LOCATES, OR APPROXIMATED FROM AVAILABLE INFORMATION. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. DEPTHS OF EXISTING PIPES SHOWN ON THE PROFILE ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CALL OR REQUEST LOCATES PRIOR TO CONSTRUCTION AND SHALL FIELD-VERIFY ALL PIPE AND UTILITY LOCATIONS. ANY DAMAGE TO THE EXISTING PIPES AND UTILITIES IDENTIFIED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
21. THE CONTRACTOR SHALL NOTIFY THE CITY OF VALDEZ WATER DEPARTMENT (907-835-4888) OF ANY WATER MAIN INTERRUPTIONS AND SHALL COORDINATE ALL VALVE OPERATION WITH CITY OF VALDEZ.
22. THE UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO RELOCATE AND UPGRADE THEIR RESPECTIVE SYSTEMS. THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH EACH UTILITY AND PROVIDE ACCESS AS NECESSARY FOR THE UTILITIES TO CONDUCT THEIR WORK.
23. THE PLAN SHEETS DO NOT SHOW ALL OF THE TREES AND OTHER VEGETATION WITHIN THE PROJECT LIMITS. NO TREES OR OTHER VEGETATION SHALL BE REMOVED OR DAMAGED, UNLESS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
24. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT, OR OPERATE EQUIPMENT WITH ITS TRACKS OR WHEELS PLACED ON PRIVATE PROPERTY, WITHOUT WRITTEN APPROVAL FROM THE OWNER.
25. THE CONTRACTOR SHALL NOTIFY EACH AFFECTED RESIDENT OF EACH VEHICULAR DRIVEWAY CLOSURE, AND THE ANTICIPATED DURATION OF THE CLOSURE, ON THE DAY PRECEDING EACH CLOSURE. NO WORK SHALL BE PERFORMED WITHIN THE DRIVEWAY, WHETHER IN THE PUBLIC RIGHT OF WAY OR NOT, UNTIL THIS CONDITION HAS BEEN MET.
26. "JUMPING JACK" OR SIMILAR TYPE COMPACTORS SHALL BE USED TO THOROUGHLY COMPACT ALL LAYERS OF MATERIAL AROUND WATER VALVE BOXES, CATCH BASINS, AND MANHOLES AND OTHER STRUCTURES, THAT CANNOT BE COMPACTED WITH LARGER COMPACTION EQUIPMENT.
27. BEGIN SUBCUTS AT 24-INCHES FROM PAVEMENT SAWCUT LINES AT STREET CONNECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER. REMOVE AND REPLACE THE LEVELING COURSE TO WITHIN 12-INCHES OF THE SAWCUT LINE, AND DO NOT MAKE FINAL SAWCUT UNTIL THE DAY OF PAVING. APPLY TACK COAT TO THE FINAL SAWCUT PRIOR TO PAVING.
28. MINOR REVISIONS TO ROADWAY GRADING AND ALIGNMENT, AS WELL AS STORM DRAIN CULVERT ALIGNMENT AND GRADES, SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ORGANIC OR FROST-SUSCEPTIBLE MATERIAL ENCOUNTERED AT THE BOTTOM OF THE SUBCUT LIMITS OR WITHIN THE TRENCHING OPERATIONS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADD ALT	ADDITIVE ALTERNATE
AIP	APPLY IN PLACE
BOP	BEGINNING OF PROJECT
BOT	BOTTOM
BS	BOTTOM OF STEP
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBMH	CATCH BASIN MANHOLE
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CIPP	CURED IN PLACE PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
COV	CITY OF VALDEZ
CPEP	CORRUGATED POLYETHYLENE PIPE
CTE	CONNECT TO EXISTING
DI	DUCTILE IRON
DIA	DIAMETER
EL	ELEVATION
EOP	END OF PROJECT
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FH	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GV	GATE VALVE
INV	INVERT
LF	LINEAR FEET
LG	LIP OF GUTTER
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MN	MAGNETIC NAIL
ME	MATCH TO EXISTING
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
POC	POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PST	PERFORATED STEEL TUBE
PVC	POLYVINYL CHLORIDE PIPE
RMP	RAMP
ROW	RIGHT-OF-WAY
RSS	REDUCED SUBGRADE STRENGTH
RT	RIGHT
SDMH	STORM DRAIN MANHOLE
SHLD	SHOULDER
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
TBC	TOP BACK OF CURB
TBVG	TOP BACK OF VALLEY GUTTER
TCONC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TSW	TOP OF SIDEWALK
TTCP	TEMPORARY TRAFFIC CONTROL PLAN
TYP	TYPICAL
UD	UNDER DRAIN
UON	UNLESS OTHERWISE NOTED
W	WATER
WV	WATER VALVE

ALIGNMENT ABBREVIATIONS

AL	ALATNA
BR	BREMNER
CH	CHENA
DA	DADINA
EK	EKLUTNA
FO	FORAKER
GU	GULKANA
LO	LOWE
ME	MENDELTNA
NA	NABESNA
OU	OUMALIK
PA	PACIFIC
PE	PIONEER (EAST)
PW	PIONEER (WEST)
RR-ML	ROBE RIVER-MEALS
TGR	TEMPORARY GRAVEL ROAD

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY MONUMENT		
SURVEY POINT NUMBER	XX	
TESTBORE	B	
FIELD DRAIN		
CATCH BASIN		
STORM MANHOLE	D	
TYPE III STORM MANHOLE		
SEWER MANHOLE	S	
SEWER CLEANOUT		
TRANSFORMER		
LIGHT POLE		
UTILITY JUNCTION BOX		
ELECTRIC METER	E	
COMMUNICATION MANHOLE	C	
COMMUNICATION PEDESTAL		
FIBER HANDHOLE		
FIBER VAULT		F
FIRE HYDRANT		
WATER VALVE		
GAS METER	G	
BOLLARD/POST		
SIGN		
DECIDUOUS TREE		
CONIFEROUS TREE		
BUILDING OUTLINE		
BUILDING OVERHANG		
CONCRETE		
WALL		
ROCK PILE		
ADA PAD		
FENCE LINE	X X	
MAJOR CONTOUR (5 FOOT)	30	30
MINOR CONTOUR (1 FOOT)	32	32
COMMUNICATION LINE	C C	
FIBER OPTIC LINE	FO FO	
ELECTRIC LINE	E E	
GAS LINE	G G	
WATER LINE	W W	W
SEWER LINE	S S	S
STORM DRAIN LINE	SD SD	SD
BOUNDARY LINE		
EASEMENT LINE		
ADJACENT PROPERTY LINE		
RIGHT OF WAY LINE		
RIGHT OF WAY CENTERLINE		
EDGE OF ASPHALT		
EDGE OF GRAVEL		
EDGE OF ROAD W/CURBING		
DISTURBANCE LIMITS		

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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NICHOLAS M. CONWAY
CE 133293
01.16.2026
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4
NOTES, LEGEND, AND ABBREVIATIONS
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

G-002

TRAFFIC CONTROL AND PHASING

GENERAL

A. ALL STAGING AREAS USED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE COMPLETION OF THE PROJECT PHASE.
B. ALL TRAFFIC CONTROL OPERATIONS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LATEST EDITION OF THE ALASKA TRAFFIC MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ALASKA SIGN SPECIFICATIONS AND THE MUTCD.
C. TEMPORARY TRAFFIC CONTROL (TTC) PLANS FOR EACH PHASE AND FOR SPECIFIC CONSTRUCTION ACTIVITIES THAT CANNOT BE EXECUTED WITHIN A PARTICULAR PHASE TTC, SHALL BE PREPARED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AT LEAST 7 DAYS IN ADVANCE OF THE WORK UNLESS OTHERWISE APPROVED BY THE ENGINEER.
D. TEMPORARY TRAFFIC LANES SHALL BE A MINIMUM OF 10-FT WIDE.
E. WHEN CONSTRUCTION ACTIVITIES REQUIRE THE CLOSURE OF THE EXISTING OR NEW SIDEWALKS, ALTERNATIVE PEDESTRIAN ROUTES THROUGH OR AROUND THE ACTIVE CONSTRUCTION ZONE SHALL BE ESTABLISHED.
F. WITH THE EXCEPTION OF CONCRETE POURS AND DRIVEWAY WORK VEHICULAR ACCESS SHALL BE MAINTAINED TO EACH LOT WITHIN THE PROJECT LIMITS AT ALL TIMES.

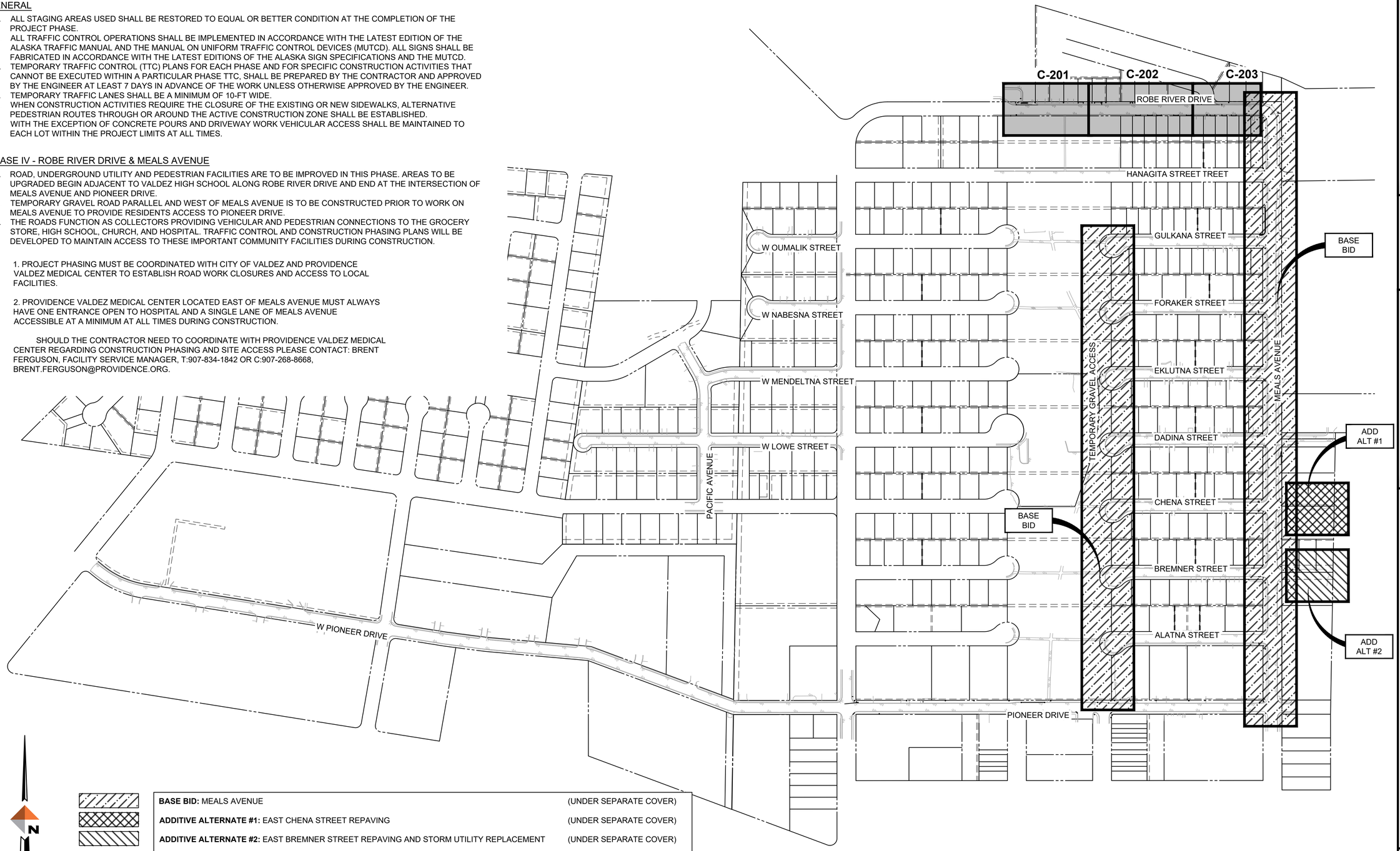
PHASE IV - ROBE RIVER DRIVE & MEALS AVENUE

A. ROAD, UNDERGROUND UTILITY AND PEDESTRIAN FACILITIES ARE TO BE IMPROVED IN THIS PHASE. AREAS TO BE UPGRADED BEGIN ADJACENT TO VALDEZ HIGH SCHOOL ALONG ROBE RIVER DRIVE AND END AT THE INTERSECTION OF MEALS AVENUE AND PIONEER DRIVE.
B. TEMPORARY GRAVEL ROAD PARALLEL AND WEST OF MEALS AVENUE IS TO BE CONSTRUCTED PRIOR TO WORK ON MEALS AVENUE TO PROVIDE RESIDENTS ACCESS TO PIONEER DRIVE.
C. THE ROADS FUNCTION AS COLLECTORS PROVIDING VEHICULAR AND PEDESTRIAN CONNECTIONS TO THE GROCERY STORE, HIGH SCHOOL, CHURCH, AND HOSPITAL. TRAFFIC CONTROL AND CONSTRUCTION PHASING PLANS WILL BE DEVELOPED TO MAINTAIN ACCESS TO THESE IMPORTANT COMMUNITY FACILITIES DURING CONSTRUCTION.

1. PROJECT PHASING MUST BE COORDINATED WITH CITY OF VALDEZ AND PROVIDENCE VALDEZ MEDICAL CENTER TO ESTABLISH ROAD WORK CLOSURES AND ACCESS TO LOCAL FACILITIES.

2. PROVIDENCE VALDEZ MEDICAL CENTER LOCATED EAST OF MEALS AVENUE MUST ALWAYS HAVE ONE ENTRANCE OPEN TO HOSPITAL AND A SINGLE LANE OF MEALS AVENUE ACCESSIBLE AT A MINIMUM AT ALL TIMES DURING CONSTRUCTION.

SHOULD THE CONTRACTOR NEED TO COORDINATE WITH PROVIDENCE VALDEZ MEDICAL CENTER REGARDING CONSTRUCTION PHASING AND SITE ACCESS PLEASE CONTACT: BRENT FERGUSON, FACILITY SERVICE MANAGER, T:907-834-1842 OR C:907-268-8668, BRENT.FERGUSON@PROVIDENCE.ORG.



BASE BID: MEALS AVENUE	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #1: EAST CHENA STREET REPAVING	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #2: EAST BREMNER STREET REPAVING AND STORM UTILITY REPLACEMENT	(UNDER SEPARATE COVER)
ALTERNATE #3: HDPE CONDUIT REPLACES RIGID CONDUIT IN BASE PLANS	
ADDITIVE ALTERNATE #4: ROBE RIVER DRIVE	
ADDITIVE ALTERNATE #5: FIBER OPTIC CONDUIT MEALS AVENUE	(UNDER SEPARATE COVER)
ADDITIVE ALTERNATE #6: FIBER OPTIC CONDUIT ROBE RIVER DRIVE	

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SITE PLAN AND KEY MAP

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

G-003

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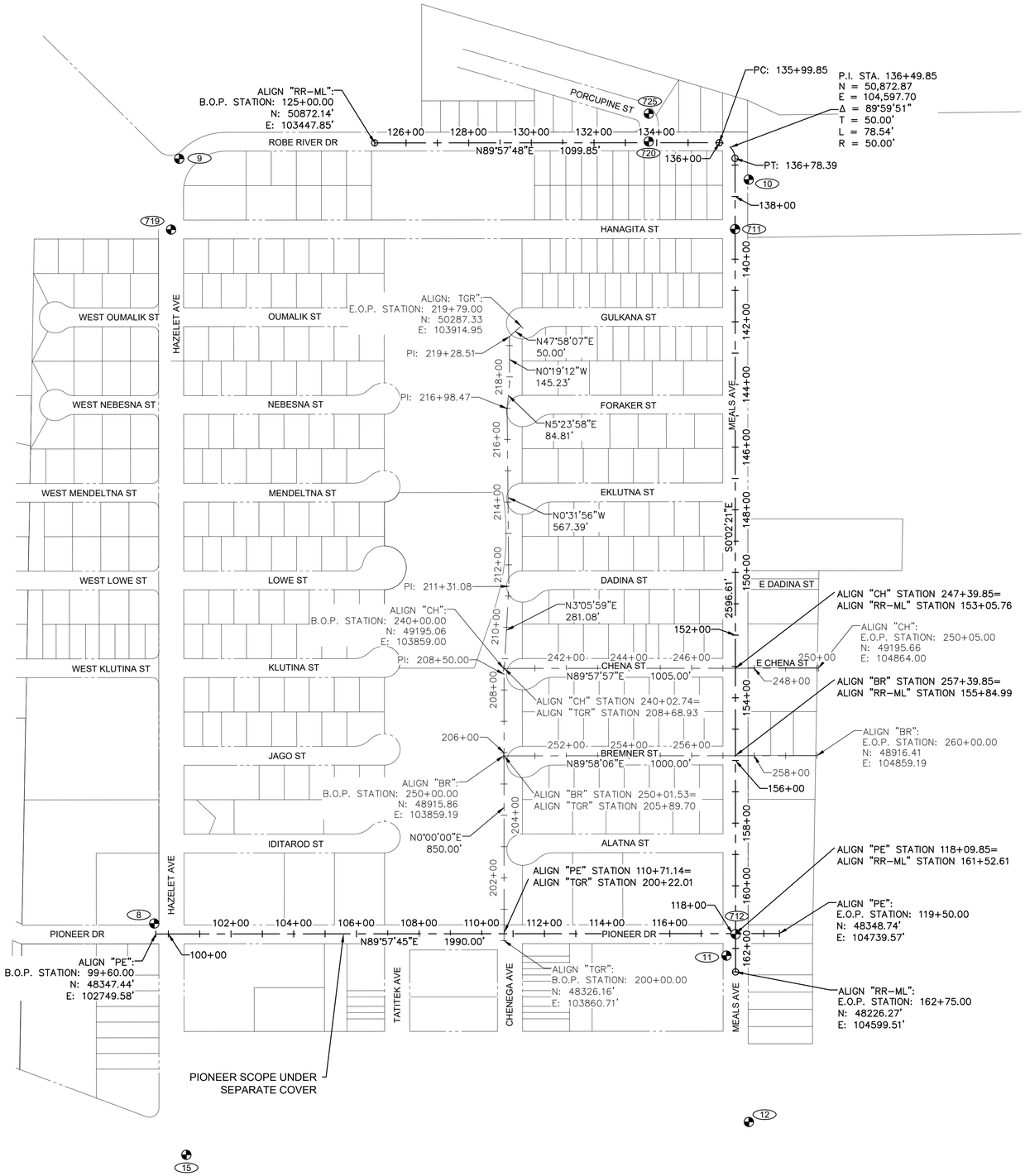

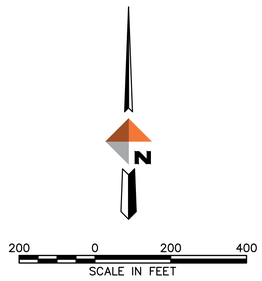

SURVEY CONTROL NOTES

HORIZONTAL CONTROL:
COORDINATES ARE BASED ON AN ASSUMED DATUM IN U.S. FEET. BEARINGS ARE BASED ON THE FINAL PLAT BLACK GOLD NO 1 DIVISION 1 FILED AS PLAT NO. 78-3 IN THE VALDEZ RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA.

VERTICAL CONTROL:
ELEVATIONS ARE NAVD88(GEOID 12A) IN US SURVEY FEET. THE BASIS OF ELEVATIONS IS POINT 601, AN NGS BRASS CAP (PID: BBBB44) STAMPED "4240 T 2000", HAVING AN OPUS DERIVED VALUE OF 49.89 FEET.

SURVEY MONUMENTS

STATIC GPS TIED:

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
*1	49393.66	99959.88	54.37	ALCAP
*2	49755.79	101505.00	58.69	ALCAP
*3	49832.19	101025.73	63.02	ALCAP
*4	50417.76	101106.85	65.97	ALCAP
*5	49996.66	100078.42	59.70	ALCAP
*6	48929.31	99530.75	45.65	ALCAP
*7	48558.80	101468.28	45.80	ALCAP
8	48380.91	102744.58	35.71	BRASS CAP
*9	50821.46	102824.23	58.09	BRASS CAP
10	50755.02	104641.48	37.08	ALCAP
11	48278.43	104570.40	21.72	BRASS CAP
12	47747.39	104641.87	19.63	BRASS CAP
*13	49171.98	102254.73	44.61	ALCAP
*14	49927.19	102115.85	55.80	ALCAP
15	47642.49	102847.16	31.29	ALCAP
*601	47016.69	102889.07	49.89	BRASS CAP

* = MONUMENT NOT SHOWN

"RR-ML" ALIGNMENT CONTROL MONUMENTS

POINT	STATION	OFFSET	LOCAL NORTHING	LOCAL EASTING	NAVD88 ELEVATION	DESCRIPTION
720	133+74.59	4.01' LT	50876.7074	104322.4415	--	CTRL/FOUN.GPSS.BC
725	133+74.72	92.82' LT	50965.5231	104322.5181	--	CTRL/FOUN.GPSS.BC
10	137+46.27	43.70' LT	50755.0225	104641.4774	37.08	CTRL/SETN.GPSS.ALCAP
711	139+04.32	0.17' LT	50596.9436	104598.0610	--	CTRL/FOUN.GPSS.BC
719	139+04.51	1799.69' RT	50595.5252	102798.2043	--	CTRL/FOUN.GPSS.ALMON
712	161+54.27	0.15' LT	48346.9967	104599.5715	--	CTRL/FOUN.GPSS.ALCAP
11	162+22.82	29.07' RT	48278.4281	104570.3967	21.72	CTRL/SETN.GPSS.BC

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SURVEY CONTROL SHEET

VALDEZ, ALASKA

PROJECT 63461.01
DATE 11/25/2025

G-004

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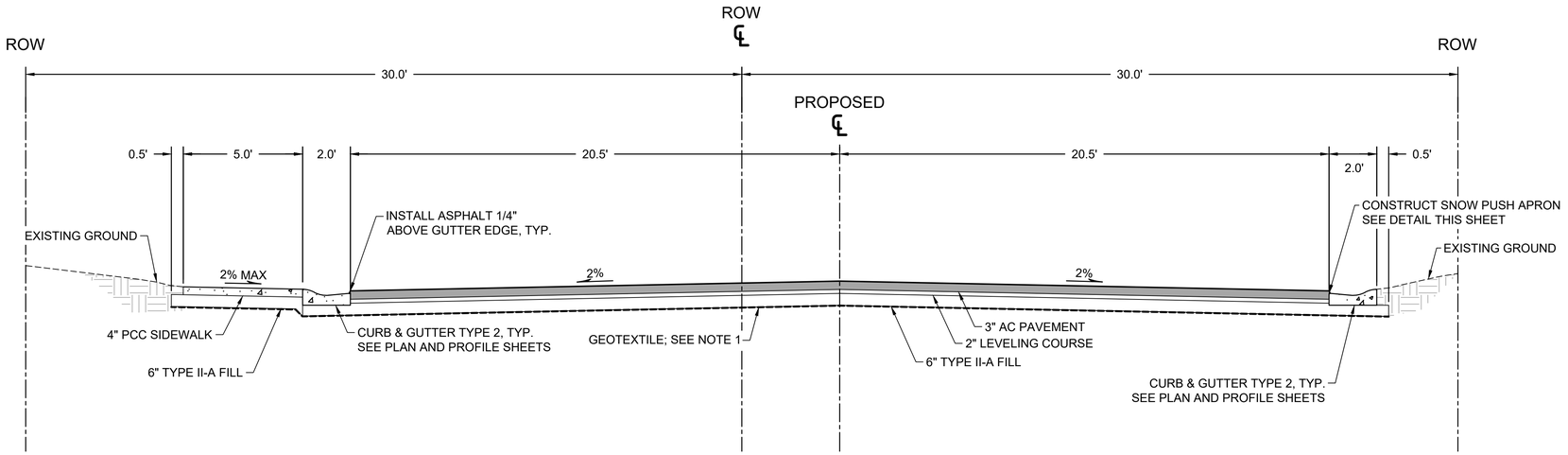
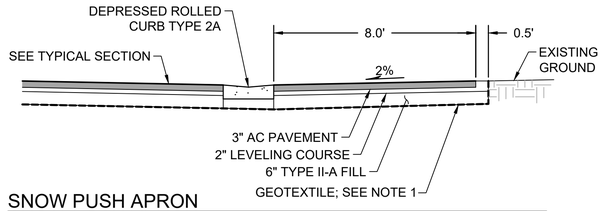


ROBE RIVER DRIVE - TYPICAL SECTION

BOP STA: 125+29.00 TO 129+40.00
STA: 130+60.00 TO 135+92.81

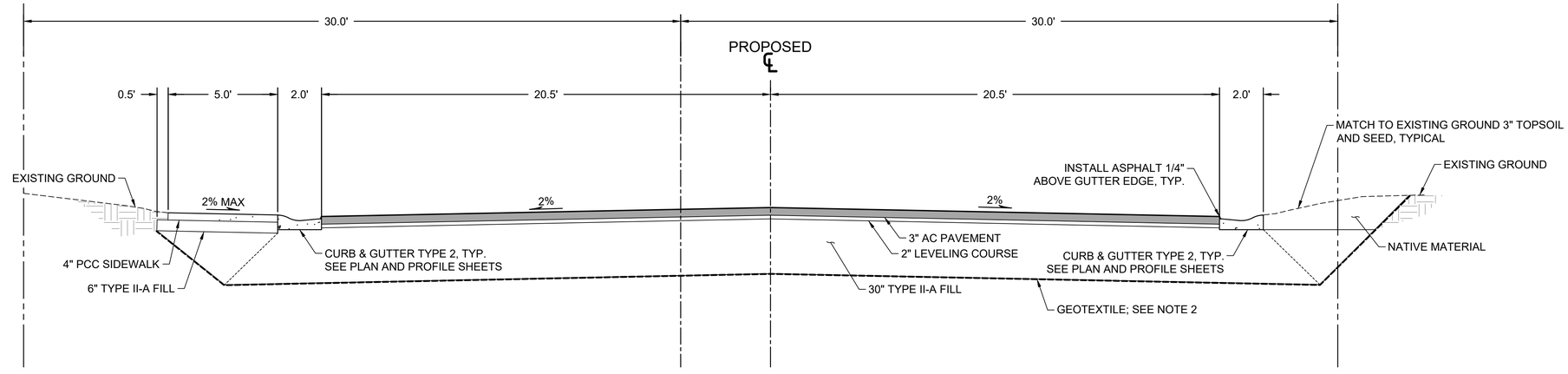
NOTES

1. GEOTEXTILE FOR RE-SURFACING SECTION TO BE A SEPARATION AND STABILIZATION GEOTEXTILE. GEOTEXTILE TO BE WOVEN MEETING CLASS 3 STRENGTH PER AASHTO M288 WHICH ALSO MEETS CRITERIA FOR TYPE A SEPARATION GEOTEXTILE PER CITY OF VALDEZ.
2. GEOTEXTILES USED UNDER REDUCED SUBGRADE SECTION SHALL BE WOVEN AND MEET CRITERIA FOR CITY OF VALDEZ (20.22) TYPE A, SEPARATION GEOTEXTILE.
3. LEVELING COURSE AND TYPE II-A FILL SHALL MEET REQUIREMENTS OF CITY OF VALDEZ GRADATION. SEE GEOTECHNICAL REPORT. CLASSIFIED FILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS IF A LARGE VIBRATORY COMPACTOR IS USED. EACH LIFT SHOULD BE COMPACTED THROUGHOUT ITS ENTIRE DEPTH TO A DENSITY OF AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR AASHTO T180.
4. EXCAVATIONS SHOULD BE COMPLETELY DEWATERED BEFORE PLACEMENT OF CLASSIFIED FILL. DO NOT PLACE FILL OR ASPHALT PAVEMENT OVER FROZEN SOILS. DO NOT FILL OR BACKFILL WITH FROZEN SOILS.
5. GRASS AREAS WITHIN WORK LIMITS SHALL BE REPLACED WITH 2-IN TOPSOIL AND SEED.



SNOW PUSH APRON

STA: 127+77.19 TO 130+10.02



ROBE RIVER DRIVE - REDUCED SUBGRADE STRENGTH (RSS) SECTION

STA: 129+40.00 TO 130+60.00

REVISIONS

REV	DATE	DESCRIPTION	BY

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

TYPICAL SECTIONS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-101

DRIVEWAY CURB CUT SUMMARY

DRIVEWAY	ALIGNMENT	STATION	OFFSET	WIDTH
1	RR-ML	126+66.54	20.50 LT	24'
2	RR-ML	127+26.54	20.50 LT	24'
3	RR-ML	127+86.54	20.50 LT	24'
4	RR-ML	128+30.54	20.50 LT	24'
5	RR-ML	129+00.54	20.50 LT	24'
6	RR-ML	129+72.54	20.50 LT	24'
7	RR-ML	130+24.02	20.50 RT	20'
8	RR-ML	130+27.54	20.50 LT	24'
9	RR-ML	130+74.02	20.50 RT	20'
10	RR-ML	130+90.54	20.50 LT	24'
11	RR-ML	131+24.02	20.50 RT	20'
12	RR-ML	131+62.02	20.50 RT	20'
13	RR-ML	131+74.54	20.50 LT	32'
14	RR-ML	132+34.02	20.50 RT	20'
15	RR-ML	132+56.54	20.50 LT	32'
16	RR-ML	132+88.02	20.50 RT	20'
17	RR-ML	133+38.02	20.50 RT	20'
18	RR-ML	133+88.02	20.50 RT	20'
19	RR-ML	134+38.02	20.50 RT	20'
20	RR-ML	134+78.02	20.50 RT	20'
21	RR-ML	135+33.02	20.50 RT	20'
22	RR-ML	135+63.02	20.50 RT	20'

*DRIVEWAY LOCATIONS ARE BASED ON THE CLOSEST EDGE OF DRIVEWAY TO THE BEGINNING OF STATIONING.

HYDRANT SUMMARY

HYDRANT NO	ALIGNMENT	STATION	OFFSET	COMMENTS
356	RR-ML	126+48.71	31.00 LT	
352	RR-ML	129+30.44	32.49 LT	
351	RR-ML	132+39.35	32.00 LT	
360	RR-ML	135+40.31	31.00 LT	SHIFTED SOUTH

CURB RAMP SUMMARY

CURB RAMP	ALIGNMENT	STATION	OFFSET	CURB RAMP TYPE
1000	RR-ML	125+87.46	28.00 LT	PARALLEL (MODIFIED SEE GRADING)
1001	RR-ML	126+60.54	22.50 LT	TYPE II PARALLEL
1002	RR-ML	133+30.59	22.50 LT	TYPE II PARALLEL
1003	RR-ML	134+28.48	22.50 LT	TYPE II PARALLEL

*SEE C-401 FOR CURB RAMP DETAILS

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	20.86	38.00	31.46	S74° 18' 25"E	20.60
C2	36.13	23.00	90.00	N44° 57' 48"E	32.53
C3	36.14	23.00	90.04	S45° 01' 06"E	32.54
C4	30.69	23.00	76.44	N51° 44' 33"E	28.46
C5	34.28	28.00	70.15	S54° 57' 44"E	32.18

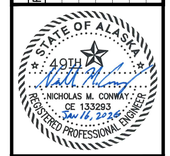
PROPOSED PIPE TABLE

TYPE	SIZE	LENGTH	GRADE	INLET	OUTLET	ALIGNMENT
CPEP	12"	9.43 LF	0.75%	102-CBMH	101-SDMH	RR-ML
CPEP	12"	45.00 LF	0.75%	103-CBMH	102-CBMH	RR-ML
CPEP	12"	65.08 LF	0.75%	106-CBMH	104-SDMH	RR-ML

C-201
C-203

REVISIONS

REV	DATE	DESCRIPTION	BY



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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-110

PROPOSED STRUCTURES

NAME	DESCRIPTION
102-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
105-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE
106-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

C-201
C-203

EXISTING STORM STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
101-SDMH	EXISTING; ADJUST TO GRADE	RR-ML 125+62.27	28.72 L
104-SDMH	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION	RR-ML 133+74.21	6.20 L

C-201
C-203

REMOVED STRUCTURES

STATION	OFFSET
RR-ML 125+69.37	21.32 L
RR-ML 125+69.63	23.10 R
RR-ML 133+47.75	31.78 L
RR-ML 133+74.65	22.80 R
RR-ML 134+25.74	23.35 L

C-201
C-203

EXISTING SEWER STRUCTURES

NAME	DESCRIPTION	STATION	OFFSET
251-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 126+80.15	12.89 R
252-SSMH	EXISTING; ADJUST TO GRADE	RR-ML 130+26.21	12.87 R
253-SSMH	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE	RR-ML 133+58.61	12.99 R

C-201
C-202
C-203

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
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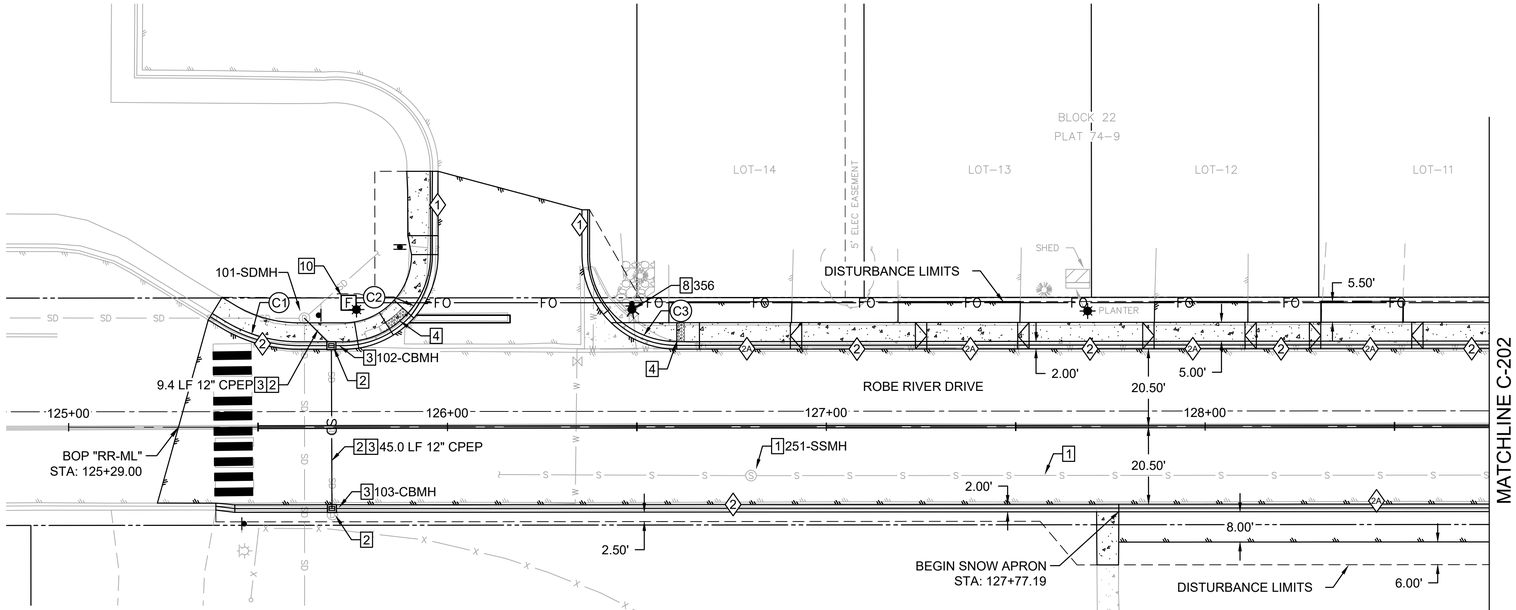
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SUMMARY TABLES

VALDEZ, ALASKA

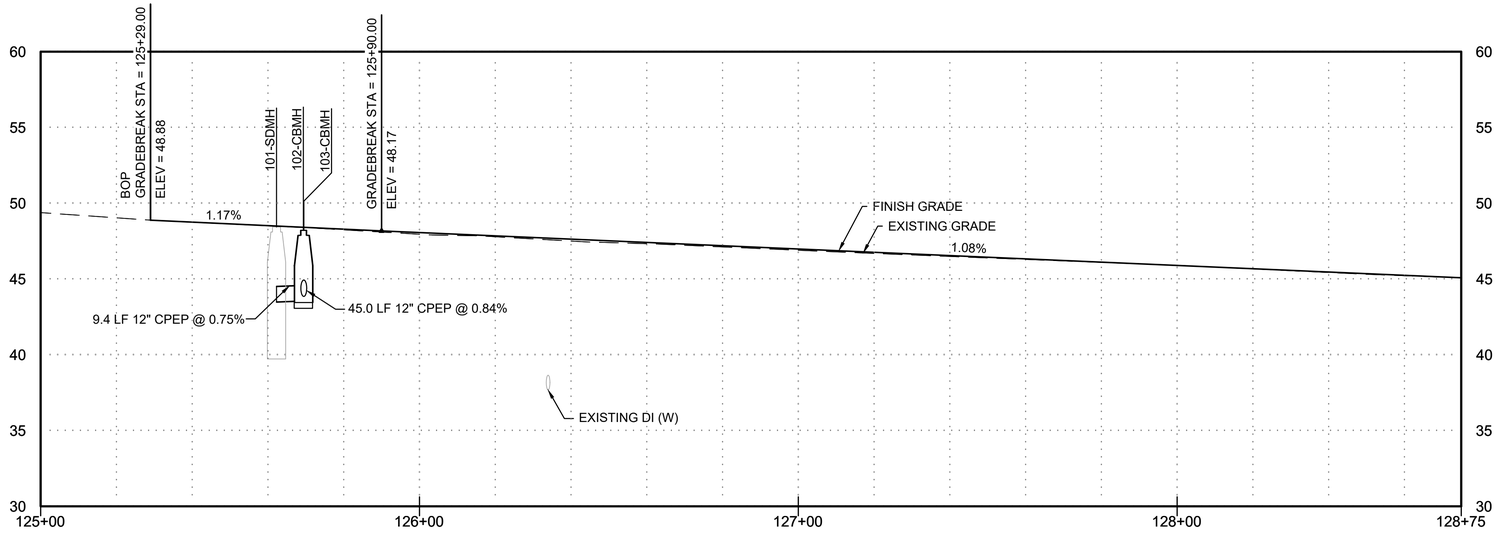
PROJECT 63461.01
DATE 01/16/2026

C-111



STORM MANHOLE DATA	
101-SDMH 125+62.27 OFFSET = 28.72 L RIM = 48.43 INV IN (SE) = 43.49 (12") INV OUT (S) = 42.22 (18") INV IN (W) = 42.26 (12") INV IN (NE) = 42.79 (12")	EXISTING; ADJUST TO GRADE
102-CBMH 125+69.36 OFFSET = 22.50 L RIM = 48.21 INV IN (S) = 43.61 (12") INV OUT (NW) = 43.56 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
103-CBMH 125+69.49 OFFSET = 22.50 R RIM = 48.21 INV OUT (N) = 43.95 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403

SANITARY MANHOLE DATA	
251-SSMH 126+80.15 OFFSET = 12.89 R RIM = 46.94 INV OUT (E) = 38.68 (10") INV IN (W) = 38.83 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
5. MAINTAIN CURRENT CLEANING/CCTV SCHEDULE
6. REQUIRES MAINTENANCE, SEE STRUCTURES TABLES
7. CLEAN AND REINSPECT UTILITY, VERIFY GRADE OF PIPES AND LOCATION OF ANY DAMAGE.
8. REMOVE AND REPLACE FIRE HYDRANT. CITY OF VALDEZ TO SUPPLY HYDRANT. CONTRACTOR TO INSTALL HYDRANT AND NEW LEG UP TO VALVE PER COV DETAIL 60-6. GUARD POSTS ONLY TO BE INSTALLED WHERE NOTED.
9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

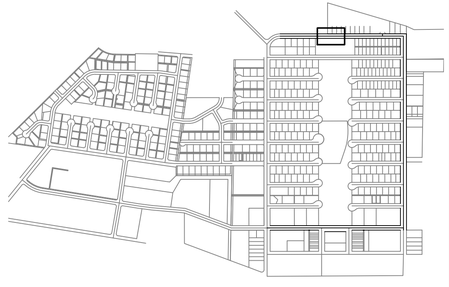
CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
03.16.2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

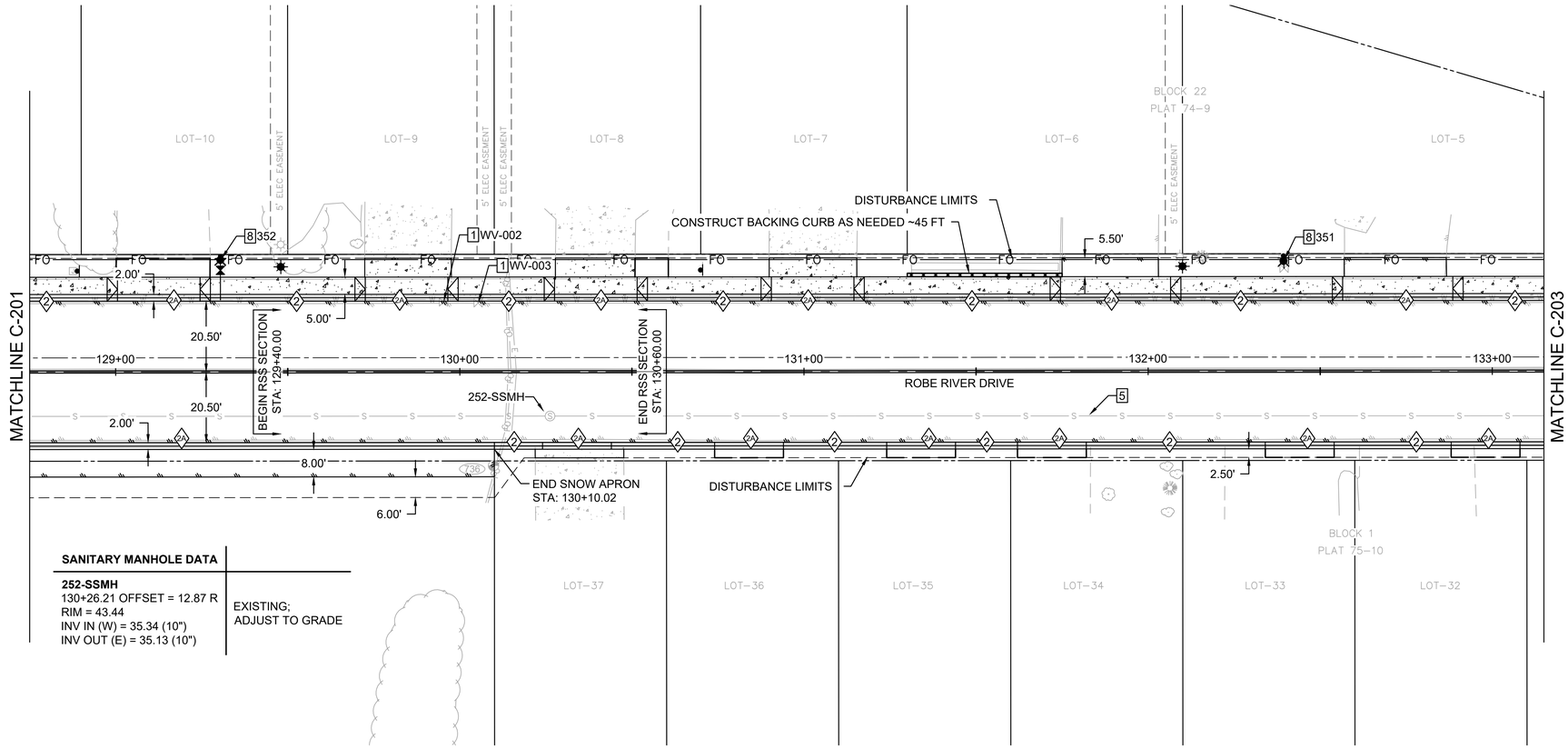
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

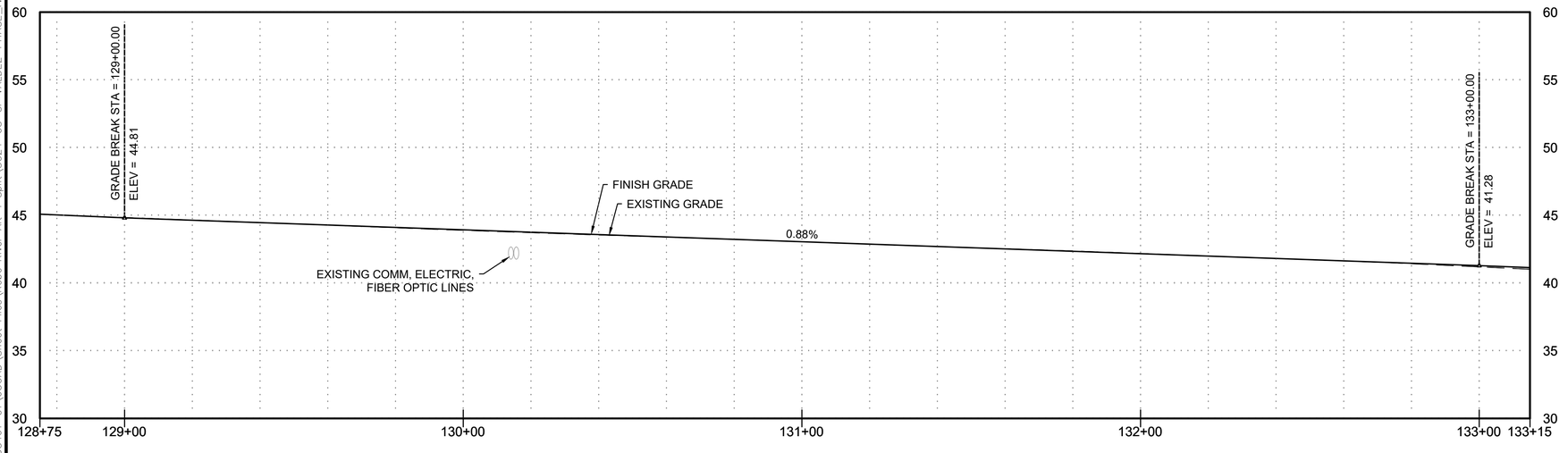
PROJECT	63461.01
DATE	01/16/2026

C-201



SANITARY MANHOLE DATA

252-SSMH 130+26.21 OFFSET = 12.87 R RIM = 43.44 INV IN (W) = 35.34 (10") INV OUT (E) = 35.13 (10")	EXISTING; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
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9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

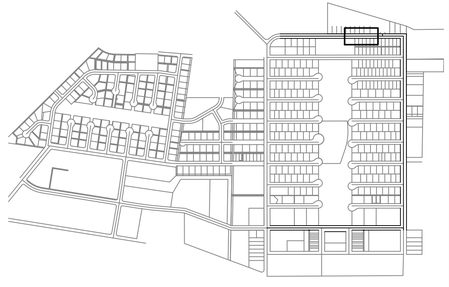
CURB TABLE

*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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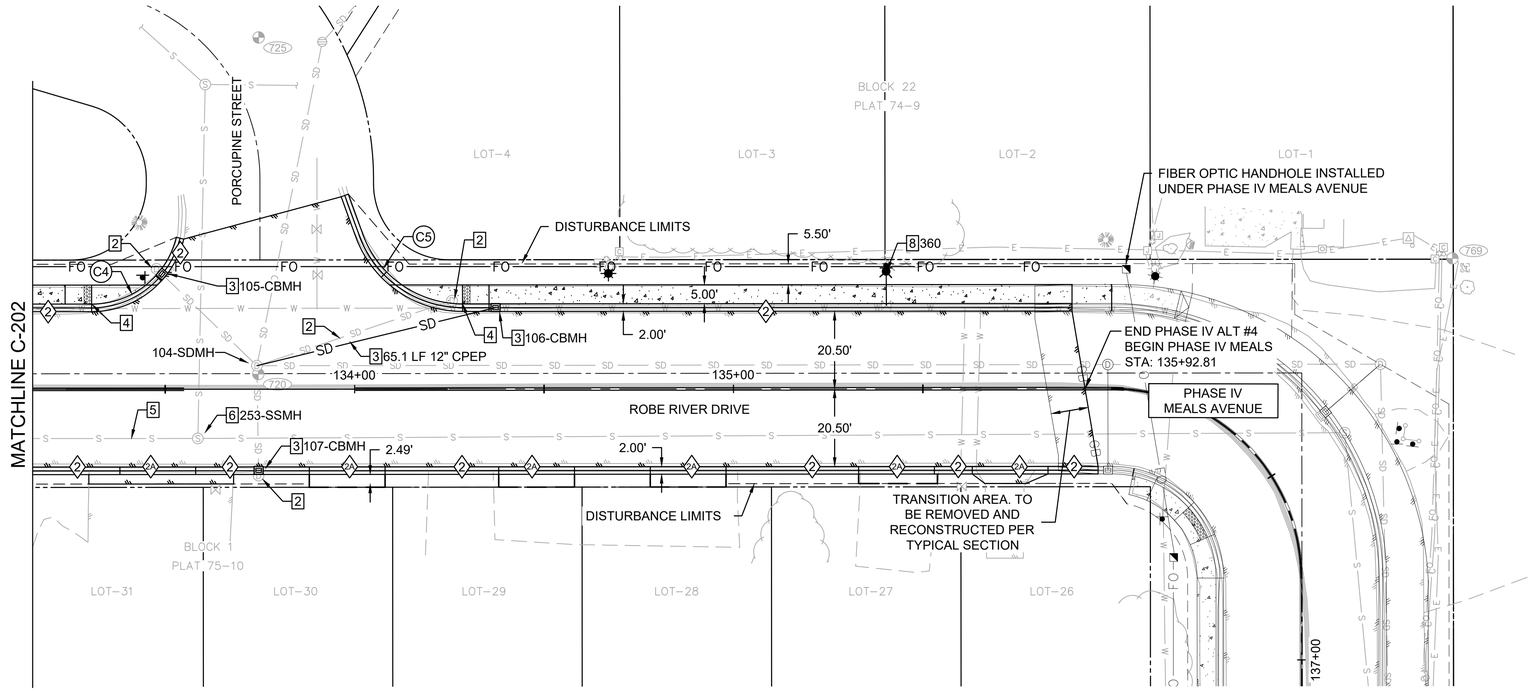
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

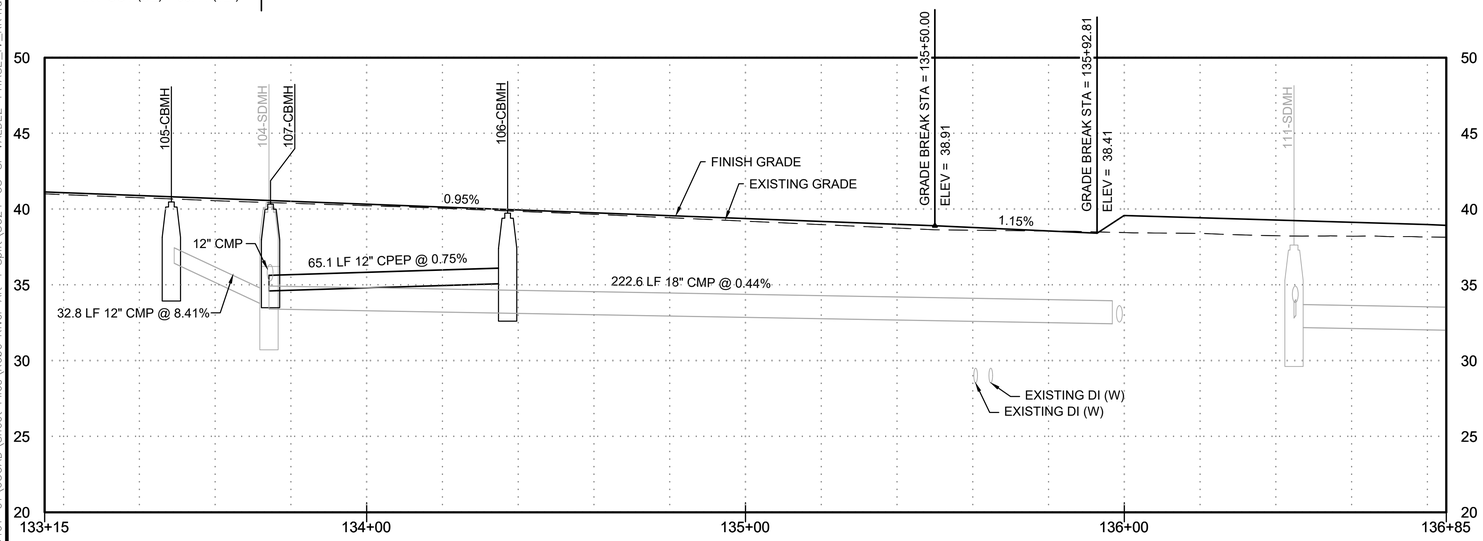
C-202



STORM MANHOLE DATA	
104-SDMH 133+74.21 OFFSET = 6.20 L RIM = 40.45 INV OUT (E) = 33.42 (18") INV IN (N) = 33.22 (18") INV IN (NW) = 33.68 (12") INV IN (E) = 34.62 (12") INV IN (S) = 33.79 (12")	EXISTING; ADJUST TO GRADE USE PREVIOUS NE PENETRATION FOR NEW PIPE; FULLY GROUT PENETRATION
105-CBMH 133+48.45 OFFSET = 31.00 L RIM = 40.48 INV OUT (SE) = 36.44 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

STORM MANHOLE DATA	
106-CBMH 134+37.21 OFFSET = 22.50 L RIM = 39.74 INV OUT (W) = 35.11 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403
107-CBMH 133+74.63 OFFSET = 22.50 R RIM = 40.33 INV OUT (N) = 36.00 (12")	NEW; TYPE A MH (SEE 5/C-403) SEE 3/C-403 CONNECT TO EXISTING PIPE

SANITARY MANHOLE DATA	
253-SSMH 133+58.61 OFFSET = 12.99 R RIM = 40.46 INV IN (W) = 31.84 (10") INV OUT (E) = 31.78 (10") INV IN (N) = 31.85 (10")	EXISTING; REPLACE CORRODED LADDER RUNGS; ADJUST TO GRADE



GENERAL NOTES

1. SEE SHEET C-101 FOR TYPICAL ROAD SECTION.
2. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE IF TECTITE PIPE IS DISCOVERED IN THE FIELD.
3. SEE ELECTRICAL SHEETS FOR LIGHT POLE INFORMATION.
4. PIPE INSTALLATION TO FOLLOW TRENCH BACKFILL SHOWN IN COV DETAIL 20-11 AND 20-13.
5. CATCH BASIN RIM ELEVATIONS ARE MEASURED FROM TOP BACK OF CURB.
6. WATER AND SANITARY SEWER NOT SHOWN IN PROFILE FOR CLARITY.

KEY NOTES

1. CLEAN AND REINSPECT UTILITY
2. REMOVE UTILITY STRUCTURE OR PIPE
3. INSTALL NEW UTILITY STRUCTURE
4. CURB RAMP; SEE GRADING SHEETS, DETAILS ON C-401
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9. SEE KEY NOTE 8. VALVE WAS NOT ABLE TO BE LOCATED. INSTALL NEW VALVE PER COV DETAIL 60-4.
10. FIBER OPTIC VAULT, SEE DETAIL 1/C-405. SEE ELECTRICAL FOR CONDUIT ROUTING.

CURB TABLE	
*SEE CURB DETAILS ON C-401	
1	STANDING CURB & GUTTER
2	ROLLED CURB & GUTTER
2A	DEPRESSED ROLLED CURB
3	SHEDDING CURB & GUTTER
4	DEPRESSED CURB & GUTTER
5	FULL HEIGHT ROLLED CURB & GUTTER
6	FULL HEIGHT ROLLED SHEDDING CURB & GUTTER

20 0 20 40
SCALE IN FEET
HORIZONTAL

5 0 5 10
SCALE IN FEET
VERTICAL

N

KEY MAP
SCALE 1"=1000'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

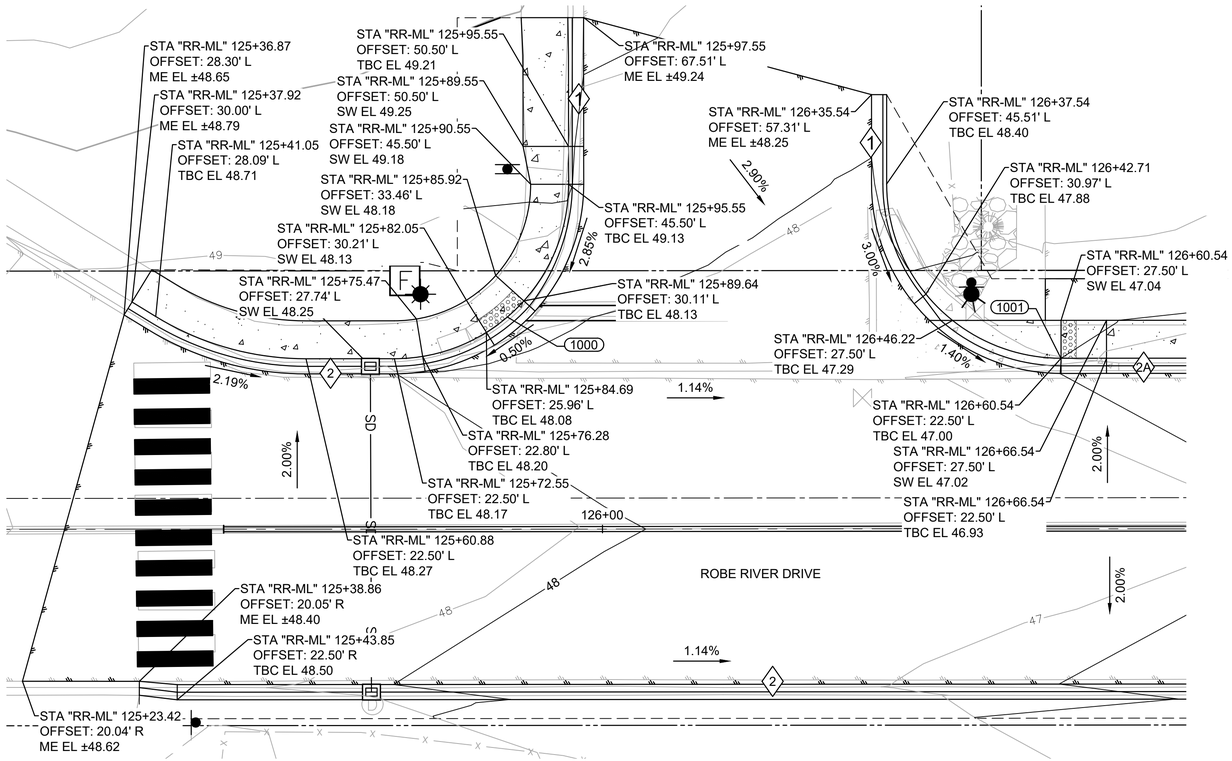
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

PLAN AND PROFILE

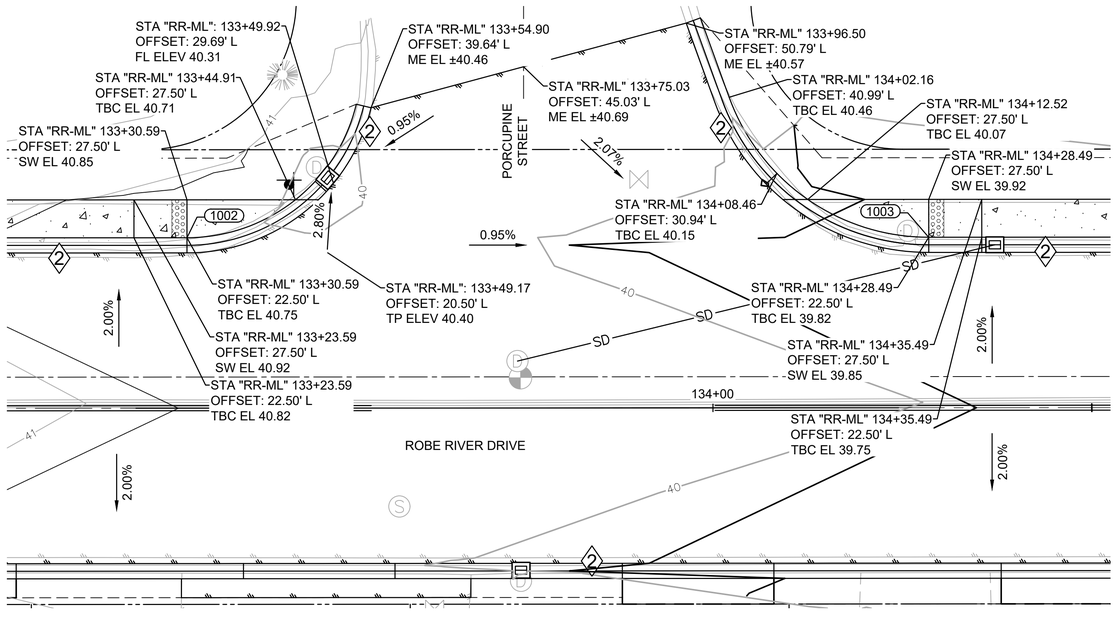
VALDEZ, ALASKA

PROJECT 63461.01
DATE 01/16/2026

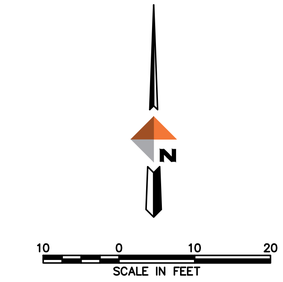
C-203

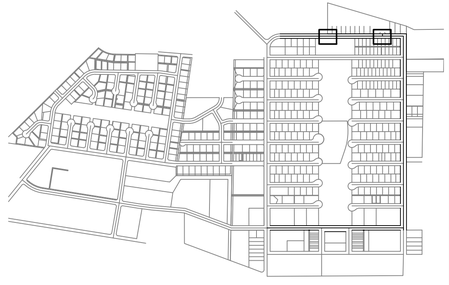


VALDEZ HIGH SCHOOL DRIVEWAY



PORCUPINE STREET INTERSECTION





KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
PROFESSIONAL ENGINEER
Jan 16, 2026

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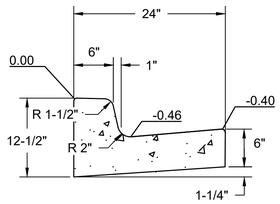
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

INTERSECTION GRADING

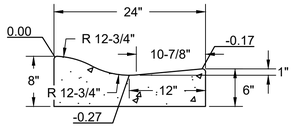
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

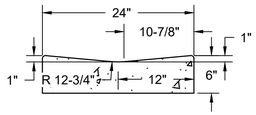
C-301



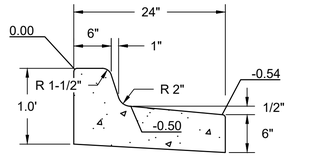
STANDING CURB AND GUTTER
TYPE 1



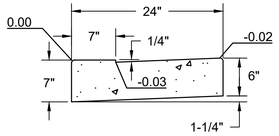
ROLLED CURB AND GUTTER
TYPE 2



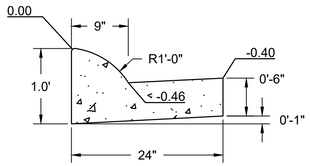
DEPRESSED ROLLED CURB
TYPE 2A



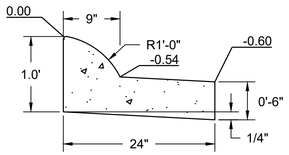
SHEDDING CURB AND GUTTER
TYPE 3



DEPRESSED CURB AND GUTTER
(USED AT CURB CUTS)
TYPE 4

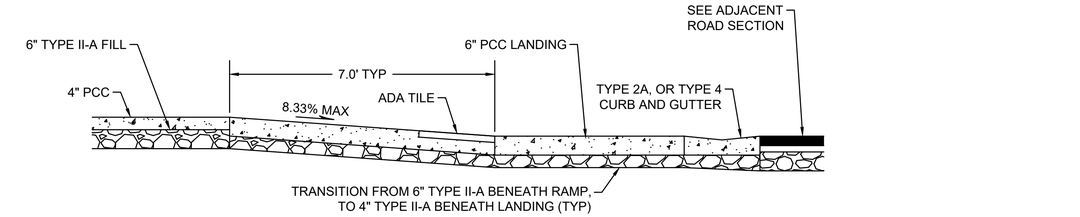


FULL HEIGHT ROLLED
CURB AND GUTTER
TYPE 5

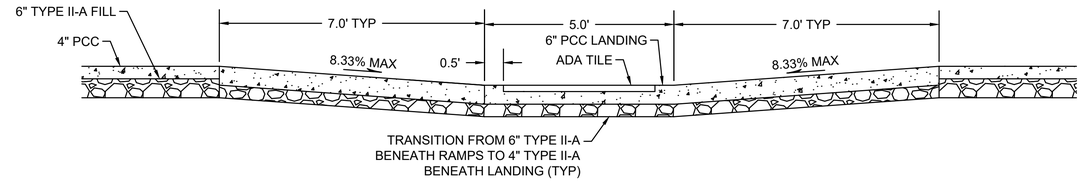


FULL HEIGHT ROLLED SHEDDING
CURB AND GUTTER
TYPE 6

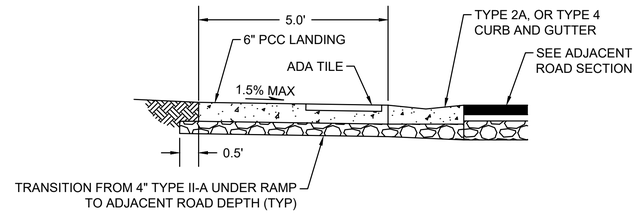
1 C-401 CURB AND GUTTER CROSS SECTIONS (SEE COV 30-1)
NTS



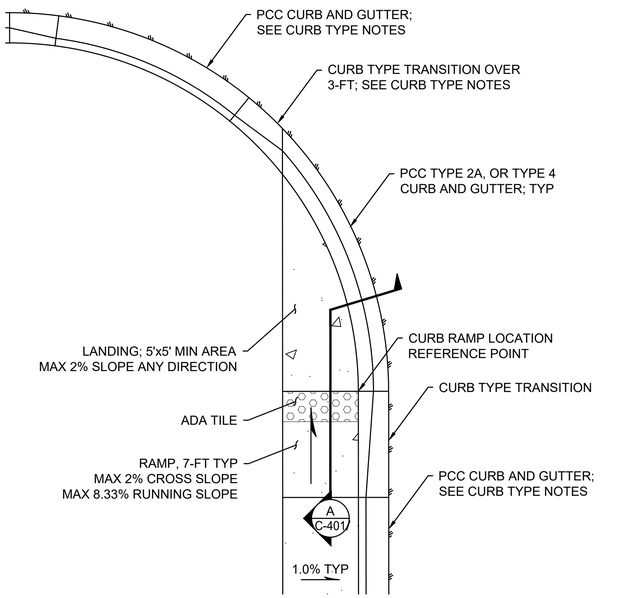
A C-401 PERPENDICULAR CURB RAMP-SECTION, TYP
NTS



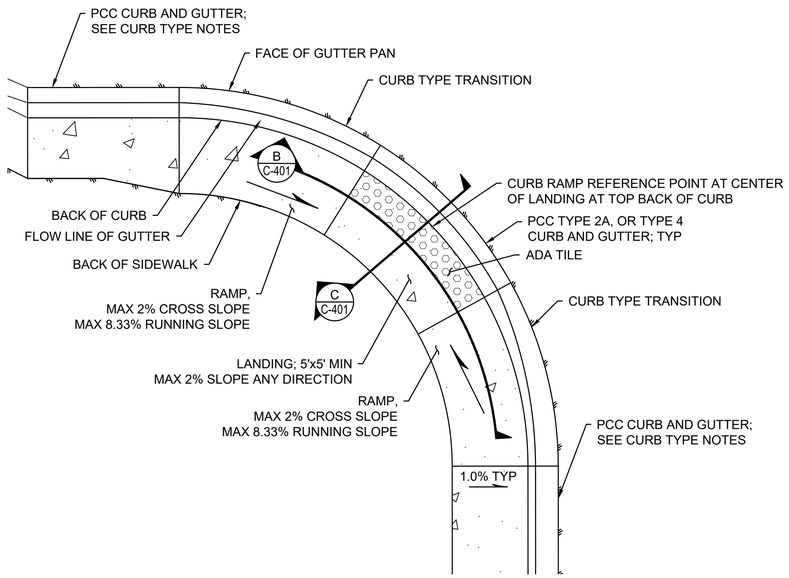
B C-401 PARALLEL CURB RAMP, TYP
NTS



C C-401 PARALLEL CURB RAMP, TYP
NTS



2 C-401 TYPE II PARALLEL CURB RAMP - PLAN, TYP
NTS



3 C-401 TYPE I PARALLEL CURB RAMP, TYP
NTS

CURB TYPE NOTES:

1. USE TYPE 4 CURB AND GUTTER THROUGH LANDING WHEN TYPE 1 OR TYPE 5 CURB AND GUTTER ARE USED ON THE UPHILL SIDE OF RAMP.
2. USE TYPE 2A CURB AND GUTTER THROUGH LANDING WHEN TYPE 2 CURB AND GUTTER IS USED ON THE UPHILL SIDE OF RAMP.

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000

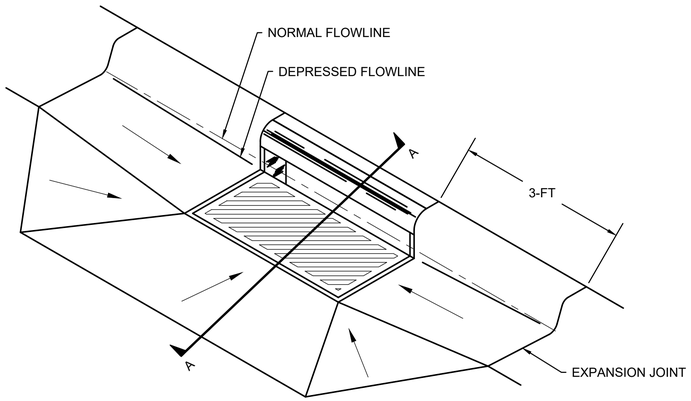
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

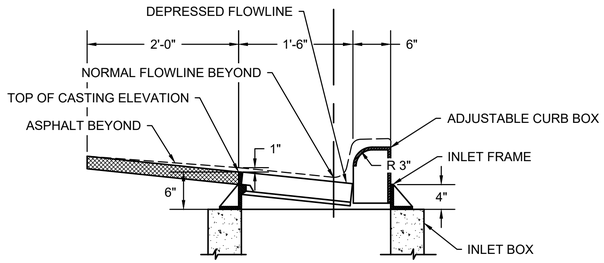
DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

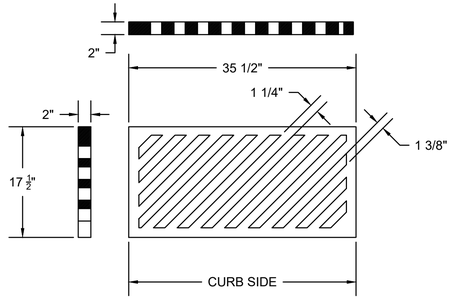
C-401

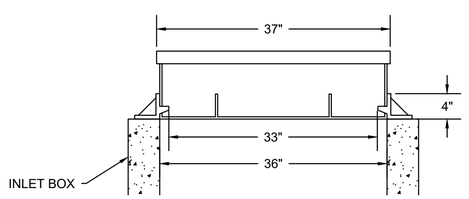




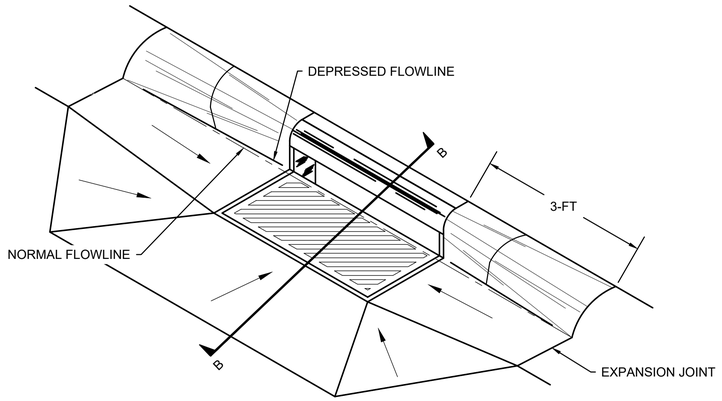
SECTION A - A

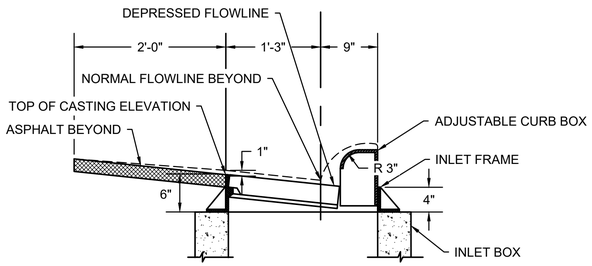
1 / C-402 TYPE 1 C&G FRAME AND GRATE
NTS





FRAME & GRATE DETAIL





SECTION B - B

2 / C-402 TYPE 5 C&G FRAME AND GRATE
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01/16/2026
REGISTERED PROFESSIONAL ENGINEER

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907-562-2000
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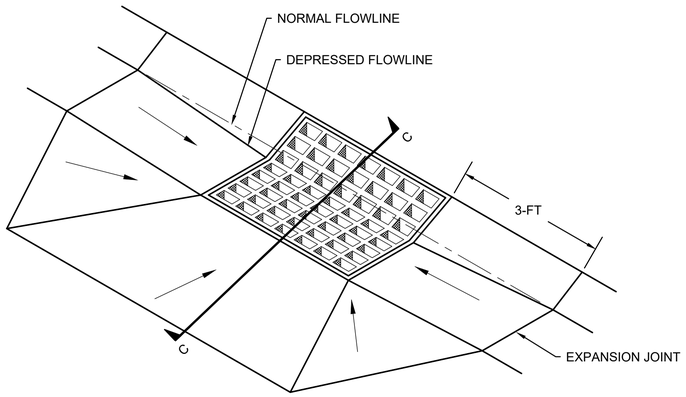
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

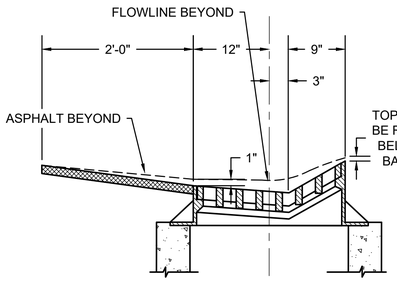
DETAILS

VALDEZ, ALASKA

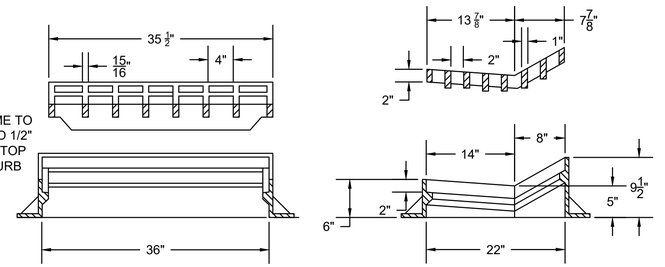
PROJECT	63461.01
DATE	01/16/2026

C-402

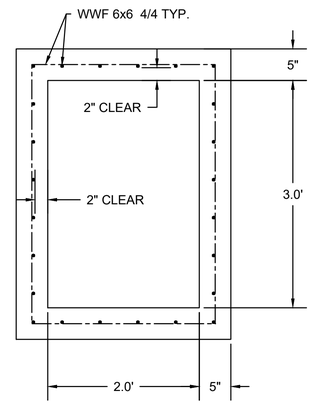




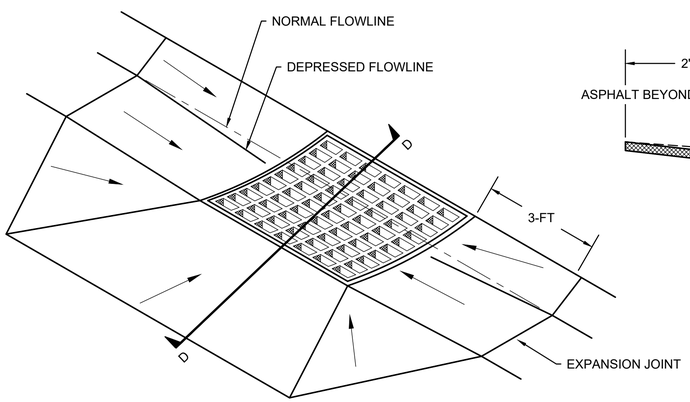
SECTION C - C

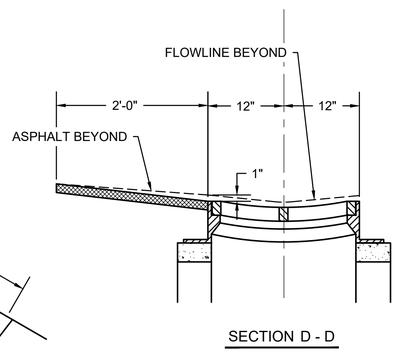


FRAME & GRATE DETAIL



3 C-403 TYPE 2 CURB & GUTTER INLET
NTS





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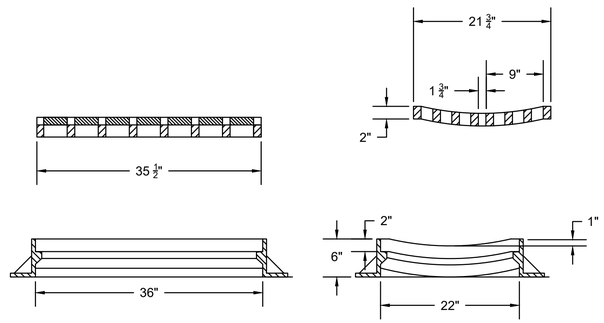

FRAME & GRATE DETAIL

4 C-403 TYPE 2A/4 CURB & GUTTER
NTS

5 C-403 TYPE "A" INLET BOX
NTS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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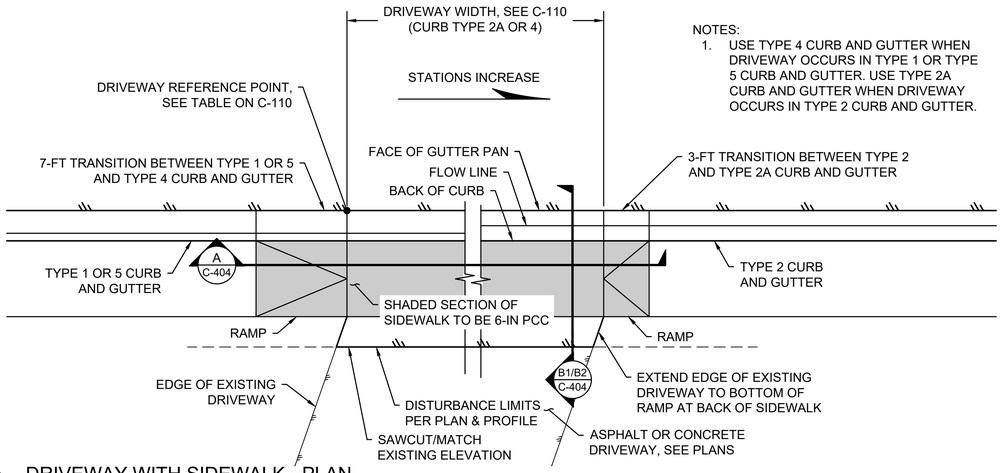
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

VALDEZ, ALASKA

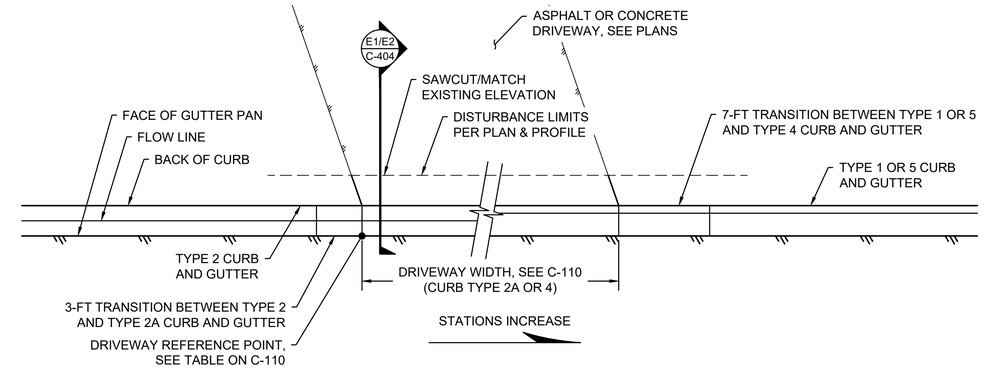
PROJECT	63461.01
DATE	01/16/2026

C-403

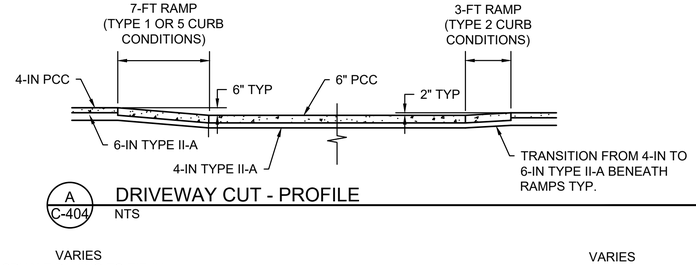


NOTES:
1. USE TYPE 4 CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 1 OR TYPE 5 CURB AND GUTTER. USE TYPE 2A CURB AND GUTTER WHEN DRIVEWAY OCCURS IN TYPE 2 CURB AND GUTTER.

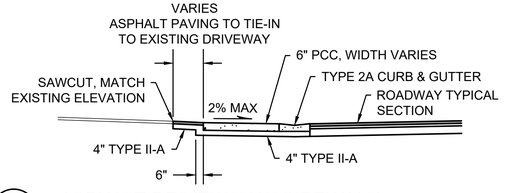
1 C-404 DRIVEWAY WITH SIDEWALK - PLAN
NTS



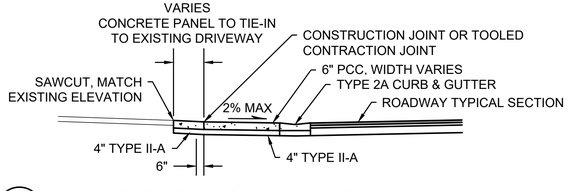
2 C-404 DRIVEWAY WITHOUT SIDEWALK - PLAN
NTS



A C-404 DRIVEWAY CUT - PROFILE
NTS

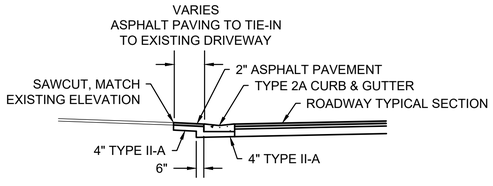


B1 C-404 ASPHALT DRIVEWAY W/SIDEWALK
NTS

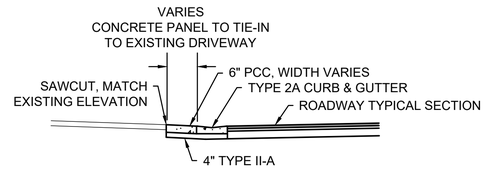


B2 C-404 CONCRETE DRIVEWAY W/SIDEWALK
NTS

* DETAILS TITLED WITH 1 OR 2 REPRESENT DIFFERENT SURFACE CONDITIONS. ONLY ONE DETAIL WILL BE USED AT EACH DRIVEWAY DEPENDING ON IT BEING ASPHALT OR CONCRETE.



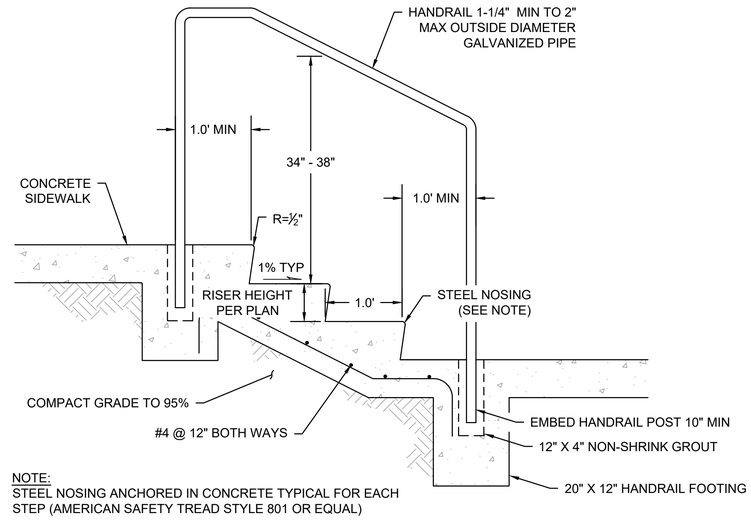
E1 C-404 ASPHALT DRIVEWAY W/OUT SIDEWALK
NTS



E2 C-404 CONCRETE DRIVEWAY W/OUT SIDEWALK
NTS

DRIVEWAY NOTES:

1. SEE SUMMARY TABLE FOR DRIVEWAY LOCATIONS, WIDTHS, AND MATERIAL TYPES. REMOVE AND REPLACE EXISTING MATERIAL AS REQUIRED TO INSTALL NEW CURB AND GUTTER AND GRADE TO DRAIN.
2. RAMP GRADES WILL VARY BASED ON CURB GRADES. NOTIFY ENGINEER OF RECORD IF RESULTING RAMP GRADES ARE LESS THAN 0.5% OR GREATER THAN 8.3%.
3. TOOLED CONTRACTION JOINTS AT THE TOP AND BOTTOM OF EACH RAMP SHALL BE PERPENDICULAR TO THE BACK OF CURB.
4. THE GRADE OF ALL SIDEWALK CROSS-SLOPES, INCLUDING RAMPS AND LANDINGS, SHALL BE 1.5% TYPICAL AND 2% MAXIMUM.



NOTE:
STEEL NOSING ANCHORED IN CONCRETE TYPICAL FOR EACH STEP (AMERICAN SAFETY TREAD STYLE 801 OR EQUAL)

3 C-404 TYPICAL HANDRAIL
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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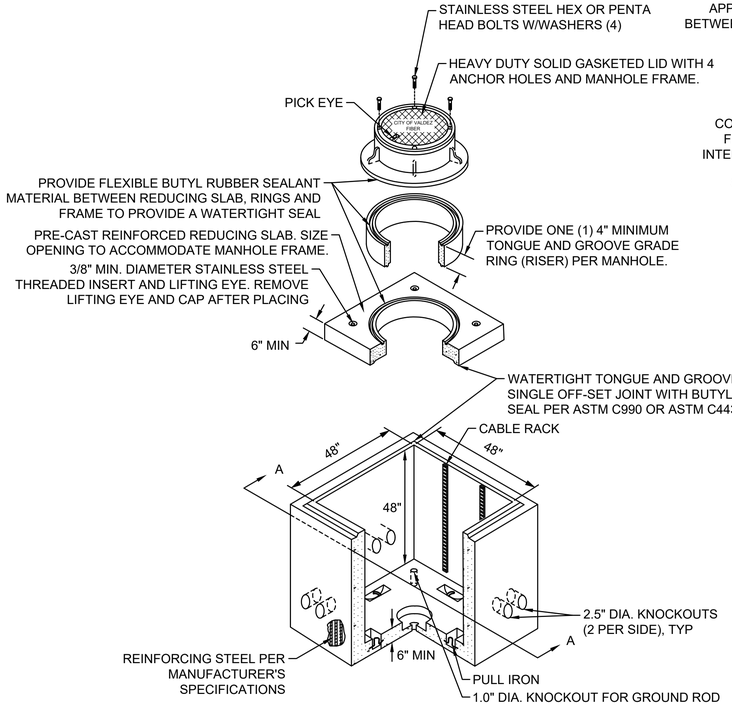
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

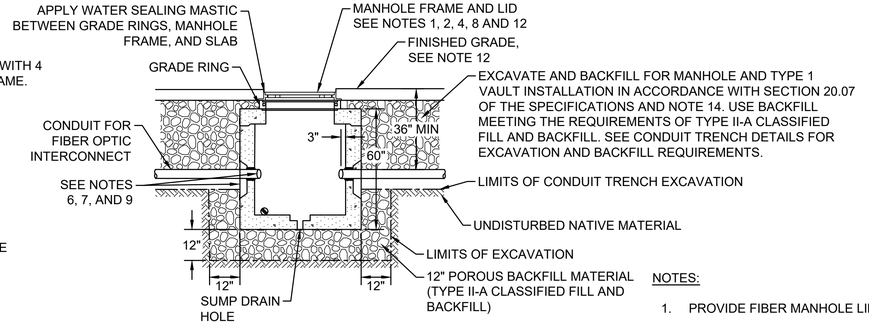
VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

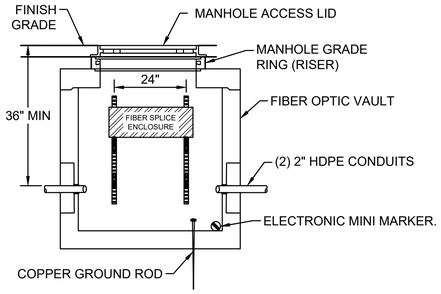
C-404



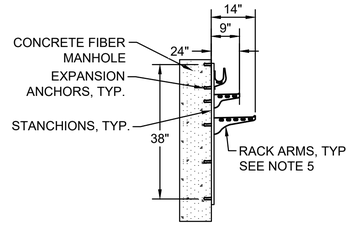
FIBER OPTIC WITH MANHOLE LID
NTS



SECTION A - A



FIBER OPTIC VAULT LAYOUT, TYPE 1
NTS

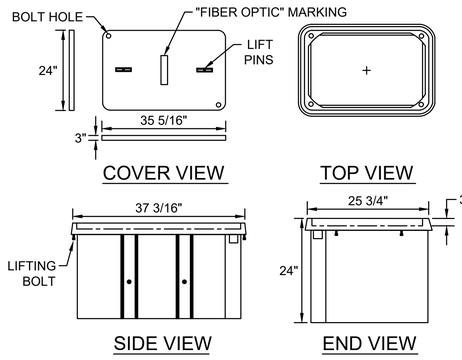


TYPICAL CABLE RACK
NTS

NOTES:

1. PROVIDE FIBER MANHOLE LIDS RATED FOR AASHTO HS-20-44 LOADING.
2. SUPPLY ALL LIDS WITH A HOLE OR SLOT FOR REMOVAL WITH A LEVER OR HOOK.
3. WHERE REQUIRED BY OSHA, PROVIDE A PORTABLE ENTRY LADDER MEETING OSHA REQUIREMENTS.
4. PROVIDE FIBER MANHOLE LIDS MARKED "CITY OF VALDEZ FIBER".
5. PROVIDE FIBER VAULTS WITH A HEAVY-DUTY NON-METALLIC CABLE STORAGE RACK SYSTEM. PROVIDE RACK ARMS OR STANCHIONS CAPABLE OF SUPPORTING A MINIMUM OF 250 LBS. INCLUDE A MINIMUM OF 36 INCH RACK STANCHIONS AND 4 RACK ARMS.
6. INSTALL CONDUITS INTO FIBER VAULTS AT THINWALL SECTIONS ONLY. CORE DRILL IN THE THINWALL SECTION TO CONDUIT SIZE PLUS ¼ INCH ALL AROUND. DO NOT "KNOCK OUT" THE THINWALL SECTION.
7. SEAL CONDUIT PENETRATIONS USING SIKA LEAKMASTER LV-1 OR APPROVED PRODUCT EQUIVALENT.
8. BOND AND GROUND ALL METALLIC COMPONENTS OF THE FIBER VAULT, INCLUDING RACK, FRAME AND LIDS.
9. PLUG CONDUITS ENDS TO EXCLUDE WATER UNTIL FIBER OPTIC CABLE IS INSTALLED.
10. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF VAULTS AND MANHOLES.
11. USE A SPLIT BOLT CONNECTOR TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
12. U.O.N., TOP OF FIBER VAULTS SHALL BE INSTALLED:
    A. FROM 0" TO 3/16" BELOW FINISHED GRADE WHEN LOCATED IN A SIDEWALK OR PATHWAY;
    B. 3/8" BELOW FINISHED GRADE WHEN LOCATED IN A PAVED PARKING LOT, MEDIAN, OR ROADWAY;
    C. OR AS DIRECTED BY THE ENGINEER.
13. DO NOT PLACE FIBER VAULTS IN THE BOTTOM OF DRAINAGE COLLECTION AREAS.
14. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH COV STANDARD SPECIFICATIONS, AND OSHA SAFETY STANDARDS AND

1 / C-405 TYPE I 4'X4' FIBER OPTIC VAULT
NTS



2 / C-405 FIBER OPTIC HANDHOLE VAULT
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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907-562-2000

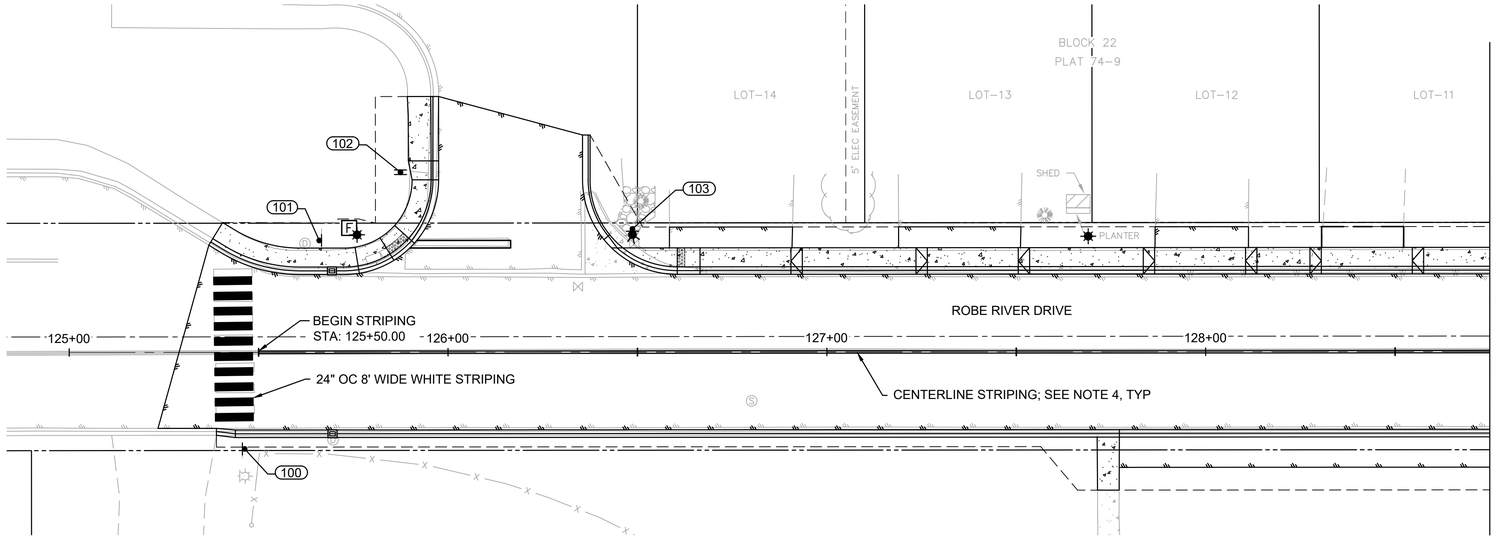
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

DETAILS

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-405



GENERAL NOTES

(206) SIGN POST

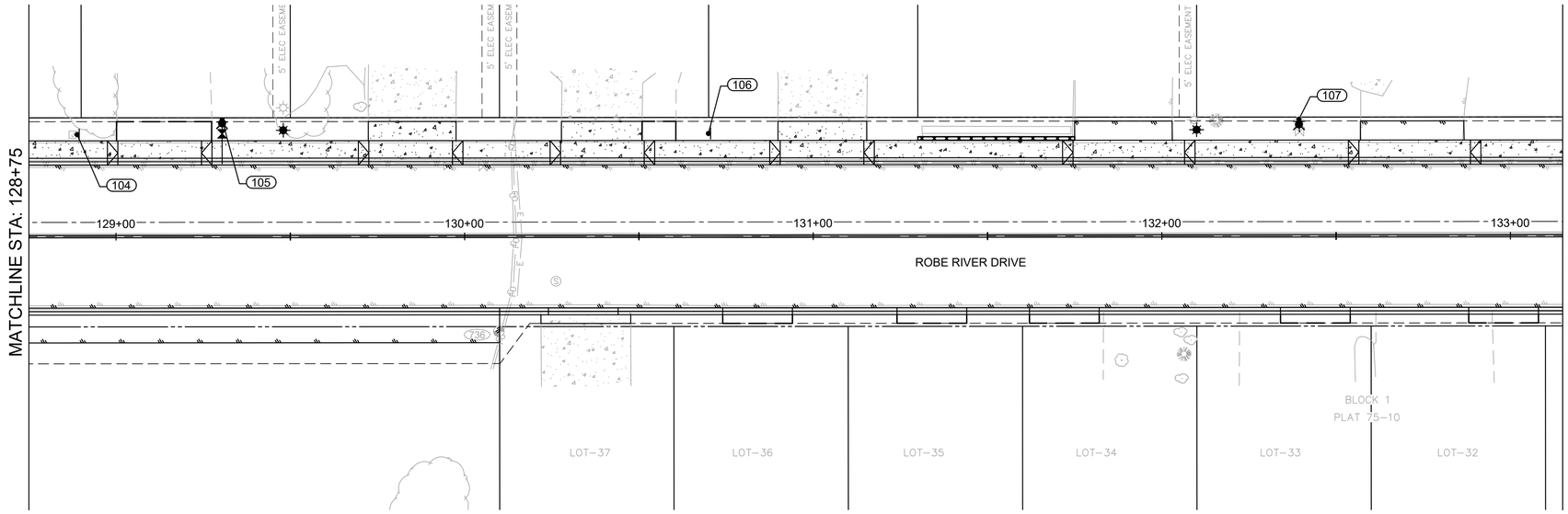
1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-503.

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
100	RR-ML	125+46.30	25.50 R	S1-1	36"x36"	9	W	2.5"x2.5" PST	SCHOOL CROSSING
				W16-7P	30"x18"	3.75	W		DIRECTION ARROW
101	RR-ML	125+66.02	29.50 L	S1-1	36"x36"	9	E	2.5"x2.5" PST	SCHOOL CROSSING
				W16-7P	30"x18"	3.75	E		DIRECTION ARROW
102	RR-ML	125+87.49	47.50 L	R1-1	30"x30"	6.25	N	2.5"x2.5" PST	"STOP"
				CUSTOM	18"x18"	2.25	S		"EVACUATION SHELTER"
				R7P-X	12"x18"	1.5	S		"NO CAMPING VIOLATORS WILL BE TOWED"
					12"x18"	1.5	S		"NO CAMPING OR OVERNIGHT PARKING"
103	RR-ML	126+48.58	32.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "356"; NOTE 1

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
104	RR-ML	128+88.85	29.30 L	S5-1	24"x48"	8	E	EXISTING POST	"SCHOOL SPEED LIMIT 20" W/FLASHING LIGHTS
105	RR-ML	129+36.55	33.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "352"; NOTE 1
106	RR-ML	130+69.97	29.50 L	S1-1	36"x36"	9	E	2.5"x2.5" PST	SCHOOL CROSSING
				W16-9P	30"x18"	3.75	E		"AHEAD"
107	RR-ML	132+39.35	33.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "351"; NOTE 1



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SCALE IN FEET

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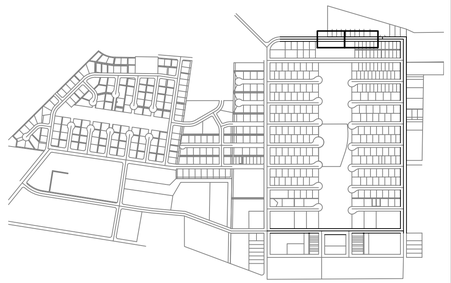

KEY MAP
SCALE 1"=1000'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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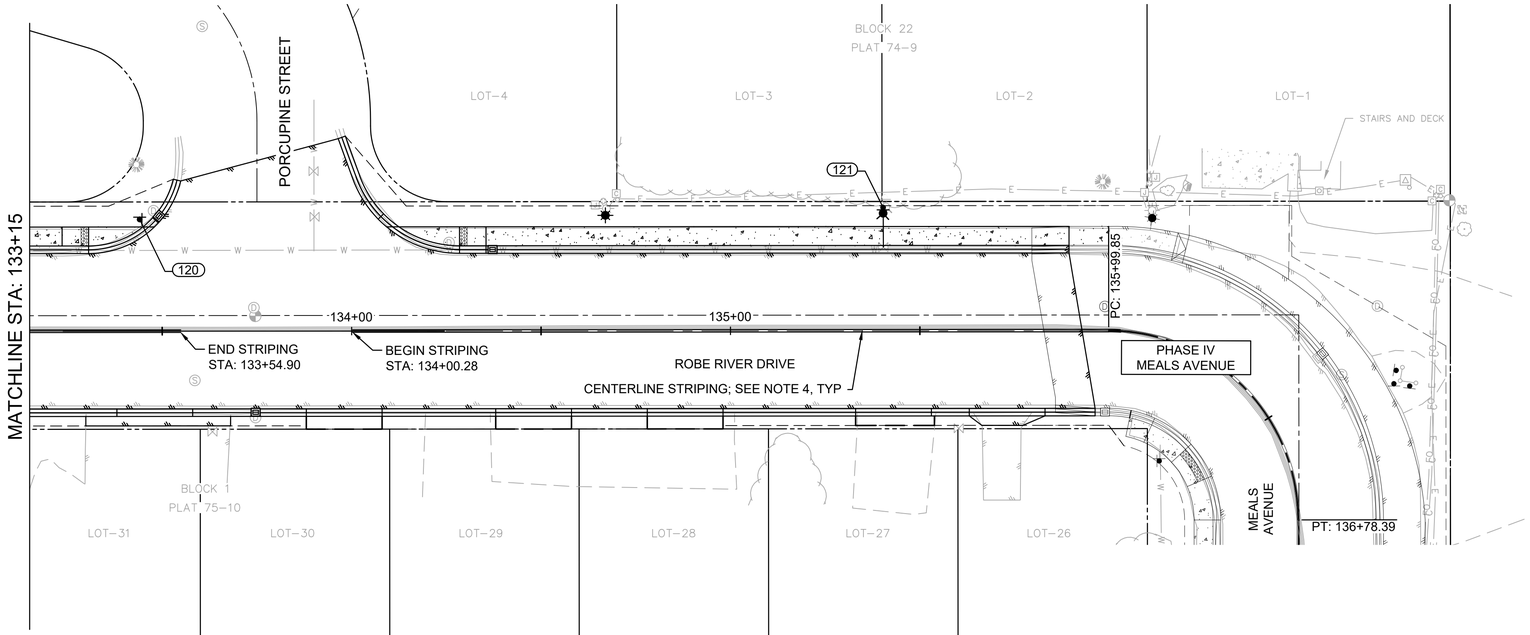
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-501



GENERAL NOTES

(206) SIGN POST

1. HYDRANT SIGNS ARE TO BE FURNISHED BY CITY OF VALDEZ. SEE COV DETAIL 70-32 FOR INSTALLATION.
2. SEE COV DETAIL 70-31 FOR SIGN POST CONCRETE FOUNDATION INSTALLATION.
3. ALL SIGNS ARE TO BE INSTALLED AT A HEIGHT OF 7-FT CLEAR SPACE MINIMUM AND 2-FT CLEAR FROM FACE OF CURB. SEE COV DETAILS 70-22 THROUGH 70-27.
4. CENTERLINE STRIPING TO BE TWO LINES OF 4-IN SOLID YELLOW CENTERED ALONG THE ROAD ALIGNMENT CENTERLINE. OFFSET 2-IN EACH SIDE. SEE COV SPECIFICATIONS FOR APPLICATION AND TOLERANCES.
5. "CUSTOM" SIGN TYPES SHALL BE REPLACED TO MATCH EXISTING.
6. STREET SIGNS NOTED WITH (X2) ARE TO BE TWO SEPARATE STREET NAME PANELS WITH A STABILIZER BETWEEN THEM. SEE DETAIL 1/C-503.

SIGN TABLE

POST NO.	ALIGNMENT	STATION	OFFSET	TYPE	SIZE (IN)	AREA (SF)	FACES	POST	DESCRIPTION
120	RR-ML	133+44.08	29.50 L	D3-1	36"x8"	4	E/W	2.5"x2.5" PST	"PORCUPINE ST" (X2); NOTE 6
				D3-1	42"x8"	4.7	N/S		"ROBE RIVER DR" (X2); NOTE 6
				R1-1	30"x30"	6.25	N		"STOP"
121	RR-ML	135+40.31	32.50 L	CUSTOM	12"x18"	1.5	S	2"x2" PST	HYDRANT "360"; NOTE 1

20 0 20 40
SCALE IN FEET

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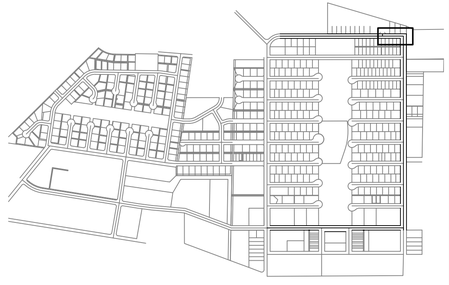

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329.3
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-502

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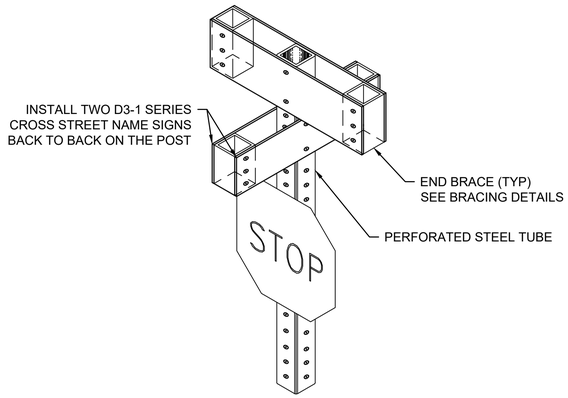
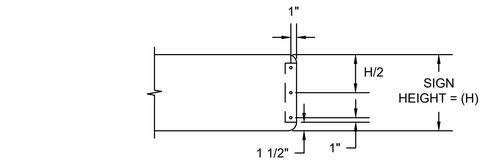
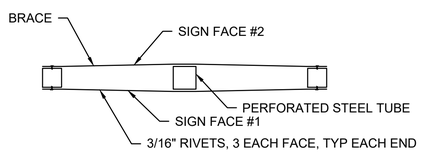


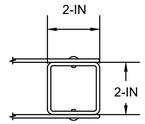
STREET NAME SIGN MOUNTING DETAIL



RIVET DETAIL ELEVATION VIEW



PLAN VIEW



END BRACE DETAIL

BRACING DETAILS

1 C-503 STREET SIGN MOUNTING
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
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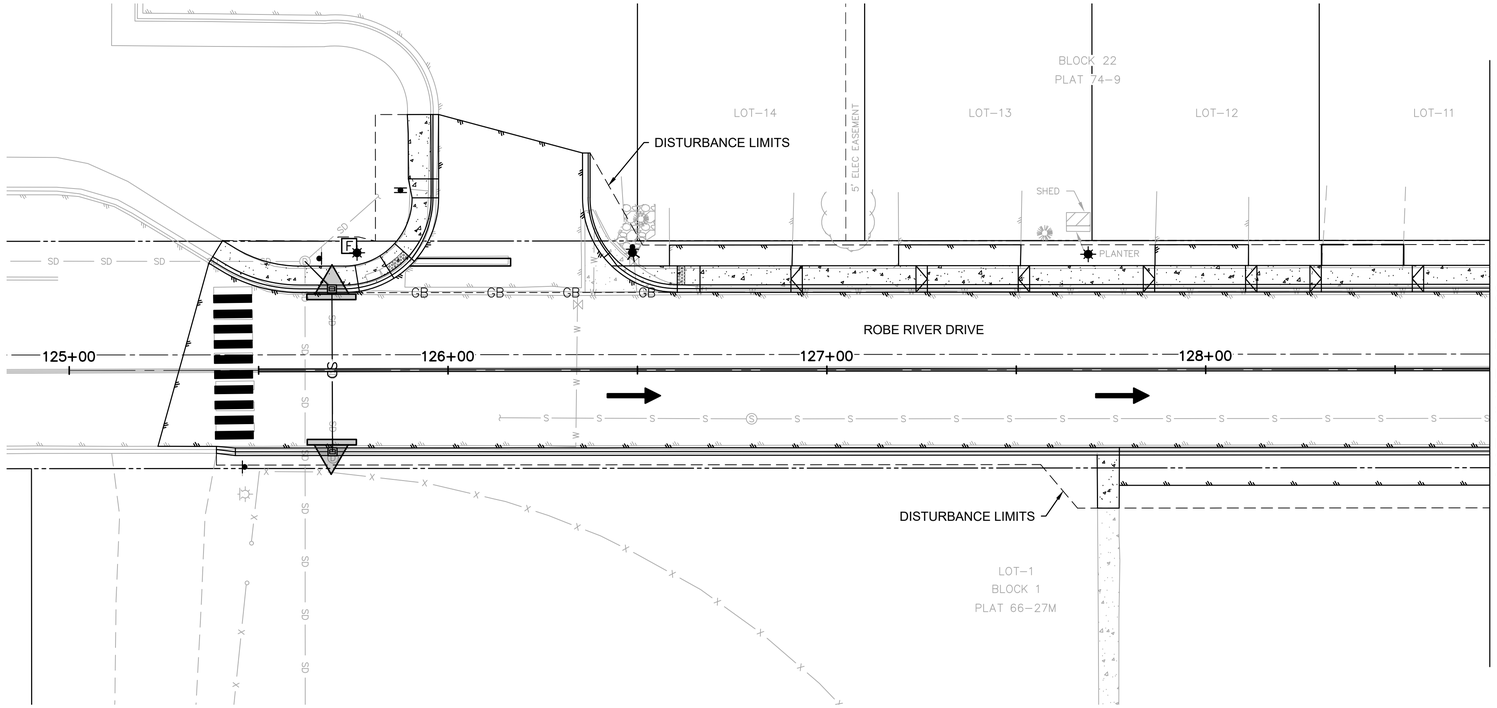
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

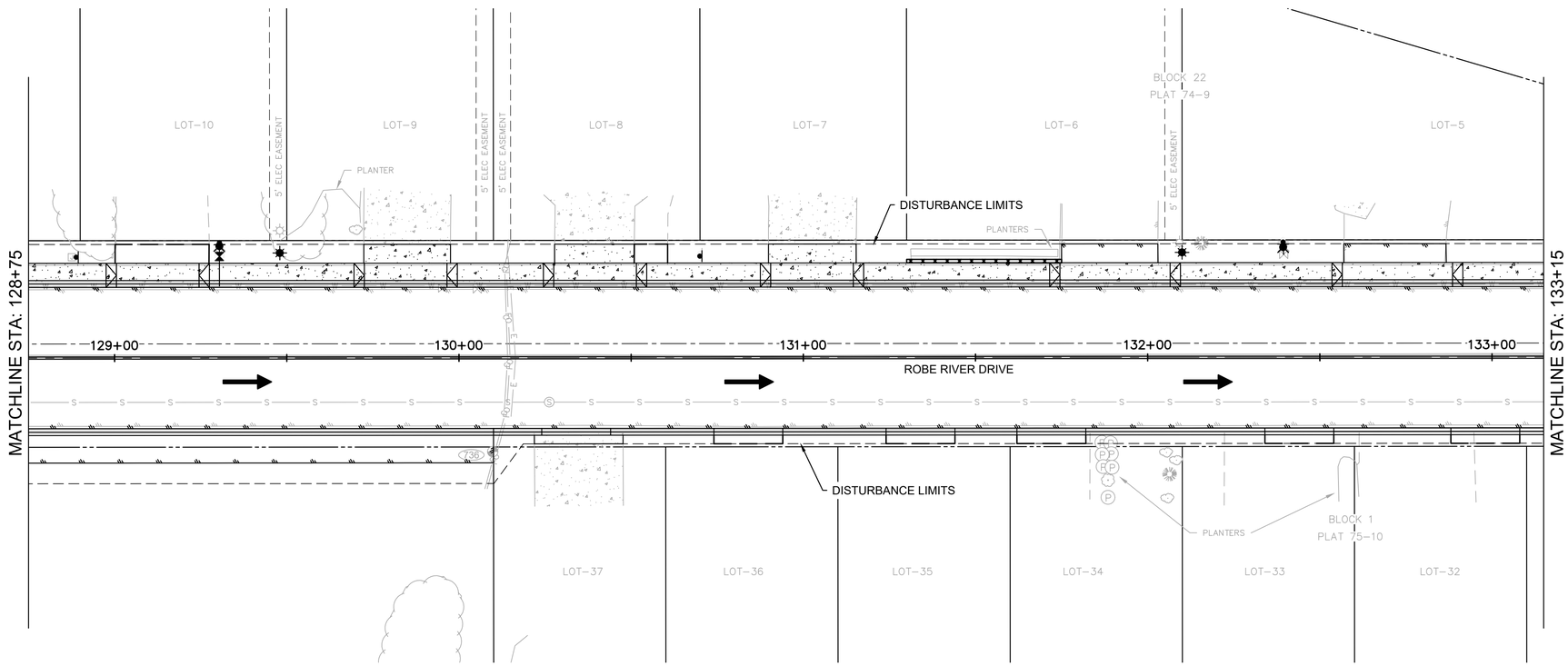
SIGNING AND STRIPING

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-503





GENERAL NOTES

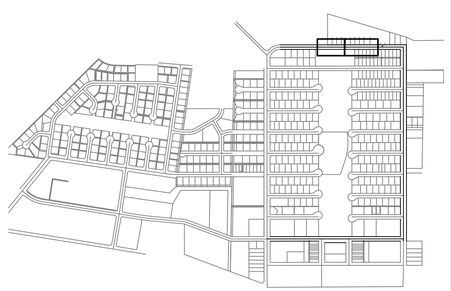
1. REFER TO CONTRACTOR SWPPP REPORT FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs).
2. CONTRACTOR SHALL UTILIZE BMPs MOST APPROPRIATE FOR CONDITIONS ON-SITE. IF INSPECTION REVEALS EROSION CONTROL MEASURES ARE INSUFFICIENT, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT CORRECTIVE ACTION, AS NECESSARY, TO CORRECT THE DEFICIENCY.
3. ALL DISTURBED AREAS FOR THIS PROJECT ARE LOCATED AMID THE PROPOSED WORK SHOWN ON SHEETS C-601 THROUGH C-602.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES TO ENSURE THAT CONSTRUCTION ACTIVITIES HAVE MINIMAL IMPACTS ON THE NATURAL BUFFER AREAS OF THE RECEIVING WATER BODY. DISTURBED AREAS ADJACENT TO DRAINAGE OR IN-WATER WORK SHALL BE RESTORED TO THEIR FUNCTIONAL CAPACITY OR PLANNED DESIGN, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
5. VEGETATION SHALL REMAIN UNDISTURBED TO THE FULLEST EXTENT POSSIBLE.
6. ALL DISTURBED AREAS NOT RECEIVING HMA PAVEMENT, PORTLAND CEMENT CONCRETE, OR RIPRAP, SHALL RECEIVE HYDROSEED WITH MULCH AS A FINAL STABILIZATION MEASURE, UNLESS OTHER TREATMENTS ARE REQUIRED BY PERMIT CONDITIONS.
7. ON-SITE DUST CONTROL, INCLUDING WATERING AND SWEEPING, SHALL BE PROVIDED BY THE CONTRACTOR TO MINIMIZE AIR-BORNE DUST WHEN NECESSARY OR DIRECTED BY THE ENGINEER. ROUTINE SWEEPING MAY BE PERFORMED IN LIEU OF UTILIZING A STABILIZED CONSTRUCTION EXIT UNLESS CONDITIONS NECESSITATE A MUD MAT.
8. ANY CONCRETE WASHOUT AREAS UTILIZED BY THE CONTRACTOR SHALL BE DESIGNATED, MAINTAINED, AND LOCATED, TO THE EXTENT PRACTICABLE, AWAY FROM WATER OF THE U.S. AND STORM WATER CONVEYANCE CHANNELS.
9. ALL DISCHARGE FROM EXCAVATION DEWATERING ACTIVITIES WILL BE TREATED WITH THE APPROPRIATE CONTROL MEASURES, UNTREATED WATER FROM CONSTRUCTION DEWATERING OPERATIONS SHALL NOT BE DISCHARGED TO ANY RECEIVING WATERS NOR SHALL UNTREATED WATER BE ALLOWED TO RUN OFF-SITE, UNLESS THE WATER IS NON-DISCHARGED.
10. PROVIDE INLET PROTECTION FOR EXISTING CATCH BASINS UNTIL STRUCTURE IS REMOVED, TYP. PROVIDE INLET PROTECTION FOR PROPOSED CATCH BASINS ONCE INSTALLED.

ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

20 0 20 40
SCALE IN FEET

N



KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA
49TH
NICHOLAS M. CONWAY
CE 13329
01.16.2026
REGISTERED PROFESSIONAL ENGINEER

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Anchorage, Alaska 99503
907-562-2000

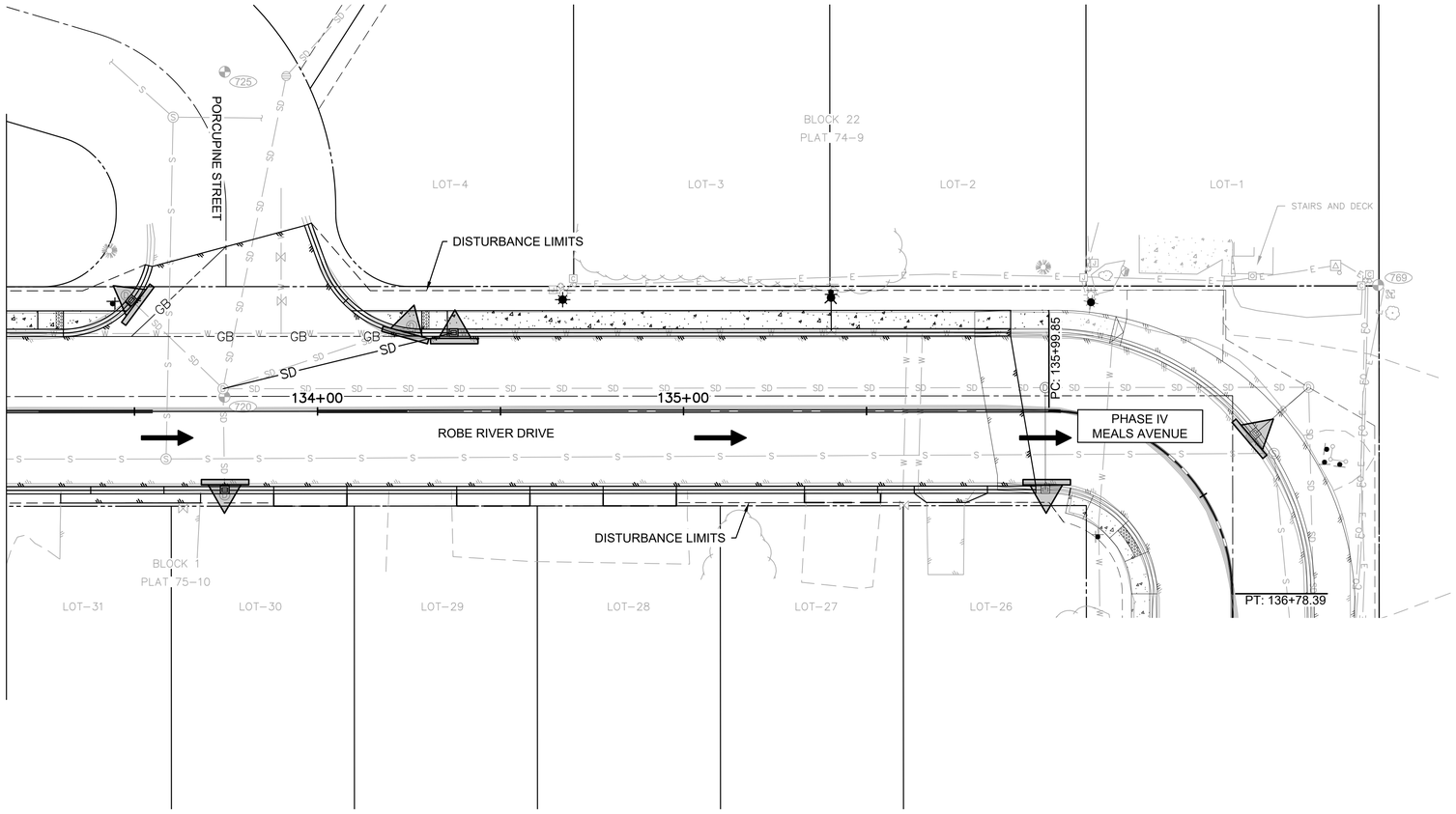
VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-601



ESCP LEGEND

DESCRIPTION	SYMBOL
INLET PROTECTION	
STORM WATER FLOW	
SEDIMENT BARRIER	

20 0 20 40
SCALE IN FEET

N

KEY MAP
SCALE 1"=1000'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
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VALDEZ PAVEMENT REHABILITATION
PHASE IV-ROBE RIVER DRIVE - ALTERNATE 4

EROSION AND SEDIMENT CONTROL PLAN

VALDEZ, ALASKA

PROJECT	63461.01
DATE	01/16/2026

C-602

J:\22\63461-01\65CAD\Sheet Files\Robe River Alt 4 Split\SC24-CS-ESCP-VALDEZ_PHASE_IV_RR4.dwg PLOT DATE 2026-1-16 17:30 SAVED DATE 2026-01-16 08:35 USER: wlows

LEGEND

	POLE MOUNTED AREA LIGHT – OUTDOORS, WEATHERPROOF
A	FIXTURE TAG (LETTER INDICATES TYPE)
$	SINGLE POLE SWITCH
P	PHOTOCELL
	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A–2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
—OH/E—	OVERHEAD ELECTRICAL LINE
—UG/E—	UNDERGROUND ELECTRICAL LINE
—UG/FO—	ADD ALT #6 UNDERGROUND FIBER OPTIC LINE (CONDUIT ONLY)
	PANEL
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
J	JUNCTION BOX
	PADMOUNT UTILITY TRANSFORMER
	IN GRADE EXTERIOR JUNCTION BOX – TYPE 1A UON
	ADD ALT #6 IN GRADE EXTERIOR FIBER OPTIC HANDHOLE
	ADD ALT #6 IN GRADE EXTERIOR FIBER OPTIC VAULT
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRSC	GALVANIZED RIGID STEEL CONDUIT
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT (ADDITIVE ALTERNATE #3)
K	KELVIN
L#	LIGHT POLE NUMBER (IE L1)
LED	LIGHT EMITTING DIODE
LM	LUMENS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING TYPE	MOUNTING HEIGHT	LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
A1	AS SHOWN	CREE – QUANTITY (1) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	LED STREET LIGHT, ALUMINUM HOUSING, TYPE 2 MEDIUM DISTRIBUTION, 40 LED, BACKLIGHT SHIELD, AND SILVER COLOR. MOUNT ON 25' POLE WITH 6' MAST ARM.	POLE/MAST ARM	27'–6" AFG	6000LM 4000K	120/240/277V	66
A2	AS SHOWN	CREE – QUANTITY (2) STR–LWY–2M–HT–04–E–UL–SV–525–40K–XA–XSLBLS60	SAME AS TYPE A1 EXCEPT TWO FIXTURES MOUNTED ON ONE POLE.	POLE/MAST ARM	27'–6' AFG	6000LM 4000K EACH	120/240/277V	66 EACH

Voltage Drop Calculation — RSA Engineering, Inc.

Job Name:	**Valdez Pavement Management Phase IV**
Job Number:	**M2078**
Feeder/Circuit From:	**Panel 'ML'**
Feeder/Circuit To:	**Furthest Light Pole L1**
Date:	**1/16/2026**

Circuit Description

Circuit Length(1-WAY):	**3700** ft.	Includes loops in JBs
Load Current:	**5.225** amps	
Voltage:	**240** volts	

Circuit Type **2**
1. 1 phase, 2 wire (120V or 277V)
2. 1 phase, 3 wire line to line (208V or 480V, 1 ph)
3. 1 phase, 3 wire line to neutral
4. 3 phase, 3 or 4 wire line to lin (208V or 480V, 3ph)
5. 3 phase, 3 or 4 wire line to neutral

Power Factor **1**
1. 100%
2. 90%
3. 80%
4. 70%
5. 60%

Conductor Size # **4** AWG

Conductor Type **1** Copper
1. Copper
2. Aluminum

Conduit Type **2** Non-Magnetic
1. Magnetic
2. Non-Magnetic

Number of Parallel Runs **1** Set

Total Voltage Drop	**11.97 Volts**
Voltage Drop Percentage	**4.99 %**

LIGHT POLE SCHEDULE

POLE #	ALGN	STATION	OFFSET	SIDE	CIRCUIT
L1	RR	125+76.00	31.00	L	ML-1,3
L2	RR	127+69.00	30.50	L	ML-1,3
L3	RR	129+48.00	30.50	L	ML-1,3
L4	RR	132+10.00	30.50	L	ML-1,3
L5	RR	134+67.00	30.50	L	ML-1,3

EXISTING LOADCENTER PANEL 'ML'

LIGHTING LOADCENTER — VOLTS: 120/240V,1PH,3W — ENCLOSURE: NEMA 3R — 100 A
TYPE: PANELBOARD — VOLT-AMPS — MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	20	**NEW ROBE & (E)MEALS LTG L1-L15**	LTG	**561**	462			LTG	(E)MEALS/PION. LTG L16-L25	20	2	2	b
a	3	2	20	^^	LTG			**561**	462	LTG	^^	20	2	4	b
	5	2	20	SPARE							SPARE	20	2	6	
	7	2		^^							^^		2	8	
	9	1	-	SPACE							SPACE	-	1	10	
	11	1	-	SPACE							SPACE	-	1	12	
				TOTAL V-A		1,023		1,023			2,046 VA				
				TOTAL AMPS		9		9			9 A				
				A.I.C. RATING: 10,000											

	LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL	AMPS
TOTAL CONNECTED LOAD IN KVA:	2.05	0.00	0.00	0.00	0.00	0.00	2.0 KVA	9 A
DEMAND LOAD IN KVA:	2.56	0.00	0.00	0.00	0.00	0.00	2.6 KVA	11 A

PANEL NOTES:
a DENOTES NEW & EXISTING LOADS ON EXISTING BREAKER.
b DENOTES EXISTING LOADS/BREAKER TO REMAIN.

PANEL OPTIONS:
MAIN LUGS ONLY

REVISIONS

REV	DATE	DESCRIPTION	BY
1	5/16/25	RFI #001 ADDITIONAL LIGHT POLE	

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE-13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

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Phone (907) 276-0521
Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL LEGEND, SCHEDULES AND CALCULATIONS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-001

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE CITY OF VALDEZ STANDARD SPECIFICATIONS (CVSS), INCLUDING ALL STATE AND LOCAL AMENDMENTS. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION. IN THE ABSENCE OF CVSS PERTAINING TO STREET LIGHTING SYSTEMS, REFERENCES TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) HAVE BEEN ADDED TO THESE SPECIFICATIONS AND DRAWINGS TO ASSIST WITH SPECIFIC CRITERIA. A COPY OF THE MASS CAN BE FOUND ONLINE AT MUNI.ORG.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DRAWINGS. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT. WHERE ABANDONED CONDUIT ENTERS BELOW GRADE, CUT CONDUIT TO A MINIMUM OF 6" BELOW GRADE, CAP OFF, AND REPAIR SURFACE.

D. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT SURFACES AFTER DEMOLITION. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

E. CONTRACTOR TO FIELD VERIFY ELECTRICAL ITEMS TO BE DEMOLISHED PRIOR TO START OF WORK. DEMOLISH CONDUITS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE SCHEDULED FOR DEMOLITION. WHERE CIRCUITS ARE SHARED WITH EQUIPMENT THAT IS EXISTING TO REMAIN, PROVIDE ALL WORK NECESSARY (INCLUDING EXTENDING AND RE-ROUTING CONDUITS) TO MAINTAIN ACCESS AND PROVIDE ELECTRICAL CONTINUITY TO EXISTING SYSTEMS AND CIRCUITRY

26 05 19 – WIRE AND CABLE

B. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

C. MATERIALS:
1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG.

C. INSTALLATION:
1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/240V CONDUCTORS BLACK, RED, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN CONDUIT AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

26 05 26 – GROUNDING AND BONDING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.

B. MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.

C. INSTALLATION:
1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR 6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN 6 AWG.
3. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: EQUIPMENT SUPPORT CHANNEL SHALL BE CORROSION RESISTANT STAINLESS STEEL OR FIBERGLASS. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO RESIST LATERAL EARTHQUAKE FORCES. .

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS
1. RIGID STEEL CONDUIT: ANSI C80.1, GALVANIZED RIGID STEEL CONDUIT (GRSC). FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT. PROVIDE PVC COATED RIGID CONDUIT WHERE EXPOSED OUTDOORS, 40 MIL EXTERIOR COATING AND 2 MIL INTERIOR COATING. CONDUIT FITTINGS SHALL MATCH CONDUIT TYPE (IE PVC COATED RIGIDE FITTINGS WHERE PVC COATED RIGID IS REQUIRED).
2. ADDITIVE ALTERNATE #3 & #6 – HIGH DENSITY POLYETHYLENE CONDUIT (HDPE): NEMA TC 7, SCHEDULE 40, HDPE CONDUIT RATED FOR 90°C CABLE. FITTINGS AND CONDUIT BODIES: NEMA TC 7. HDPE TO HDPE COUPLINGS: UL LISTED, BUTT-FUSION, ELECTRO-FUSION, SELF-THREADING, OR DRIVE-ON TYPE. HDPE TO RIGID COUPLINGS: DURALINE #SHUR-LOCK II, OR EQUAL.
3. PROVIDE TYPE 1A CONCRETE JUNCTION BOXES IN-GRADE WHERE SHOWN ON DRAWINGS. TYPE 1A JUNCTION BOX CONSISTING OF REINFORCED CONCRETE RATED FOR A MINIMUM TEST LOAD OF 7500 POUNDS DISTRIBUTED OVER A 10"x10" AREA, LIGHT TRAFFIC RATED, CAST-IRON LID WITH "LIGHTING" LABEL, AND STAINLESS STEEL HARDWARE.
4. ADDITIVE ALTERNATE #6 – FIBER OPTIC VAULT: 48"x48"x48" CONCRETE VAULT WITH MANHOLE LID RATED FOR AASHTO HS-20-44 LOADING. SEE CIVIL DRAWINGS FOR DETAILS.

C. INSTALLATION:
1. INSTALL GALVANIZED RIGID STEEL CONDUIT UNDERGROUND AND ABOVE GRADE WHERE NOTE EXPOSED TO THE ELEMENTS (IE STUBBED UP UNDER EQUIPMENT), UNLESS OTHERWISE NOTED. PROVIDE PVC COATED RIGID STEEL CONDUIT WHERE EXPOSED OUTDOORS.
2. ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE CONDUIT APPROVED FOR USE IN UNDERGROUND APPLICATIONS ONLY.
3. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS
1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.
3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:
1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.
2. CONDUITS: LABEL CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

26 50 00 – LIGHTING FIXTURES

A. SUBMITTALS:
1. SUBMIT PRODUCT DATA ON LIGHT FIXTURES, POLES, ARMS, PILES, AND ALL ACCESSORIES FOR APPROVAL.
2. SUBMIT STRUCTURALLY ENGINEERED SHOP DRAWINGS AND CALCULATIONS, STAMPED AND SIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA, FOR LIGHT POLES/ARM ASSEMBLIES AND PILES. DRAWINGS AND CALCULATIONS SHALL STATE CONFORMANCE TO THE INTERNATIONAL BUILDING CODE (IBC), THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) REQUIREMENTS SPECIFIC TO THE PROJECT AREA.
3. FIXTURE SUBSTITUTIONS SHALL BE SUBMITTED WITH POINT-BY-POINT LIGHTING CALCULATIONS ON A 2'X2' GRID SHOWING COMPLIANCE WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) RECOMMENDED LIGHTING LEVELS AND UNIFORMITY THROUGHOUT THE PROJECT AREA. LIGHT FIXTURE SUBSTITUTIONS WILL NOT BE CONSIDERED WITHOUT THE REQUIRED LIGHTING CALCULATIONS. FIXTURE, POLE AND ARM APPROVED ALTERNATES WILL CONFORM TO THE SAME BASIC SHAPE/STYLE, TECHNICAL AND AESTHETIC CHARACTERISTICS, PROVIDE EQUAL OR BETTER ILLUMINATION/UNIFORMITY, CONSUME EQUAL OR LESS POWER, AND BE ACCOMPANIED BY AN EQUAL OR BETTER MANUFACTURER WARRANTY THAN THE SPECIFIED PRODUCTS.

B. MATERIALS:
1. LUMINAIRES: PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
2. LED DRIVERS: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT -40°F WHERE INSTALLED OUTDOORS.
3. LED LAMPS: UNLESS OTHERWISE SCHEDULED ON THE PLANS, PROVIDE NOMINAL 4000 K, WITH MINIMUM 75CRI AND A MINIMUM L70 LAMP LIFE OF 50,000 HOURS.
4. LIGHT POLES: POLES SHALL BE HOT-DIPPED GALVANIZED MEETING THE REQUIREMENTS OF MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) DETAIL 80-19, HEIGHT AS SHOWN ON THE FIXTURE SCHEDULE. MAST ARMS SHALL BE HOT-DIPPED GALVANIZED STEEL MEETING THE REQUIREMENTS OF MASS DETAIL 80-20, LENGTH AS SHOWN ON THE FIXTURE SCHEDULE. POLE BASES SHALL BE FIXED BASE PER MASS DETAIL 80-21. DRIVEN STEEL PILE FOUNDATIONS SHALL BE PER MASS DETAIL 80-13.

C. INSTALLATION:
1. LUMINAIRE POLES, MAST ARMS, AND BASES SHALL BE INSTALLED PER THE APPLICABLE PORTIONS OF THE MASS DIVISION 80, INCLUDING DETAILS 80-13, 80-19, 80-20, 80-21, AND 80-25.
2. PROVIDE LUMINAIRE DISCONNECTING MEANS IN DRIVER CHANNEL OF EACH LIGHT FIXTURE. WHERE THE LUMINAIRE IS FED FROM A MULTI-WIRE BRANCH CIRCUIT, PROVIDE MULTI-POLE DISCONNECT TO SIMULTANEOUSLY BREAK ALL SUPPLY CONDUCTORS TO THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA – DAVIN K. BLUBAUGH – EE-13893 – 01/16/26 – REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
8210 Westward Circle, Suite 200
Anchorage, AK 99513
Phone (907) 276-0521
Corporate No.: AECC542

VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

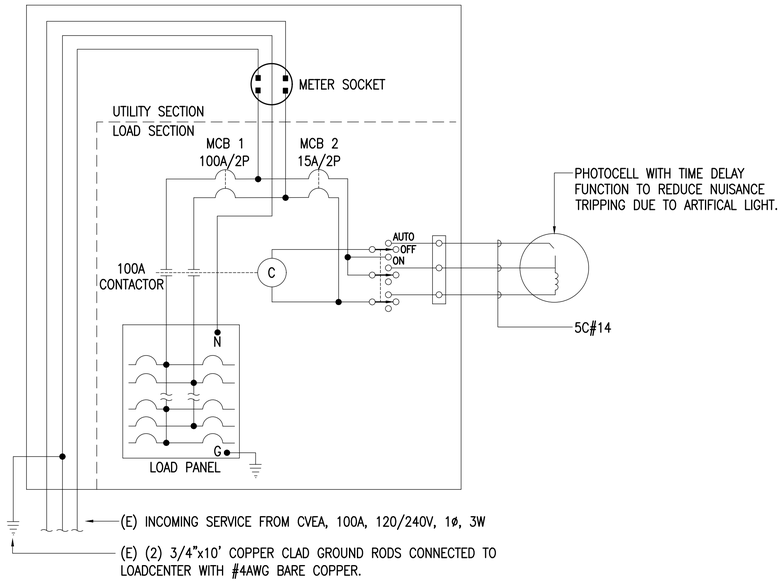
ELECTRICAL SPECIFICATIONS

VALDEZ, ALASKA

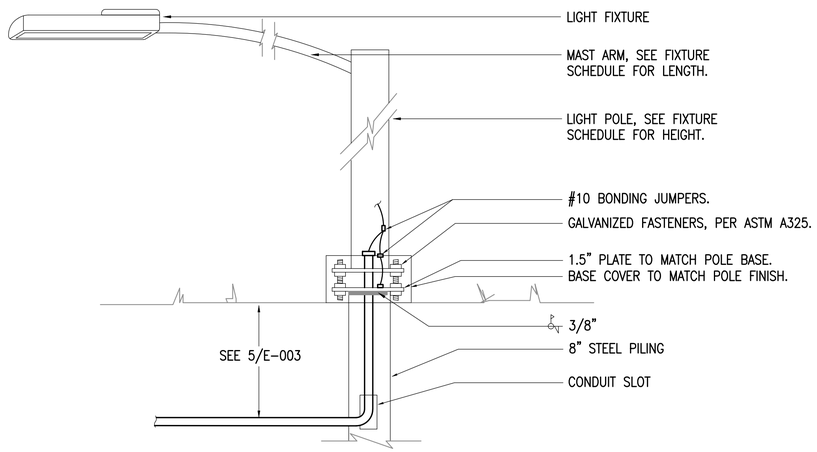
RSA PROJECT M2078
DATE 01/16/2026

E-002

G:\2022\M2078\M2078-E1SERIES-PHIV-ROBE.dwg PLOT DATE 2026-1-16 16:30 SAVED DATE 2026-01-16 16:22 USER: nic villa-fuerte

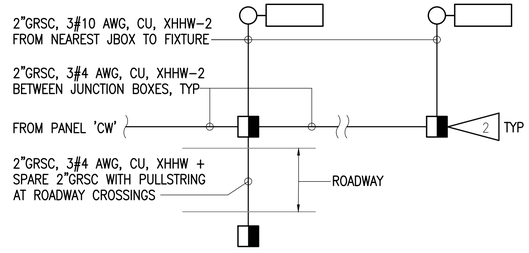


1 EXISTING LOADCENTER TYPICAL WIRING DIAGRAM
NO SCALE



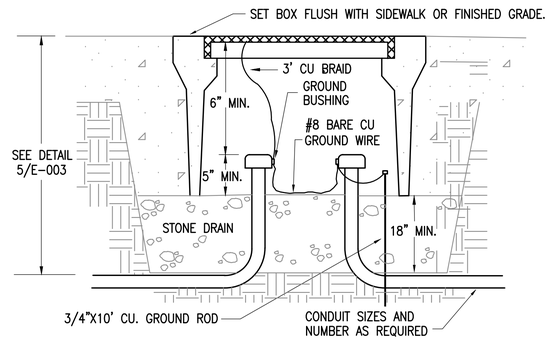
DETAIL NOTES FOR LIGHT POLE BASES:
1. REFERENCE SPECIFICATION SECTION 26 50 00 FOR LIGHT POLE, MAST ARM, AND DRIVEN PILE REQUIREMENTS.

2 TYPICAL LIGHT POLE BASE DETAIL
NTS

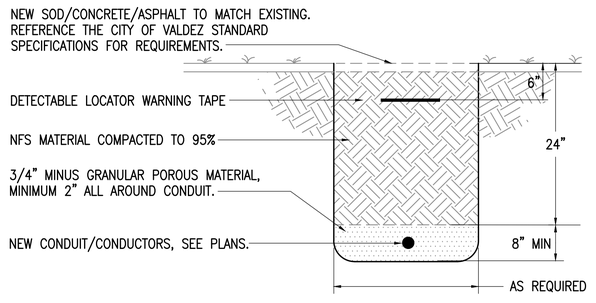


ADDITIVE ALTERNATE #3: SCHEDULE 40 HDPE MAY BE UTILIZED IN PLACE OF GRSC FOR UNDERGROUND APPLICATIONS ONLY.

3 STREET LIGHTING SCHEMATIC
NO SCALE



4 EXTERIOR TYPE 1A JUNCTION BOX 1
NO SCALE



5 TYPICAL TRENCHING DETAIL
NO SCALE

SHEET NOTES:
1. PROVIDE A 36" LOOP WITHIN THE STREET LIGHTING CONDUCTORS AT EACH JUNCTION BOX TO PROVIDE SLACK FOR FUTURE MAINTENANCE PURPOSES.

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA — DAVIN K. BLUBAUGH — EE-13893 — 01/16/26 — REGISTERED PROFESSIONAL ENGINEER

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VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL DETAILS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-003

1420

G:\2022\M2078\M2078-E1SERIES-PHIV-ROBE.dwg PLOT DATE 2026-1-16 16:30 SAVED DATE 2026-01-16 16:22 USER: nic villa-fuerte

GENERAL NOTES:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

D. CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY LOCATES WITHIN THE VICINITY OF THEIR EXCAVATION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

E. REFERENCE THE CITY OF VALDEZ STANDARD SPECIFICATIONS FOR ALL REQUIREMENTS RELATED TO TRENCHING, EXCAVATION, BACKFILL, CONCRETE, ASPHALT, AND GRASS/SOD PRIOR TO BEGINNING WORK.

F. UNLESS OTHERWISE NOTED DEMOLISH LIGHT FIXTURES, POLES, BASES/PILES, AND ALL ASSOCIATED EXPOSED CONDUIT AND WIRE AS SHOWN. DEMOLISH UNDERGROUND WIRING WITHIN CONDUIT TO SOURCE. DEMOLISH UNDERGROUND CONDUIT AND/OR DIRECT BURIED CABLE TO EXTENT NECESSARY AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.

G. UNLESS OTHERWISE NOTED DEMOLISH LIGHT POLES AND BASES/PILES COMPLETE, AND BACKFILL AND COMPACT ALL HOLES.

H. UTILITY TRANSFORMERS POWERING THE EXISTING STREET LIGHTING ARE NOT SHOWN ON THESE SHEETS. ALL UTILITY TRANSFORMERS SHALL REMAIN. DEMOLISH STREET LIGHTING CONDUIT AND CONDUCTORS AS SHOWN/NOTED.

D. REFERENCE THE DETAILS ON SHEET E-003 FOR ADDITIONAL LIGHTING AND LIGHTING CONDUIT/WIRING REQUIREMENTS.

E. LOCATIONS OF NEW LIGHT POLES SHOWN ON E-001 SCHEDULE. LOCATIONS OF JUNCTION BOXES, AND UNDERGROUND CONDUIT ROUTING IS APPROXIMATE ONLY. ADJUST LOCATIONS IN THE FIELD TO AVOID EXISTING UNDERGROUND UTILITIES.

F. ADDITIVE ALTERNATE #6 – ALL UNDERGROUND FIBER OPTIC LINES SHOWN (UG/FO) SHALL BE (2) RUNS OF 2" HDPE CONDUIT. ONLY A SINGLE LINE IS SHOWN FOR CLARITY, BUT (2) SHALL BE PROVIDED. ROUTE CONDUIT IN COMMON TRENCH WITH THE NEW LIGHTING CONDUIT TO FURTHEST EXTENT PRACTICAL. COORDINATE THE FINAL LOCATION OF ALL HANDHOLES AND VAULTS WITH THE COV PRIOR TO EXCAVATION.

1 ELECTRICAL SITE PLAN AND OVERALL MAP
1"=200'

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
E-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
6700 Arctic Spur Road, Suite 200
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Corporate No.: AECC542

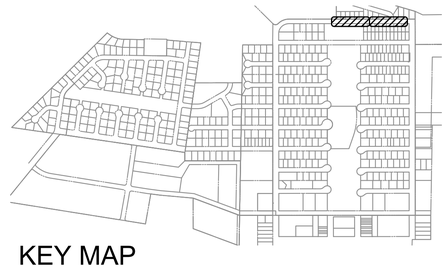
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL SITE PLAN AND OVERALL MAP

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-004



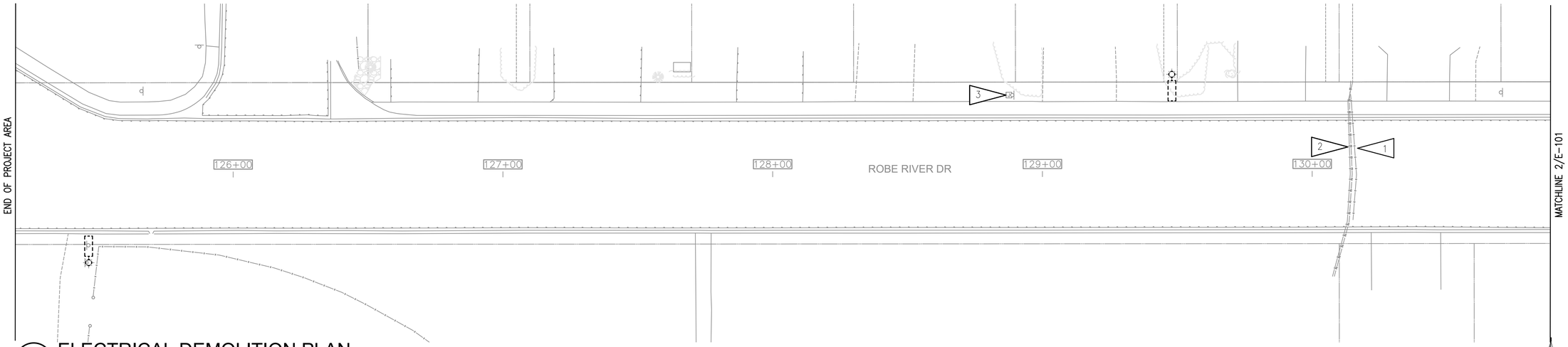
KEY MAP
1"=1000'

GENERAL NOTES:

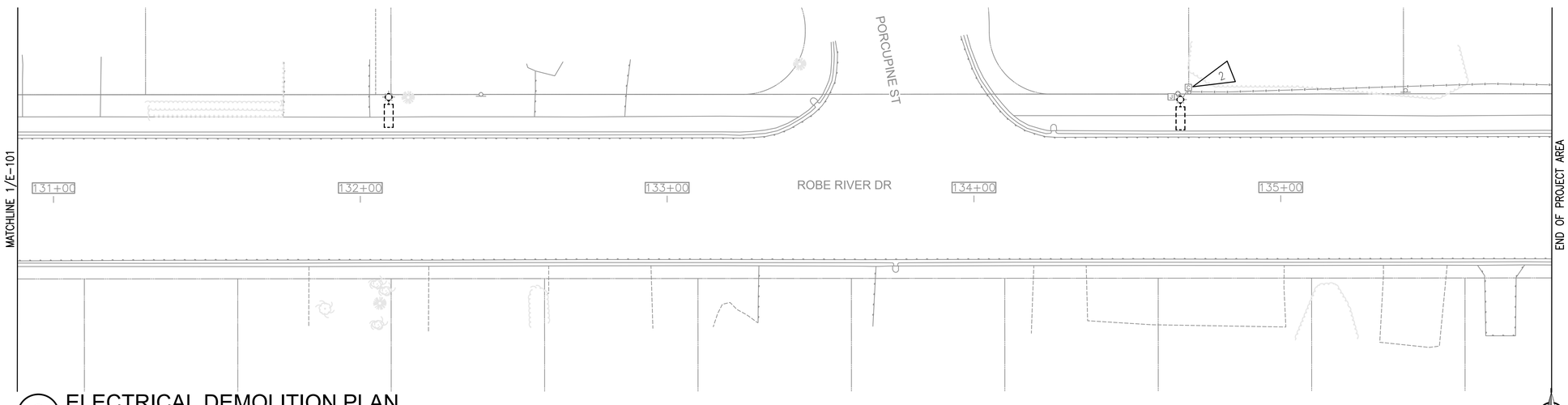
A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROTECT EXISTING FLASHING SCHOOL SIGN AND ASSOCIATED JUNCTION BOX, CONDUIT, AND WIRING DURING CONSTRUCTION.



1 ELECTRICAL DEMOLITION PLAN
1"=20'



2 ELECTRICAL DEMOLITION PLAN
1"=20'

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA
DAVIN K. BLUBAUGH
E-13893
01/16/26
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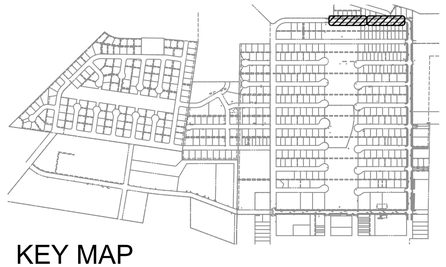
VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL DEMOLITION PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-101



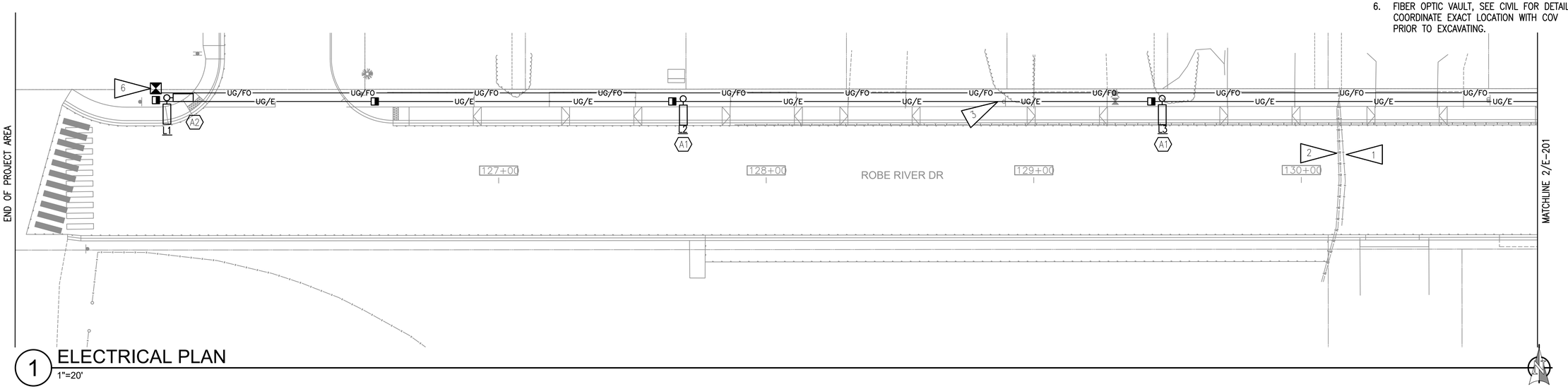
KEY MAP
1"=1000'

GENERAL NOTES:

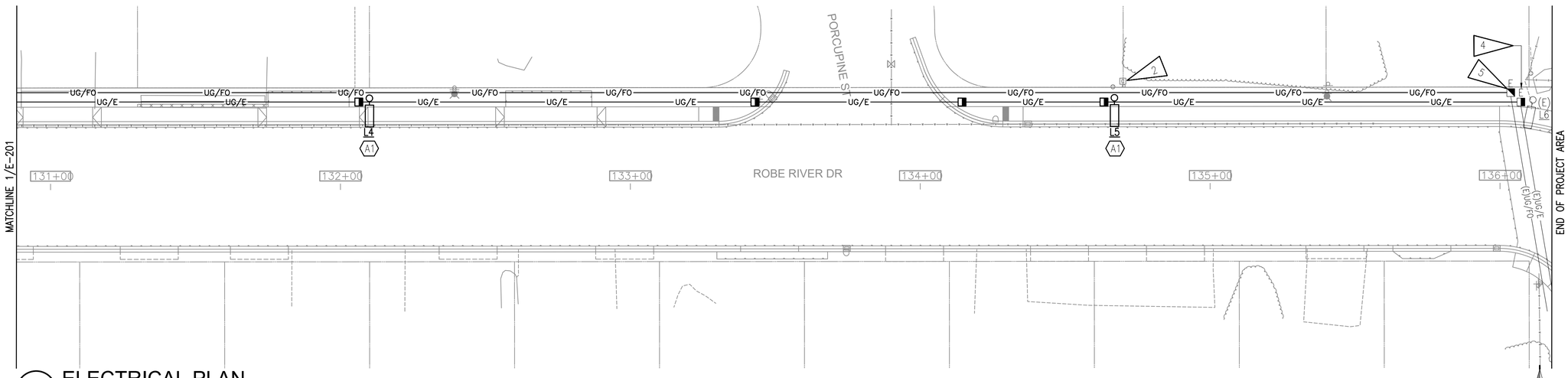
A. SEE SHEET E-004 FOR GENERAL NOTES.

SHEET NOTES:

1. PROTECT EXISTING ELECTRIC UTILITY DURING CONSTRUCTION.
2. PROTECT EXISTING FIBER OPTICS AND COMMUNICATIONS CABLING DURING CONSTRUCTION.
3. PROTECT EXISTING FLASHING SCHOOL SIGN AND ASSOCIATED JUNCTION BOX, CONDUIT, AND WIRING DURING CONSTRUCTION.
4. EXTEND NEW CONDUIT/WIRING FROM EXISTING JUNCTION BOX INSTALLED UNDER THE PHASE IV MEALS PROJECT.
5. EXTEND NEW FIBER OPTIC CONDUITS FROM EXISTING FIBER OPTIC HANDHOLE.
6. FIBER OPTIC VAULT, SEE CIVIL FOR DETAILS. COORDINATE EXACT LOCATION WITH COV PRIOR TO EXCAVATING.



1 ELECTRICAL PLAN
1"=20'



2 ELECTRICAL PLAN
1"=20'

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA
DAVIN K. BLUBAUGH
E-13893
01/16/26
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
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VALDEZ PAVEMENT REHABILITATION
PHASE IV - ROBE RIVER DRIVE - ALTERNATE 4

ELECTRICAL PLANS

VALDEZ, ALASKA

RSA PROJECT M2078
DATE 01/16/2026

E-201

Summary of Bids Received

Bid Opening - February 27, 2026 at 2:00PM

Project: Pavement Management Phase IV Meals Avenue
Contract No.: 2450
Project No.: 25-310-1118

			Wolverine Supply, Inc.		Knik Construction Co., Inc.		Granite Construction Company	
Item #	Item	Quantity	Price	Extension	Price	Extension	Price	Extension
	Bid Schedule Page 1 of 2							
1	FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST - LS	1.0000	$50,000.00	$50,000.00	$100,000.00	$100,000.00	$1,000.00	$1,000.00
2	USABLE EXCAVATION - CY	6.0000	$50.00	$300.00	$48.00	$288.00	$30.00	$180.00
3	UNUSABLE EXCAVATION - CY	5,650.0000	$25.00	$141,250.00	$21.00	$118,650.00	$30.00	$169,500.00
4	TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	9,340.0000	$32.00	$298,880.00	$23.00	$214,820.00	$30.00	$280,200.00
5	LEVELING COURSE - TON	1,875.0000	$75.00	$140,625.00	$38.00	$71,250.00	$75.00	$140,625.00
6	TRENCH EXCAVATION AND BACKFILL - LF	870.0000	$30.00	$26,100.00	$108.00	$93,960.00	$1.00	$870.00
7	7 - BEDDING MATERIAL (CLASS C) - TON	529.0000	$25.00	$13,225.00	$52.00	$27,508.00	$30.00	$15,870.00
8	REMOVE EXISTING SIDEWALK - SY	1,500.0000	$50.00	$75,000.00	$16.00	$24,000.00	$20.00	$30,000.00
9	REMOVE EXISTING CURB AND GUTTER - LF	5,000.0000	$3.00	$15,000.00	$6.00	$30,000.00	$10.00	$50,000.00
10	REMOVE EXISTING BACKING CURB - LF	135.0000	$40.00	$5,400.00	$8.00	$1,080.00	$10.00	$1,350.00
11	REMOVE EXISTING PAVEMENT - SY	15,550.0000	$2.50	$38,875.00	$4.25	$66,087.50	$10.00	$155,500.00
12	GEOTEXTILE (SEPARATION & STABILIZE) - SY	15,100.0000	$3.50	$52,850.00	$4.00	$60,400.00	$2.00	$30,200.00
13	GEOTEXTILE, SEPARATION (TYPE A) - SY	4,050.0000	$4.00	$16,200.00	$4.00	$16,200.00	$2.00	$8,100.00
14	STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$20,000.00	$20,000.00	$110,000.00	$110,000.00	$200,000.00	$200,000.00
15	MOBILIZATION AND DEMOBILIZATION - LS	1.0000	$400,000.00	$400,000.00	$650,000.00	$650,000.00	$950,000.00	$950,000.00
16	PCC CURB AND GUTTER - LF	5,150.0000	$65.00	$334,750.00	$57.25	$294,837.50	$65.00	$334,750.00
17	PCC SIDEWALK 4" THICK - SY	1,200.0000	$135.00	$162,000.00	$139.50	$167,400.00	$150.00	$180,000.00
18	ADA CURB RAMPS (ALL LABOR AND MATERIALS) - EA	18.0000	$4,600.00	$82,800.00	$9,200.00	$165,600.00	$8,500.00	$153,000.00
19	BACKING CURB - LF	130.0000	$50.00	$6,500.00	$108.00	$14,040.00	$100.00	$13,000.00
20	HMA, TYP II; CLASS A - TON	2,850.0000	$220.00	$627,000.00	$145.00	$413,250.00	$215.00	$612,750.00
21	SEWER LINE CLEANING - LF	0.0000	$13.00	$0.00	$0.00	$0.00	$0.00	$0.00

22	SEWER LINE CCTV INSPECTION - LF	280.0000	$13.00	$3,640.00	$11.50	$3,220.00	$15.00	$4,200.00
23	FURNISH AND INSTALL PIPE (12") - LF	550.0000	$40.00	$22,000.00	$94.00	$51,700.00	$175.00	$96,250.00
24	FURNISH AND INSTALL PIPE (18") - LF	320.0000	$70.00	$22,400.00	$114.00	$36,480.00	$175.00	$56,000.00
25	CONSTRUCT MANHOLE - EA	36.0000	$10,000.00	$360,000.00	$15,000.00	$540,000.00	$17,500.00	$630,000.00
26	STORM DRAIN LINE CLEANING - LF	560.0000	$20.00	$11,200.00	$17.00	$9,520.00	$15.00	$8,400.00
27	STORM DRAIN LINE CCTV INSPECTION - LF	0.0000	$15.00	$0.00	$0.00	$0.00	$0.00	$0.00
28	INSTALL WATER SERVICE (2" COPPER) - LF	0.0000	$450.00	$0.00	$0.00	$0.00	$0.00	$0.00
29	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) - EA	2.0000	$9,000.00	$18,000.00	$30,500.00	$61,000.00	$30,000.00	$60,000.00
30	FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE - EA	3.0000	$6,000.00	$18,000.00	$26,000.00	$78,000.00	$30,000.00	$90,000.00
31	REMOVE AND REPLACE VALVE BOX TOP SECTION - EA	1.0000	$1,000.00	$1,000.00	$1,500.00	$1,500.00	$3,000.00	$3,000.00
32	CLEAN AND CLEAR VALVE - EA	1.0000	$500.00	$500.00	$1,500.00	$1,500.00	$2,000.00	$2,000.00
33	CONSTRUCTION SURVEYING - LS	1.0000	$169,000.00	$169,000.00	$175,000.00	$175,000.00	$150,000.00	$150,000.00
34	ADJUST MANHOLE RING TO FINISH GRADE - EA	21.0000	$2,000.00	$42,000.00	$2,200.00	$46,200.00	$2,000.00	$42,000.00
35	RELOCATE CATCH BASIN OR CBMH - EA	1.0000	$3,000.00	$3,000.00	$7,100.00	$7,100.00	$7,500.00	$7,500.00
36	REMOVE EXISTING MANHOLE - EA	33.0000	$1,500.00	$49,500.00	$3,000.00	$99,000.00	$1,000.00	$33,000.00
37	PAINTED TRAFFIC MARKINGS - LS	1.0000	$19,000.00	$19,000.00	$7,600.00	$7,600.00	$10,000.00	$10,000.00
38	STANDARD SIGN POST - EA	25.0000	$300.00	$7,500.00	$340.00	$8,500.00	$300.00	$7,500.00
39	STANDARD SIGNS - SF	204.0000	$250.00	$51,000.00	$115.00	$23,460.00	$100.00	$20,400.00
40	TRAFFIC MAINTENANCE - LS	1.0000	$40,000.00	$40,000.00	$180,000.00	$180,000.00	$200,000.00	$200,000.00
41	TRAFFIC CONTROL - LS	1.0000	$15,000.00	$15,000.00	$80,000.00	$80,000.00	$200,000.00	$200,000.00
42	FLAGGING - CS	1.0000	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00
43	TEMPORARY ACCESS ROAD - LS	1.0000	$190,000.00	$190,000.00	$300,000.00	$300,000.00	$200,000.00	$200,000.00
44	REMOVE PIPE - LF	690.0000	$18.00	$12,420.00	$33.00	$22,770.00	$10.00	$6,900.00
45	TOP SOIL AT 2" DEPTH - MSF	87.0000	$1,500.00	$130,500.00	$680.00	$59,160.00	$1,000.00	$87,000.00
46	SEEDING (SCHEDULE A) - MSF	87.0000	$250.00	$21,750.00	$525.00	$45,675.00	$200.00	$17,400.00
47	DEMOLITION - LS	1.0000	$50,000.00	$50,000.00	$10,000.00	$10,000.00	$20,000.00	$20,000.00

48	48 - 100A LIGHTING LOADCENTER - EA	0.0000	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
49	SERVICE FEEDER - LF	0.0000	$12.00	$0.00	$0.00	$0.00	$0.00	$0.00
50	LIGHT FIXTURES - EA	13.0000	$1,100.00	$14,300.00	$1,350.00	$17,550.00	$900.00	$11,700.00
51	10' MAST ARM - EA	13.0000	$700.00	$9,100.00	$1,250.00	$16,250.00	$600.00	$7,800.00
52	POLES - EA	11.0000	$7,000.00	$77,000.00	$10,100.00	$111,100.00	$5,500.00	$60,500.00
53	POLE BASES - EA	11.0000	$5,000.00	$55,000.00	$2,900.00	$31,900.00	$4,000.00	$44,000.00
54	2" RIGID CONDUIT - LF	3,480.0000	$37.00	$128,760.00	$41.00	$142,680.00	$30.00	$104,400.00
55	BRANCH CIRCUIT WIRING - LF	10,450.0000	$3.00	$31,350.00	$7.30	$76,285.00	$3.00	$31,350.00
56	IN-GRADE JBS - EA	20.0000	$1,300.00	$26,000.00	$1,700.00	$34,000.00	$1,250.00	$25,000.00
57	OWNER'S CONTINGENCY - CS	1.0000	$400,000.00	$400,000.00	$400,000.00	$400,000.00	$400,000.00	$400,000.00
AA1-1	AA1-1 - USABLE EXCAVATION - CY	35.0000	$50.00	$1,750.00	$48.00	$1,680.00	$30.00	$1,050.00
AA1-2	AA1-2 - UNUSABLE EXCAVATION - CY	154.0000	$50.00	$7,700.00	$25.00	$3,850.00	$30.00	$4,620.00
AA1-3	AA1-3 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	225.0000	$35.00	$7,875.00	$26.00	$5,850.00	$30.00	$6,750.00
AA1-4	AA1-4 - LEVELING COURSE - TON	76.0000	$75.00	$5,700.00	$38.00	$2,888.00	$75.00	$5,700.00
AA1-5	AA1-5 - REMOVE EXISTING PAVEMENT - SY	452.0000	$4.00	$1,808.00	$6.00	$2,712.00	$10.00	$4,520.00
AA1-6	AA1-6 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	750.0000	$5.00	$3,750.00	$4.00	$3,000.00	$2.00	$1,500.00
AA1-7	AA1-7 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$4,000.00	$4,000.00	$2,500.00	$2,500.00	$1,000.00	$1,000.00
AA1-8	AA1-8 - PCC CURB AND GUTTER - LF	380.0000	$70.00	$26,600.00	$57.25	$21,755.00	$65.00	$24,700.00
AA1-9	AA1-9 - HMA, TYP II; CLASS A - TON	118.0000	$220.00	$25,960.00	$142.00	$16,756.00	$215.00	$25,370.00
AA1-10	AA1-10 - CONSTRUCTION SURVEY - LS	1.0000	$27,000.00	$27,000.00	$23,600.00	$23,600.00	$9,000.00	$9,000.00
AA1-11	AA1-11 - TRAFFIC MAINTENANCE - LS	1.0000	$4,000.00	$4,000.00	$2,600.00	$2,600.00	$1,000.00	$1,000.00
AA1-12	AA1-12 - TRAFFIC CONTROL - LS	1.0000	$6,000.00	$6,000.00	$600.00	$600.00	$1,000.00	$1,000.00
AA1-13	AA1-13 - TOP SOIL AT 2" DEPTH - MSF	1.0000	$2,000.00	$2,000.00	$706.00	$706.00	$1,000.00	$1,000.00
AA1-14	AA1-14 - SEEDING (SCHEDULE A) - MSF	1.0000	$350.00	$350.00	$544.00	$544.00	$200.00	$200.00
AA2-1	AA2-1 - UNUSABLE EXCAVATION - CY	263.0000	$50.00	$13,150.00	$23.00	$6,049.00	$30.00	$7,890.00
AA2-2	AA2-2 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	393.0000	$35.00	$13,755.00	$28.00	$11,004.00	$30.00	$11,790.00
AA2-3	AA2-3 - LEVELING COURSE - TON	121.0000	$75.00	$9,075.00	$38.00	$4,598.00	$75.00	$9,075.00

AA2-4	AA2-4 - TRENCH EXCAVATION AND BACKFILL - LF	243.0000	$26.00	$6,318.00	$107.00	$26,001.00	$1.00	$243.00
AA2-5	AA2-5 - BEDDING MATERIAL (CLASS C) - TON	170.0000	$22.00	$3,740.00	$54.00	$9,180.00	$30.00	$5,100.00
AA2-6	AA2-6 - REMOVE EXISTING PAVEMENT - SY	900.0000	$3.00	$2,700.00	$6.00	$5,400.00	$10.00	$9,000.00
AA2-7	AA2-7 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	1,150.0000	$5.00	$5,750.00	$4.00	$4,600.00	$2.00	$2,300.00
AA2-8	AA2-8 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$4,000.00	$4,000.00	$5,000.00	$5,000.00	$500.00	$500.00
AA2-9	AA2-9 - PCC CURB AND GUTTER - LF	386.0000	$65.00	$25,090.00	$60.00	$23,160.00	$65.00	$25,090.00
AA2-10	AA2-10 - HMA, TYP II; CLASS A - TON	190.0000	$220.00	$41,800.00	$146.00	$27,740.00	$215.00	$40,850.00
AA2-11	AA2-11 - FURNISH AND INSTALL PIPE (12") - LF	40.0000	$60.00	$2,400.00	$92.00	$3,680.00	$175.00	$7,000.00
AA2-12	AA2-12 - FURNISH AND INSTALL PIPE (18") - LF	203.0000	$70.00	$14,210.00	$105.00	$21,315.00	$175.00	$35,525.00
AA2-13	AA2-13 - CONSTRUCT MANHOLE - EA	2.0000	$15,000.00	$30,000.00	$14,500.00	$29,000.00	$17,500.00	$35,000.00
AA2-14	AA2-14 - CONSTRUCTION SURVEY - LS	1.0000	$27,000.00	$27,000.00	$23,600.00	$23,600.00	$5,000.00	$5,000.00
AA2-15	AA2-15 - REMOVE EXISTING MANHOLE - EA	2.0000	$1,500.00	$3,000.00	$3,875.00	$7,750.00	$1,000.00	$2,000.00
AA2-16	AA2-16 - TRAFFIC MAINTENANCE - LS	1.0000	$3,000.00	$3,000.00	$10,000.00	$10,000.00	$1,000.00	$1,000.00
AA2-17	AA2-17 - TRAFFIC CONTROL - LS	1.0000	$2,000.00	$2,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00
AA2-18	AA2-18 - REMOVE PIPE - LF	243.0000	$15.00	$3,645.00	$33.00	$8,019.00	$10.00	$2,430.00
AA3-1	A3-1 - 2" HDPE CONDUIT - LF	3,480.0000	$20.00	$69,600.00	$29.20	$101,616.00	$20.00	$69,600.00
AA3-2	A3-2 - 2" HDPE CONDUIT - LF	1,230.0000	$22.00	$27,060.00	$30.25	$37,207.50	$20.00	$24,600.00
AA4-1	AA4-1 - FIELD ENGINEERING, SUBMITTALS, SHOP & RECORD DRAWINGS, OPERATING INSTRUCTIONS, O&M MANUALS AND CLOSE-OUT PUNCH LIST - LS	1.0000	$25,000.00	$25,000.00	$25,000.00	$25,000.00	$1,000.00	$1,000.00
AA4-2	AA4-2 - USABLE EXCAVATION - CY	15.0000	$50.00	$750.00	$45.00	$675.00	$30.00	$450.00
AA4-3	AA4-3 - UNUSABLE EXCAVATION - CY	1,850.0000	$25.00	$46,250.00	$23.00	$42,550.00	$30.00	$55,500.00
AA4-4	AA4-4 - TYPE II-A CLASSIFIED FILL AND BACKFILL - TON	3,050.0000	$32.00	$97,600.00	$24.50	$74,725.00	$30.00	$91,500.00
AA4-5	AA4-5 - LEVELING COURSE - TON	646.0000	$76.00	$49,096.00	$38.00	$24,548.00	$75.00	$48,450.00

AA4-6	AA4-6 - TRENCH EXCAVATION AND BACKFILL - LF	120.0000	$32.00	$3,840.00	$107.00	$12,840.00	$1.00	$120.00
AA4-7	AA4-7 - BEDDING MATERIAL (CLASS C) - TON	63.0000	$50.00	$3,150.00	$51.00	$3,213.00	$30.00	$1,890.00
AA4-8	AA4-8 - REMOVE EXISTING SIDEWALK - SY	630.0000	$50.00	$31,500.00	$16.00	$10,080.00	$20.00	$12,600.00
AA49-	AA4-9 - REMOVE EXISTING CURB AND GUTTER - LF	2,150.0000	$4.00	$8,600.00	$6.00	$12,900.00	$10.00	$21,500.00
AA4-10	AA4-10 - REMOVE EXISTING BACKING CURB - LF	45.0000	$14.00	$630.00	$9.00	$405.00	$10.00	$450.00
AA4-11	AA4-11 - REMOVE EXISTING PAVEMENT - SY	5,200.0000	$3.00	$15,600.00	$4.00	$20,800.00	$10.00	$52,000.00
AA4-12	AA4-12 - GEOTEXTILE (SEPARATION & STABILIZE) - SY	6,200.0000	$3.50	$21,700.00	$4.00	$24,800.00	$2.00	$12,400.00
AA4-13	AA4-13 - GEOTEXTILE, SEPARATION (TYPE A) - SY	800.0000	$4.00	$3,200.00	$4.00	$3,200.00	$2.00	$1,600.00
AA4-14	AA4-14 - STORM WATER POLLUTION PREVENTION PLAN - LS	1.0000	$3,000.00	$3,000.00	$20,000.00	$20,000.00	$5,000.00	$5,000.00
AA4-15	AA4-15 - MOBILIZATION AND DEMOBILIZATION - LS	1.0000	$50,000.00	$50,000.00	$70,000.00	$70,000.00	$5,000.00	$5,000.00
AA4-16	AA4-16 - PCC CURB AND GUTTER - LF	2,150.0000	$65.00	$139,750.00	$69.00	$148,350.00	$65.00	$139,750.00
AA4-17	AA4-17 - PCC SIDEWALK 4" THICK - SY	560.0000	$140.00	$78,400.00	$160.00	$89,600.00	$150.00	$84,000.00
AA4-18	AA4-18 - ADA CURB RAMPS (ALL LABOR AND MATERIALS) - EA	4.0000	$4,500.00	$18,000.00	$7,800.00	$31,200.00	$8,500.00	$34,000.00
AA4-19	AA4-19 - BACKING CURB - LF	45.0000	$60.00	$2,700.00	$127.00	$5,715.00	$100.00	$4,500.00
AA4-20	AA4-20 - HMA, TYP II; CLASS A - TON	1,010.0000	$220.00	$222,200.00	$122.00	$123,220.00	$215.00	$217,150.00
AA4-21	AA4-21 - SEWER LINE CLEANING - LF	332.0000	$13.00	$4,316.00	$11.50	$3,818.00	$35.00	$11,620.00
AA4-22	AA4-22 - SEWER LINE CCTV INSPECTION - LF	346.0000	$13.00	$4,498.00	$11.50	$3,979.00	$15.00	$5,190.00
AA4-23	AA4-23 - FURNISH AND INSTALL PIPE (12") - LF	120.0000	$40.00	$4,800.00	$87.00	$10,440.00	$175.00	$21,000.00
AA4-24	AA4-24 - FURNISH AND INSTALL PIPE (18") - LF	0.0000	$70.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-25	AA4-25 - CONSTRUCT MANHOLE - EA	5.0000	$10,000.00	$50,000.00	$15,200.00	$76,000.00	$17,500.00	$87,500.00
AA4-26	AA4-26 - STORM DRAIN LINE CLEANING - LF	0.0000	$13.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-27	AA4-27 - STORM DRAIN LINE CCTV INSPECTION - LF	0.0000	$15.00	$0.00	$0.00	$0.00	$0.00	$0.00

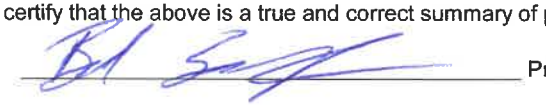
AA4-28	AA4-28 - INSTALL WATER SERVICE (2" COPPER) - LF	0.0000	$450.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-29	AA4-29 - FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) - EA	0.0000	$9,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-30	AA4-30 - FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER) WITHOUT GATE VALVE - EA	4.0000	$6,000.00	$24,000.00	$25,000.00	$100,000.00	$30,000.00	$120,000.00
AA4-31	AA4-31 - REMOVE AND REPLACE VALVE BOX TOP SECTION - EA	0.0000	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-32	AA4-32 - CLEAN AND CLEAR VALVE - EA	2.0000	$500.00	$1,000.00	$1,400.00	$2,800.00	$2,000.00	$4,000.00
AA4-33	AA4-33 - CONSTRUCTION SURVEYING - LS	1.0000	$75,000.00	$75,000.00	$70,000.00	$70,000.00	$20,000.00	$20,000.00
AA4-34	AA4-34 - ADJUST MANHOLE RING TO FINISH GRADE - EA	5.0000	$2,000.00	$10,000.00	$2,400.00	$12,000.00	$2,000.00	$10,000.00
AA4-35	AA4-35 - RELOCATE CATCH BASIN OR CBMH - EA	0.0000	$3,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-36	AA4-36 - REMOVE EXISTING MANHOLE - EA	5.0000	$1,500.00	$7,500.00	$4,000.00	$20,000.00	$1,000.00	$5,000.00
AA4-37	AA4-37 - PAINTED TRAFFIC MARKINGS - LS	1.0000	$3,000.00	$3,000.00	$4,800.00	$4,800.00	$5,000.00	$5,000.00
AA4-38	AA4-38 - STANDARD SIGN POST - EA	10.0000	$300.00	$3,000.00	$337.00	$3,370.00	$300.00	$3,000.00
AA4-39	AA4-39 - STANDARD SIGNS - SF	80.0000	$250.00	$20,000.00	$112.00	$8,960.00	$100.00	$8,000.00
AA4-40	AA4-40 - TRAFFIC MAINTENANCE - LS	1.0000	$45,000.00	$45,000.00	$36,300.00	$36,300.00	$5,000.00	$5,000.00
AA4-41	AA4-41 - TRAFFIC CONTROL - LS	1.0000	$13,000.00	$13,000.00	$2,000.00	$2,000.00	$5,000.00	$5,000.00
AA4-42	AA4-42 - FLAGGING - CS	1.0000	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00
AA4-43	AA4-43 - TEMPORARY ACCESS ROAD - LS	1.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-44	AA4-44 - REMOVE PIPE - LF	120.0000	$20.00	$2,400.00	$33.00	$3,960.00	$10.00	$1,200.00
AA4-45	AA4-45 - TOP SOIL AT 2" DEPTH - MSF	8.0000	$2,000.00	$16,000.00	$707.00	$5,656.00	$1,000.00	$8,000.00
AA4-46	AA4-46 - SEEDING (SCHEDULE A) - MSF	8.0000	$250.00	$2,000.00	$550.00	$4,400.00	$200.00	$1,600.00
AA4-47	AA4-47 - DEMOLITION - LS	1.0000	$10,500.00	$10,500.00	$5,000.00	$5,000.00	$10,000.00	$10,000.00
AA4-48	AA4-48 - 100A LIGHTING LOADCENTER - EA	0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AA4-49	AA4-49 - SERVICE FEEDER - LF	1.0000	$12.00	$12.00	$0.00	$0.00	$0.00	$0.00
AA4-50	AA4-50 - LIGHT FIXTURES - EA	6.0000	$825.00	$4,950.00	$1,345.00	$8,070.00	$900.00	$5,400.00
AA4-51	AA4-51 - 10' MAST ARM - EA	6.0000	$700.00	$4,200.00	$1,235.00	$7,410.00	$600.00	$3,600.00
AA4-52	AA4-52 - POLES - EA	5.0000	$7,120.00	$35,600.00	$10,100.00	$50,500.00	$5,500.00	$27,500.00

AA4-53	AA4-53 - POLE BASES - EA	5.0000	$5,200.00	$26,000.00	$3,000.00	$15,000.00	$4,000.00	$20,000.00
AA4-54	AA4-54 - 2" RIGID CONDUIT - LF	1,230.0000	$35.00	$43,050.00	$42.00	$51,660.00	$30.00	$36,900.00
AA4-55	AA4-55 - BRANCH CIRCUIT WIRING - LF	3,670.0000	$4.00	$14,680.00	$8.00	$29,360.00	$3.00	$11,010.00
AA4-56	AA4-56 - IN-GRADE JBS - EA	8.0000	$1,300.00	$10,400.00	$1,700.00	$13,600.00	$1,250.00	$10,000.00
AA5-1	AA5-1 - 2" HDPE FIBER CONDUIT - LF	5,190.0000	$4.00	$20,760.00	$11.25	$58,387.50	$3.50	$18,165.00
AA5-2	AA5-2 - FIBER HANDHOLES - EA	3.0000	$10,000.00	$30,000.00	$5,100.00	$15,300.00	$10,000.00	$30,000.00
AA5-3	AA5-3 - FIBER VAULTS - EA	2.0000	$17,500.00	$35,000.00	$18,500.00	$37,000.00	$15,000.00	$30,000.00
AA6-1	AA6-1 - 2" HDPE FIBER CONDUIT - LF	2,060.0000	$3.50	$7,210.00	$13.50	$27,810.00	$3.50	$7,210.00
AA6-2	AA6-2 - FIBER VAULTS - EA	1.0000	$14,500.00	$14,500.00	$18,500.00	$18,500.00	$15,000.00	$15,000.00
	152 Items	**Totals**		$6,330,803.00		$7,251,383.00		$7,710,353.00

The bid totals are subject to correction after the bids have been completely reviewed.

Totals have been reviewed	X
Totals have been corrected	X

I hereby certify that the above is a true and correct summary of proposals received.



Project Manager

File #: 26-0106, **Version:** 1

ITEM TITLE:
Approval of Professional Services Agreement with DOWL, LLC for CA Services Pavement Management Phase IV Meals Avenue in the Amount of $591,938.
SUBMITTED BY: Brad Sontag, Capital Facilities Project Manager

FISCAL NOTES:

Expenditure Required: $591,938.00
Unencumbered Balance: $7,055,229.83
Funding Source: 310-1118-58000

RECOMMENDATION:

Approve the professional services agreement with DOWL, LLC for CA Services Pavement Management Phase IV Meals Avenue.
SUMMARY STATEMENT:

Project Description: DOWL, LLC will provide construction administrative (CA) services for the Pavement Management Phase IV Meals Avenue project. This includes preliminary activities, submittal review, on-site contract administration, design services during construction, project close-out, and additional contract administration/project manager site visits. Anticipated time of completion is June 30, 2027.

The scope of work is more specifically described in the attached DOWL proposal dated February 2, 2026.

DOW was selected through a Request for Qualifications process for all phases of Pavement Management IV-VI. This agreement is outside of the work previously performed or underway for design of this or other phases of work.

City of Valdez
Agreement for Professional Services

THIS AGREEMENT between the CITY OF VALDEZ, ALASKA, ("City") and DOWL, LLC ("Consultant") is effective on the 17th day of March 2026.

All work under this agreement shall be referred to by the following:

Project: CA Services – Pavement Management Phase IV Meals Avenue
Project No: 25-210-1118
Contract No.: 2472
Cost Code: 310-1118-58000

Consultant's project manager under this agreement is Forrester Cook.

Consultant's project manager may not be changed without the written consent of the City.

City's project manager is Brad Sontag.

ARTICLE 1. Scope of Work

1.1 The scope of work to be performed hereunder is more completely described in the attached proposal dated February 2, 2026, which is incorporated herein by reference.

ARTICLE 2. Compensation

2.1 Compensation shall be paid in accordance with the Basis of Compensation Schedule attached hereto as Appendix B and incorporated herein by reference in an amount not to exceed $591,938.00

ARTICLE 3. Period of Performance

3.1 The Consultant agrees to commence work under this agreement only as authorized by and in accordance with written notice to proceed and to complete the work in accordance with the Scope of Work (Appendix A).

3.2 The period of performance under this agreement shall end and Consultant shall have completed all work under this agreement within 720 days of the written Notice to Proceed. Work shall proceed in accordance with the schedule set forth in Appendix A.

ARTICLE 4. Subconsultants

4.1 The Consultant shall be responsible for the performance of all services required under this agreement.

ARTICLE 5. Insurance

5.1 In accordance with the provision contained in the General Conditions (Appendix C), the following minimum limits of insurance coverage are required:

Type of Insurance	Limits of Liability	
	Each Occurrence	Aggregate
Workers' Compensation	Statutory	Statutory
Employers' General	$ 100,000	$ 300,000
Commercial General Liability*	$1,000,000	$2,000,000
Comprehensive Automobile Liability	$ 100,000	$ 300,000
Professional Liability*	$1,000,000	$2,000,000

*(including Broad Form Property Damage Coverage and Completed Operations Coverage)

ARTICLE 6. Appendices

6.1 The following appendices are attached to this agreement and incorporated herein:

Appendix	Title
A	Scope of Work
B	Basis of Compensation
C	General Conditions

IN WITNESS WHEREOF, the parties to this presence have executed this CONTRACT in two (2) counterparts, each of which shall be deemed an original, in the year and day first mentioned above.

DOWL, LLC

_____
Authorized Signature

_____
Printed name

Date: _____

Title: _____

FEDERAL ID #: _____

_____
Mailing Address

_____
City, State, Zip Code

_____
Signature of Company Secretary or Attest

Date: _____

CITY OF VALDEZ, ALASKA
APPROVED:

_____
Dennis Fleming, Mayor

Date: _____

ATTEST:

_____
Sheri L. Pierce, MMC, City Clerk

Date: _____

_____
Nathan Duval, City Manager

Date: _____

RECOMMENDED:

_____
Kasey Walker, Capital Facilities Director

Date: _____

APPROVED AS TO FORM:
Brena, Bell & Walker, P.C.

_____
Jon S. Wakeland

Date: March 17, 2026

Appendix A
Scope of Work

BASIC SERVICES

Provide all professional services necessary to provide the City of Valdez:

The scope of work is more specifically described in the attached proposal dated February 2, 2026, which is incorporated herein by reference. Where any provisions of the attached proposal conflict with the provisions of the General Conditions under Appendix C, the latter shall govern this agreement.

Appendix B
Basis of Compensation

On completion of work and submission of invoices, the City shall pay to Consultant the compensation as follows:

> Payment shall be made based on the proposed fee and shall not exceed $591,938.00 per the proposal attached to Appendix A of this Agreement, without prior authorization by the City as required in Section V of the General Conditions (Appendix C).

Appendix C
General Conditions

I. Definitions:

Basic Services: The identified work elements set forth in this Agreement for which the Consultant will receive prime compensation.

Change: An addition to, or reduction of, or other revision in the scope, complexity, character, or duration of the services or other provisions of this Agreement.

City's Project Manager: City's representative in charge of the project(s) and the consultant's primary point of contact for notice(s) to proceed, invoices, correspondence and interface with the City.

Consultant's Project Manager: The Consultant's representative in charge of the project(s) who is directly responsible and engaged in performing the required services.

Extra Services: Any services or actions required of the Consultant above and beyond provisions of this Agreement.

Funding Agency(s): The agency(s) of the federal, state or municipal government which furnishes funds for the Consultant's compensation under this Agreement.

Optional Services: Identifiable and/or indeterminate work elements set forth in this Agreement, which are separate and distinct from those covered by the prime compensation, which the City has the option to authorize.

Prime Compensation: The dollar amount paid to the Consultant for basic services set forth in this Agreement. Prime compensation does not include payment for any optional or extra services.

Scope of Work: Basic and optional services required of the Consultant by provisions of this Agreement.

Subconsultant: Any person, firm, corporation, joint venture, partnership or other entity engaged through or by Consultant.

II. Information and Services from Others:

Provisions of information, data, budget, standards, and other materials by the City do not warrant their accuracy or quality nor provide approval of omissions or oversights or of any non-compliance with applicable regulation.

The City may, at its election, or in response to a request from the Consultant, furnish information or services from other Consultants. If, in the Consultant's opinion, such information or services are inadequate, the Consultant must notify the City of the specific service or material deemed inadequate and the extent of the inadequacy prior to use in the performance of this Agreement. Unless so notified by the Consultant, the City may assume the information or services provided are adequate.

III. Indemnification

To the fullest extent permitted by law, the Consultant shall indemnify, defend, and hold harmless the City from and against any claim of, or damages, losses, expenses and liability (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals, and court, mediation and/or arbitration costs) for negligent acts, errors, and omissions of the Consultant, Subconsultant, persons or organizations directly or indirectly employed or engaged by Consultant or Subconsultant under this Agreement. The Consultant is not required to indemnify, defend, or hold harmless the City for a claim of, or liability for the independent negligent acts, errors, and omissions of the City. If there is a claim of, or liability for a joint negligent act, error, or omission of the Consultant and the City, the indemnification, defense, and hold harmless obligation of this provision shall be apportioned on a comparative fault basis. In this provision, "Consultant" and "City" include the employees, agents, and contractors who are directly responsible, respectively, to each. In this provision, "independent negligent acts, errors, and omissions" means negligence other than in the City's selection, administration, monitoring, or controlling of the Consultant, or in approving or accepting the Consultant's work.

IV. Insurance:

All of the insurance coverages listed in Article 5 shall be purchased by the Consultant. The City shall be made an additional insured on the Consultants Commercial General Liability policy in connection with the activities related to this contract. The Consultant shall purchase and maintain the Article 5 insurance coverages with limits not less than those specified for the duration of the Agreement. The professional liability insurance shall be maintained in force for one year following the date of final payment for the work performed herein. The amount of the contract may be renegotiated if the insurance premiums for the following year are raised over those in force when the contract was let. Should the professional

liability insurance become unavailable during the one-year period following the date of final payment, the insurance coverage may be renegotiated between the owner and the Consultant. Insurance coverage shall provide for negligent acts, errors or omissions which the Consultant, employees of the Consultant or Subconsultant may make which produce loss or liability to the Owner and for the protection against loss which results from reliance on the Consultant's products, reports or a combination thereof. Failure to comply with the provision for maintaining the insurance in effect for one year following the date of final payment may be cause for the Owner to refrain from dealing with the Consultant in the future.

V. Payments:

The City shall pay to the Consultant the amount of any changes in the cost of insurance that are attributable to the Scope of Work created by change orders.

Payments shall be made in accordance with Appendix B. Consultant shall submit progress invoices to City in duplicate showing the itemized services performed during the invoice period and the charges therefore.

All progress invoices shall be prepared as a percentage of the work is completed except contracts performed on "time and expenses" basis which invoiced amounts shall not exceed the actual charges to the invoice date.

Under no circumstances will City pay for charges in excess of any lump-sum or not-to-exceed contract amount incurred prior to written authorization by City for an increase in the contract amount. Written request for an increase in the contract amount shall be given to City with sufficient notice to allow City to issue formal approval prior to the incurring of excess charges without delay to the work.

On "time and expenses" contract amounts, compensation for work included in the Scope of Work shall be for direct labor costs and the actual cost of reimbursable expenses. Direct labor costs shall be as shown on the current Standard Labor Rates for the Consultant, a copy of which is attached as Appendix D, times a factor of ___n/a___, for services rendered by principals and employees of the firm. Reimbursable expenses mean the actual expenses incurred directly or indirectly in connection with the Project for: transportation and subsistence incidental thereto; obtaining bids or proposals from contractor(s); furnishing and maintaining field office facilities; toll telephone calls and telegrams; reproduction of reports, drawings, specifications, and similar project-related items and, if authorized in advance by City, overtime work requiring higher than regular rates. Reimbursable expenses shall also include the amount billed to Consultant by Subconsultant employed by consultant for such Subconsultants' services and reimbursable expenses times a factor of 1.05.

The sum of payments shall not exceed the allowable compensation stated in this Agreement. In the event items on an invoice are disputed, payment on those items will be withheld until the dispute is resolved.

The Consultant shall submit a final invoice and required documentation for services authorized by each Notice to Proceed within Ninety (90) days after final acceptance by the City. The City will not be held liable for payment of invoices submitted after this time unless prior written approval has been given.

VI. Changes:

Changes in the Scope of Work or of services may only be made by written amendment signed by both City and Consultant.

If at any time the City through its authorized representatives, either orally or in writing, requests or issues instructions for extra services or otherwise directs actions that conflict with any provisions of this Agreement, the Consultant shall, within ten (10) days of receipt and prior to pursuing such instructions, notify the City in writing, and to the extent possible, describe the scope and estimated cost of any extra services. Unless so notified by the Consultant, the City may assume such instructions have not changed any provisions of this Agreement nor require additional compensation. No additional payments shall be made to the Consultant without such notice.

VII. Audits and Records:

The Consultant shall maintain records of all performances, communications, documents, and correspondence pertinent to this Agreement, and the City of its authorized representatives shall have the right to examine such records and accounting procedures and practices.

The materials described in the Article shall be made available at the business office of the Consultant, at all reasonable times, for inspection, audit or reproduction by City or any funding agency, for a minimum of three years from the date (a) of final payment under this Agreement (b) final payment upon claims or disputes, and for such longer period, if any, as may be required by applicable statute or other provisions of this Agreement.

VIII. Inspections:

The City, or any funding agency, has the right to inspect, in the manner and at reasonable times it considers appropriate during the period of this Agreement, all facilities, materials and activities of the Consultant in the performance of this Agreement.

IX. Termination or Suspension:

This Agreement may be terminated by either party upon ten (10) days' written notice if the other party fails substantially to perform in accordance with its terms through no fault of the party initiating the termination (default termination). If the City terminates this Agreement, the City will pay the Consultant a sum equal to the percentage of work completed that can be substantiated by the Consultant and the City. If the City becomes aware of any fault or defect in the work of the Consultant or nonconformance with this Agreement, the City will give prompt written notice thereof to the Consultant. Should the Consultant's services remain in nonconformance with this Agreement, the percentage of total compensation attributable to the nonconforming work may be withheld.

The City at any time may terminate (convenience termination) or suspend this Agreement for its own needs or convenience. In the event of a convenience termination or suspension for more than three months, the Consultant will be compensated for authorized services and authorized expenditures performed to the date of receipt of written notice of termination plus reasonable termination expenses. NO fee or other compensation for the uncompleted portion of the services will be paid, except for already incurred indirect costs which the Consultant can establish and which would have been compensated for over the life of this Agreement, but because of the convenience termination would have to be absorbed by the Consultant without further compensation.

If state or federal funds support this Agreement, settlement in the event of default or convenience termination must be approved by the City and any appropriate state or federal agency.

X. Officials Not to Benefit:

No member of or delegate to Congress, United States Commissioner or other officials of federal, state or local government shall be admitted to any share or part of this Agreement or any benefit to arise therefrom. The Consultant warrants that it has not employed or retained any organization or person, other than a bona fide employee working for the Consultant, to solicit or secure this Agreement and that it has not paid or agreed to pay any consideration contingent upon or resulting from this Agreement.

XI. Independent Consultant:

Except in those instances specifically provided for herein, the Consultant and any of its agents and employees shall act in an independent capacity and not as agents of the City in the performance of the Agreement.

XII. Ownership of Work Products:

Work products produced under this Agreement, except items that have preexisting copyrights, are the property of the City. Payments to the Consultant for services hereunder include full compensation for all work products, field notes, interim work, reports, and other materials produced by the Consultant and its Subconsultants pertaining to this Agreement. Any re-use the City might make of these work products shall be at the City's own risk and the Consultant shall not incur any liability for the City's re-use of the work products on any project for which they were not intended.

XIII. Subconsultants, Successors and Assigns:

The City must concur in the selection of all Subconsultants for professional services to be engaged in performance of this Agreement.

As soon as practicable after the award of the contract, the Consultant shall furnish to the City in writing the names of the proposed Subconsultants for each of the principal portions of the work. The City shall promptly notify the Consultant if it has reasonable objection to any of the proposed Subconsultants. Failure of the City to give prompt notification shall constitute notice of no reasonable objection. The Consultant shall not contract with any Subconsultant to whom the City has made reasonable objection.

If this Agreement includes named firms or individuals, then such firms or individuals shall be employed for the designated services, unless the Agreement is changed by amendment.

The Consultant shall not assign, sublet or transfer any interest in this Agreement without the prior written consent of the City.

The Consultant binds itself, its partners, its Subconsultants, assigns and legal representatives to this Agreement and to the successors, assigns and legal representatives of the City with respect to all covenants of this Agreement.

The Consultant shall include provisions appropriate to effectuate the purposes of this Appendix C in all subcontracts executed to perform services under this Agreement in which subcontract amount exceeds $40,000.

XIV. Claims and Disputes:

If the Consultant becomes aware, or reasonably should have become aware of any act or occurrence which may form the basis of a claim, the consultant shall immediately inform the City's Project Manager. If the matter cannot be resolved within seven (7) days, the

Consultant shall within the next fourteen (14) days submit written notice of the facts which may form the basis of the claim.

In addition, all claims by the Consultant for additional compensation or an extension of the time for performance of any dispute regarding a question of fact or interpretation of this Agreement shall be presented in writing by the Consultant to the City's Project Manager within the next sixty (60) days unless the Project Manager agrees in writing to an extension of time for good cause shown. Good cause shown includes time for the Consultant to prepare the claim, and the City's Project Manager will grant an extension of not more than sixty (60) days for preparation of the claim. The Consultant agrees that unless these written notices are provided, the Consultant shall not be entitled to additional time or compensation for such act, event or condition. The Consultant shall in any case continue diligent performance under this Agreement. The Consultant shall in any case continue to expeditiously accomplish disputed services pending future resolution of the Consultant's claim unless notified by the City to stop work on the disputed matter.

In presenting any claim, the Consultant shall specifically include, to the extent then possible, the following:

- The provisions of this Agreement that apply to the claim and under which it is made.

- The specific relief requested including any additional compensation claimed and the basis upon which it was calculated and/or the additional time requested and the basis upon which it was calculated.

- The claim will be acknowledged in writing by the City's Project Manager. If the claim is not disposed of within sixty (60) days of acknowledgement, provided additional time is not granted in writing by the City's Contract Officer, the claim will be decided by the City's Contract Officer. The Contract Officer reserves the right to make a written request to the Consultant at any time for additional information that the Consultant may possess to support the claims(s). The Consultant agrees to provide the City such additional information within thirty (30) days of receipt for such a request. The City's Contract Officer will allow a reasonable time extension for good cause if presented in writing prior to the expiration of the thirty (30) days. Failure to furnish such additional information constitutes a waiver of claim.

- The Consultant will be furnished a written, signed copy of the Contract Officer's decision within ninety (90) days of receipt of all necessary information from the Contractor upon which to base the decision. The

Contract Officer's decision is final and conclusive unless, within thirty (30) days of receipt of the decision, the Consultant delivers a notice of appeal to the City Manager. The notice of appeal shall include specific exceptions to the City's decision including specific provision of this Agreement which the Consultant intends to rely upon on appeal. General assertions that the City's decision is contrary to law or to fact are not sufficient.

- The decision of the City Manager will be rendered within 120 days of notice of appeal and the decision constitutes the exhaustion of contractual and administrative remedies.

All of the insurance coverages listed in Article 5 shall be purchased by the Consultant. The City shall be made an additional insured on the Consultants Commercial General Liability policy in connection with the activities related to this contract. The Consultant shall purchase and maintain the Article 5 insurance coverages with limits not less than those specified for the duration of the Agreement. The professional liability insurance shall be maintained in force for one year following the date of final payment for the work performed herein. The amount of the contract may be renegotiated if the insurance premiums for the following year are raised over those in force when the contract was let. Should the professional liability insurance become unavailable during the one year period following the date of final payment, the insurance coverage may be renegotiated between the owner and the Consultant. Insurance coverage shall provide for negligent acts, errors or omissions which the Consultant, employees of the Consultant or Subconsultant may make which produce loss or liability to the Owner and for the protection against loss which results from reliance on the Consultant's products, reports or a combination thereof. Failure to comply with the provision for maintaining the insurance in effect for one year following the date of final payment may be cause for the Owner to refrain from dealing with the Consultant in the future.

XV. Extent of Agreement:

This Agreement, including appendices, represents the entire and integrated Agreement between the City and the Consultant and supersedes all prior negotiations, representations or agreements, either written or oral.

Nothing contained herein may be deemed to create any contractual relationship between the City and any Subconsultants or material suppliers; nor may anything contained herein be deemed to give any third party a claim or right of action against the City or the Consultant that does not otherwise exist without regard to this Agreement.

This Agreement may be changed only by written amendment executed by both the City and the Consultant.

All communications that affect this Agreement must be made or confirmed in writing.

The Consultant receiving final payment will execute a release, if required, relinquishing in full all claims against the City arising out of or by reason of the services and work products furnished under this Agreement.

The Consultant shall pay all federal, state and local taxes incurred by the Consultant and shall require payment of such taxes by any Subconsultant or any other persons in the performance of this Agreement.

XVI. Governing Laws:

This Agreement is governed by the laws of the State of Alaska and such federal and local laws and ordinances as are applicable to work performed. Any litigation arising out of the terms of this Agreement shall be brought in the Third Judicial District, Superior or District Court at Valdez.

XVII. Minimum Wages:

Minimum wages as determined by the Department of Labor shall be paid to all persons performing work on this Contract.

City of Valdez
Contract Release Page 1 of 2

The undersigned, _____for itself, its owners, partners, successors in interest, assigns trustees, administrators, subcontractors, suppliers, and laborers do hereby release and forever discharge the CITY OF VALDEZ, ALASKA a municipal corporation, as set forth herein related to or arising out of the following described contract ("Contract"):

Project: CA Services – Pavement Management Phase IV Meals Avenue
Project Number: 25-310-1118 / Contract Number: 2472

The undersigned hereby acknowledges receipt of the amount of $_____as full and final payment in consideration for all services, materials and labors rendered in connection with the Contract.

The undersigned hereby waives and releases any right or claim of lien, any state or federal statutory bond right, any private bond right, any claim for payment under the Contract, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for itself, its owners, directors, officers, its successors in interest, assigns, agents, attorneys, trustees, administrators, subcontractors, suppliers, and laborers.

The undersigned certifies that no amounts payable under the Contract have been assigned to anyone.

The undersigned agrees that this Release is not executed as a result of financial disadvantage. No promise or inducement has been offered or made except as set forth in the above Contract. Accordingly, the undersigned voluntarily waives any and all rights to void this Release or any of its provisions, due to economic or business distress and/or compulsion. The undersigned represents that it is familiar with and has had the opportunity for its attorneys to explain the meaning of decisions of the Alaska Supreme Court applicable to this Release including, but not limited to, *Petroleum Sales, Ltd. v. Mapco of Alaska, Inc.,* 687 P.2d 923 (Alaska 1984); *Totem Marine T. & B. v. Alyeska Pipeline, et. al.,* 584 P.2d 15 (Alaska 1978); and *Witt v. Watkins,* 579 P.2d 1065 (Alaska 1978).

The undersigned hereby declares that the terms of this Release have been completely read and are fully understood, and said terms are voluntarily accepted for the purpose of making a full and final release of any and all payment claims, disputed or otherwise, arising under or by virtue of the Contract. The undersigned represents and warrants that it has the full and complete legal authority to enter into this Release, that the individuals executing this Release have the legal authority to do so, and that this Release shall be binding and enforceable upon it and its representatives, successors, and assigns, in accordance with its terms upon execution. The signature of the undersigned is an acknowledgement that the person signing has the authority to bind the party to this Release.

City of Valdez
Contract Release Page 2 of 2

IN WITNESS WHEREOF, I have hereunto set my hand and seal this _____day of _____, 20__.

_____
COMPANY

_____
SIGNATURE

_____
TITLE

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this _____ day of _____, 20_____, before me, Notary Public in and for the State of Alaska, personally appeared _____of _____, known to me to be its _____and acknowledged to me that he has read this foregoing RELEASE and knew contents thereof to be true and correct to the best of his knowledge and belief, and that he signed the same freely and voluntarily for the uses and purposes therein mentioned, and that he was duly authorized to execute the foregoing document according to the Bylaws or by Resolutions of said corporation.

WITNESS my hand and notarial seal this _____ day of _____, 20_____.

_____
Notary Public in and for Alaska

My Commission expires: _____

February 2, 2026

Mr. Brad Sontag
City of Valdez
Capital Projects and Engineering
300 Airport Road, STE 201
Valdez, AK 99686

Subject: **Construction Management Services**
Pavement Rehabilitation Phase IV – Project No. 22-310-1115
Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6

Dear Mr. Sontag:

DOWL appreciates the opportunity to submit our proposal to provide construction management services for the Valdez Pavement Rehabilitation Phase IV project. We have prepared this proposal based on your request for assistance, and our services are limited to the Robe River Drive and Meals Avenue corridors and additive alternates #1 to #6. Below is a description of tasks for these services and our assumptions used to establish fees.

SCOPE OF SERVICES
DOWL will administer the construction contract between the City of Valdez (City) and the selected Contractor for the subject project. We propose the following work breakdown structure and duties.

Phase 1 – Preliminary Activities

Phase 1 services commence with receipt of Notice-to-Proceed (NTP) and conclude when the Contractor begins on-site work. DOWL responsibilities for this phase include:

1. Construction contract/risk and project review: (1) contract scope, (2) plan set drawings, details, and notes, (3) City general provisions, (4) construction specifications, (5) City standard drawings, (6) contract special provisions, (7) bid items and quantities, (8) existing wet and dry utilities, (9) geotechnical conditions, (10) pedestrian and vehicular traffic control, (11) milestone dates, (12) insurance and bonding, (13) permits, and (14) key stakeholders.
2. Establish communication and become the main point of contact with the construction Contractor.
3. Project scheduling, subconsultant coordination, logistical planning, and equipment & gear gathering as we prepare to mobilize to site.
4. Safety planning and training.
5. Develop submittal register.
6. Develop materials testing summary and special inspections schedule.
7. Review Contractor submitted work plans, baseline critical path method (CPM) schedule, storm water pollution prevention plan (SWPPP), traffic control plans (TCPs), and other preliminary submittals.
8. Lead preconstruction meeting.

Phase 2 – On-site Contract Administration (CA)

Phase 2 services commence at completion of Phase 1 and conclude when the Contractor approaches Substantial Completion. DOWL responsibilities for this phase include:

1. Interpret, administer, and enforce contract terms, with direction from the City.
2. Provide full-time on-site construction observation.
3. Prepare daily construction inspection reports.
4. Identify or reject nonconforming work.

5. Manage the Contractor submittal process. DOWL will review project execution and closeout submittals for general conformance with the contract documents. Submittal dispositions shall either be approved, approved with revisions, approved with conditions, or rejected/revise & resubmit.
6. Oversee and manage Request for Information (RFI) process. RFI categories include design confirmation, design clarification, information/data request, material/product substitution, and work/scope direction request.
7. Coordinate and manage quality assurance (QA) testing and special inspections.
8. Manage contract scope changes: (1) review Contractor change order requests, (2) develop requests for proposals (RFP) and review Contractor responses, and (3) assist the City execute change orders or contract contingency authorization requests (CAR). DOWL will scope and quantify additional or extra work and we can assist with any change order negotiations.
9. Oversee and manage the project budget including the contract contingency. During the first pay application period, DOWL will begin to track bid item quantities and the cost of construction, the contract contingency, change orders, and total contract price. When scope changes are to be accomplished without a change order, most approved changes will expend (debit) funds from the contract contingency line item and credit that value to the cost of construction. Conversely, DOWL recognizes certain approved changes will debit funds from the cost of construction and credit those funds to the contingency line item.
10. Coordinate and lead recurring Owner-Engineer-Contractor construction progress meetings.
11. Review and recommend payment for Contractor submitted pay applications.
12. Lead critical path method (CPM) schedule reviews.
13. Monitor and inspect Contractor's implementation of erosion and sediment control best management practices (BMPs).
14. Stakeholder coordination and maintenance of a shared construction folder.

<u>Phase 3 – Close-out</u>

Phase 3 services begin at the conclusion of Phase 2 and end when the Contractor reaches project completion.

DOWL responsibilities for this phase include:

1. Coordinate and conduct Substantial Completion inspection.
2. Develop a final punch list.
3. Oversee completion/resolution of all punch list items including required documentation to be submitted by the Contractor.
4. As-built to record drawing Contractor coordination.
5. Develop record drawings.
6. Coordinate and conduct final completion inspection.
7. Prepare and assemble CA close-out documents.

<u>Phase 4 – Additional Contract Administration and Project Manager Site Visits</u>

This phase provides funding for additional work not specified in this scope as requested by the City, and additional DOWL Project Manager site visits as needed.

DELIVERABLES
The close-out package summarizes all DOWL CA deliverables for this project and includes:

- Photo/video records of pre-construction conditions
- Construction contract
- Construction correspondence
- Project permits
- RFI responses and design clarifications

- Change order documentation
- Processed pay requests
- Daily construction inspection reports and photo logs
- Additional pay quantity documentation
- QA testing and special inspection reports
- Submittal records including O&M manuals and warranty documents
- Substantial completion letter and final punch list
- Record drawings
- Contract close-out documentation

TEAM

We propose the following team for this project:

- Project Manager and Resident Engineer: Forrester Cook, PE, PMP
- Field Representative: Roger Wirt
- Special Inspection: Alaska Testlab
- Electrical Inspection: RSA Engineering – David Blubaugh, PE

SCHEDULE

Anticipated milestone deadlines for this project are shown below.

- February 9, 2026 — DOWL receives NTP for services in this proposal
- February 19, 2026 — Contractor bids due
- May 22, 2026 — Preconstruction meeting
- June 1, 2026 — Construction work begins
- November 1, 2026 — Substantial completion
- June 30, 2027 — Final completion

ASSUMPTIONS

1. DOWL will provide on-site observation from contractor ground disturbance until Substantial Completion. We assume this duration will last no more than 21 weeks.
2. The construction Contractor will work no more than six, 11-hour days each week.
3. DOWL's on-site representative is not a Valdez resident. He may travel back to his primary residence or home office every 8-10 weeks for rest and recreation (R&R) breaks or during long holiday weekends.
4. The construction Contractor is responsible for site safety, including their own workforce, subcontracted employees, and any visitors to the site. The Contractor is also responsible to provide DOWL staff safe access to perform their work.
5. The SWPPP prepared by the construction Contractor will require each operator to file a Notice of Intent (NOI) with the Department of Environmental Conservation (DEC). The City is the party with operational control of the plans and specifications. The City will file the NOI and pay the permit fee directly.
6. Deviations from these assumptions may result in renegotiating DOWL compensation.

FEES
DOWL proposes to complete the services described in Phase 1 – 3 on a lump sum basis for the costs listed below. DOWL proposes to establish a $20K time and materials budget for additional contract administration and PM site visits under Phase 4.

Phase	**Cost**
Phase 1 – Preliminary Activities	$ 44,672.00
Tasks to be completed under Pioneer Dr contract	($ 24,400.00)
	$ 20,272.00
Phase 2 – Contract Administration	$ 493,760.00
Phase 3 – Close-out	$ 33,522.00
Phase 4 – Additional CA and PM Site Visits (T&M)	$ 20,000.00
Total	**$ 567,554.00**

The DOWL team is ready to begin work immediately, and we are excited for the opportunity to provide owner's representation and construction management services for another phase of the City's Pavement Management Program.

Please contact me at 907-978-0726 or fcook@dowl.com with any questions or comments.

Sincerely,
DOWL

Forrester Cook, PE, PMP
Project Manager

Jason Kelly, PE
Senior Project Manager

Attachment: DOWL Fee Summary

DOWL

Summary

Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6
City of Valdez
Project No. 22-310-1115
2/2/2026

Prepared By: **FJC**
Reviewed By: **JK**

Phase Name		Task	Labor Subtotal Hours	Labor Subtotal Cost	Direct Expenses Subtotal	Subconsultants	Project Totals
Phase 1 - Preliminary Activities	A	Project Management (scope, schedule, budget mgmt.), Invoicing	28	$ 5,397.00	$ -	$ -	$ 5,397.00
	B	Construction Contract-Risk and Project Review	16	$ 3,440.00	$ -	$ -	$ 3,440.00
	C	Coordination with Contractor/Contractor Management	9	$ 1,935.00	$ -	$ -	$ 1,935.00
	D	Develop Material Summary and Special Inspection Schedule	26	$ 5,590.00	$ -	$ -	$ 5,590.00
	E	Develop Submittal Approval Document	26	$ 5,590.00	$ -	$ -	$ 5,590.00
	F	SWPPP Review and Approval	8	$ 1,720.00	$ -	$ -	$ 1,720.00
	G	Preliminary Submittal Reviews	28	$ 6,020.00	$ -	$ -	$ 6,020.00
	H	Preconstruction Meeting	8	$ 1,650.00	$ -	$ -	$ 1,650.00
	I	Scheduling, Logistics	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	J	Field Representative Preparation	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	K	Mobilization	18	$ 3,870.00	$ -	$ -	$ 3,870.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**211**	**$ 44,672.00**	**$ -**	$ -	**$ 44,672.00**
Phase 2 - Contract Administration	A	Project Management (scope, schedule, budget mgmt.), Invoicing	57	$ 11,899.00	$ -	$ -	$ 11,899.00
	B	Submittals and Shop Drawing Reviews	60	$ 12,900.00	$ -	$ -	$ 12,900.00
	C	On-site Construction Observation & Administration	1260	$ 315,840.00	$ 60,621.00	$ -	$ 376,461.00
	D	Recordkeeping and Documentation	72	$ 15,480.00	$ -	$ -	$ 15,480.00
	E	SWPPP Oversight & Management	8	$ 1,720.00	$ -	$ -	$ 1,720.00
	F	Recurring Progress Meetings	42	$ 9,030.00	$ -	$ -	$ 9,030.00
	G	Design Assistance / Engineering Support for RFIs & COs	56	$ 11,340.00	$ -	$ -	$ 11,340.00
	H	Change Order Processing	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	I	Pay Application Recommendations	12	$ 2,580.00	$ -	$ -	$ 2,580.00
	J	Coordination with Contractor/Contractor Management	21	$ 4,515.00	$ -	$ -	$ 4,515.00
	K	Ad Hoc Correspondence and Meetings	30	$ 6,100.00	$ -	$ -	$ 6,100.00
	L	ATL Sub	-	$ -	$ -	$ 27,500.00	$ 27,500.00
	M	RSA Sub	-	$ -	$ -	$ 9,075.00	$ 9,075.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**1642**	**$ 396,564.00**	**$ 60,621.00**	**$ 36,575.00**	**$ 493,760.00**

Summary

Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6
City of Valdez
Project No. 22-310-1115
2/2/2026

Prepared By: **FJC**
Reviewed By: **JK**

Phase Name		Task	Labor Subtotal Hours	Labor Subtotal Cost	Direct Expenses Subtotal	Subconsultants	Project Totals
Phase 3 - Close-out	A	Project Management (scope, schedule, budget mgmt.), Invoicing	10	$ 1,972.00	$ -	$ -	$ 1,972.00
	B	Develop Close-out Documentation Summary/Checklist	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	C	Contractor As-built Coordination	16	$ 3,440.00	$ -	$ -	$ 3,440.00
	D	Substantial Completion Inspection	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	E	Final Punch Lists	10	$ 2,150.00	$ -	$ -	$ 2,150.00
	F	Demobilization	12	$ 2,580.00	$ -	$ -	$ 2,580.00
	G	Record Drawings	48	$ 9,620.00	$ -	$ -	$ 9,620.00
	H	COV Close-out Package Development	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**160**	**$ 33,522.00**	**$ -**	$ -	**$ 33,522.00**
Phase 4 - Additional CA & PM Site Visits	A	Additional Construction Administration	28	$ 5,880.00	$ -	$ -	$ 5,880.00
	B	PM Site Visits	55	$ 11,825.00	$ 2,279.00	$ -	$ 14,104.00
	☑ T&M ☐ Lump Sum ☐ Other _____	***Subtotal***	**83**	**$ 17,705.00**	**$ 2,279.00**	$ -	**$ 19,984.00**
		TOTAL	**2096**	**$ 492,463.00**	**$ 62,900.00**	**$ 36,575.00**	**$ 591,938.00**

February 2, 2026

Mr. Brad Sontag
City of Valdez
Capital Projects and Engineering
300 Airport Road, STE 201
Valdez, AK 99686

Subject: **Construction Management Services**
Pavement Rehabilitation Phase IV – Project No. 22-310-1115
Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6

Dear Mr. Sontag:

DOWL appreciates the opportunity to submit our proposal to provide construction management services for the Valdez Pavement Rehabilitation Phase IV project. We have prepared this proposal based on your request for assistance, and our services are limited to the Robe River Drive and Meals Avenue corridors and additive alternates #1 to #6. Below is a description of tasks for these services and our assumptions used to establish fees.

SCOPE OF SERVICES
DOWL will administer the construction contract between the City of Valdez (City) and the selected Contractor for the subject project. We propose the following work breakdown structure and duties.

Phase 1 – Preliminary Activities

Phase 1 services commence with receipt of Notice-to-Proceed (NTP) and conclude when the Contractor begins on-site work. DOWL responsibilities for this phase include:

1. Construction contract/risk and project review: (1) contract scope, (2) plan set drawings, details, and notes, (3) City general provisions, (4) construction specifications, (5) City standard drawings, (6) contract special provisions, (7) bid items and quantities, (8) existing wet and dry utilities, (9) geotechnical conditions, (10) pedestrian and vehicular traffic control, (11) milestone dates, (12) insurance and bonding, (13) permits, and (14) key stakeholders.
2. Establish communication and become the main point of contact with the construction Contractor.
3. Project scheduling, subconsultant coordination, logistical planning, and equipment & gear gathering as we prepare to mobilize to site.
4. Safety planning and training.
5. Develop submittal register.
6. Develop materials testing summary and special inspections schedule.
7. Review Contractor submitted work plans, baseline critical path method (CPM) schedule, storm water pollution prevention plan (SWPPP), traffic control plans (TCPs), and other preliminary submittals.
8. Lead preconstruction meeting.

Phase 2 – On-site Contract Administration (CA)

Phase 2 services commence at completion of Phase 1 and conclude when the Contractor approaches Substantial Completion. DOWL responsibilities for this phase include:

1. Interpret, administer, and enforce contract terms, with direction from the City.
2. Provide full-time on-site construction observation.
3. Prepare daily construction inspection reports.
4. Identify or reject nonconforming work.

5. Manage the Contractor submittal process. DOWL will review project execution and closeout submittals for general conformance with the contract documents. Submittal dispositions shall either be approved, approved with revisions, approved with conditions, or rejected/revise & resubmit.
6. Oversee and manage Request for Information (RFI) process. RFI categories include design confirmation, design clarification, information/data request, material/product substitution, and work/scope direction request.
7. Coordinate and manage quality assurance (QA) testing and special inspections.
8. Manage contract scope changes: (1) review Contractor change order requests, (2) develop requests for proposals (RFP) and review Contractor responses, and (3) assist the City execute change orders or contract contingency authorization requests (CAR). DOWL will scope and quantify additional or extra work and we can assist with any change order negotiations.
9. Oversee and manage the project budget including the contract contingency. During the first pay application period, DOWL will begin to track bid item quantities and the cost of construction, the contract contingency, change orders, and total contract price. When scope changes are to be accomplished without a change order, most approved changes will expend (debit) funds from the contract contingency line item and credit that value to the cost of construction. Conversely, DOWL recognizes certain approved changes will debit funds from the cost of construction and credit those funds to the contingency line item.
10. Coordinate and lead recurring Owner-Engineer-Contractor construction progress meetings.
11. Review and recommend payment for Contractor submitted pay applications.
12. Lead critical path method (CPM) schedule reviews.
13. Monitor and inspect Contractor's implementation of erosion and sediment control best management practices (BMPs).
14. Stakeholder coordination and maintenance of a shared construction folder.

<u>Phase 3 – Close-out</u>

Phase 3 services begin at the conclusion of Phase 2 and end when the Contractor reaches project completion.

DOWL responsibilities for this phase include:

1. Coordinate and conduct Substantial Completion inspection.
2. Develop a final punch list.
3. Oversee completion/resolution of all punch list items including required documentation to be submitted by the Contractor.
4. As-built to record drawing Contractor coordination.
5. Develop record drawings.
6. Coordinate and conduct final completion inspection.
7. Prepare and assemble CA close-out documents.

<u>Phase 4 – Additional Contract Administration and Project Manager Site Visits</u>

This phase provides funding for additional work not specified in this scope as requested by the City, and additional DOWL Project Manager site visits as needed.

DELIVERABLES
The close-out package summarizes all DOWL CA deliverables for this project and includes:

- Photo/video records of pre-construction conditions
- Construction contract
- Construction correspondence
- Project permits
- RFI responses and design clarifications

- Change order documentation
- Processed pay requests
- Daily construction inspection reports and photo logs
- Additional pay quantity documentation
- QA testing and special inspection reports
- Submittal records including O&M manuals and warranty documents
- Substantial completion letter and final punch list
- Record drawings
- Contract close-out documentation

TEAM

We propose the following team for this project:

- Project Manager and Resident Engineer: Forrester Cook, PE, PMP
- Field Representative: Roger Wirt
- Special Inspection: Alaska Testlab
- Electrical Inspection: RSA Engineering – David Blubaugh, PE

SCHEDULE

Anticipated milestone deadlines for this project are shown below.

- February 9, 2026 — DOWL receives NTP for services in this proposal
- February 19, 2026 — Contractor bids due
- May 22, 2026 — Preconstruction meeting
- June 1, 2026 — Construction work begins
- November 1, 2026 — Substantial completion
- June 30, 2027 — Final completion

ASSUMPTIONS

1. DOWL will provide on-site observation from contractor ground disturbance until Substantial Completion. We assume this duration will last no more than 21 weeks.
2. The construction Contractor will work no more than six, 11-hour days each week.
3. DOWL's on-site representative is not a Valdez resident. He may travel back to his primary residence or home office every 8-10 weeks for rest and recreation (R&R) breaks or during long holiday weekends.
4. The construction Contractor is responsible for site safety, including their own workforce, subcontracted employees, and any visitors to the site. The Contractor is also responsible to provide DOWL staff safe access to perform their work.
5. The SWPPP prepared by the construction Contractor will require each operator to file a Notice of Intent (NOI) with the Department of Environmental Conservation (DEC). The City is the party with operational control of the plans and specifications. The City will file the NOI and pay the permit fee directly.
6. Deviations from these assumptions may result in renegotiating DOWL compensation.

FEES
DOWL proposes to complete the services described in Phase 1 – 3 on a lump sum basis for the costs listed below. DOWL proposes to establish a $20K time and materials budget for additional contract administration and PM site visits under Phase 4.

Phase	**Cost**
Phase 1 – Preliminary Activities	$ 44,672.00
Tasks to be completed under Pioneer Dr contract	($ 24,400.00)
	$ 20,272.00
Phase 2 – Contract Administration	$ 493,760.00
Phase 3 – Close-out	$ 33,522.00
Phase 4 – Additional CA and PM Site Visits (T&M)	$ 20,000.00
Total	**$ 567,554.00**

The DOWL team is ready to begin work immediately, and we are excited for the opportunity to provide owner's representation and construction management services for another phase of the City's Pavement Management Program.

Please contact me at 907-978-0726 or fcook@dowl.com with any questions or comments.

Sincerely,
DOWL

Forrester Cook, PE, PMP
Project Manager

Jason Kelly, PE
Senior Project Manager

Attachment: DOWL Fee Summary

DOWL

Summary

Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6
City of Valdez
Project No. 22-310-1115
2/2/2026

Prepared By: **FJC**
Reviewed By: **JK**

Phase Name		Task	Labor Subtotal Hours	Labor Subtotal Cost	Direct Expenses Subtotal	Subconsultants	Project Totals
Phase 1 - Preliminary Activities	A	Project Management (scope, schedule, budget mgmt.), Invoicing	28	$ 5,397.00	$ -	$ -	$ 5,397.00
	B	Construction Contract-Risk and Project Review	16	$ 3,440.00	$ -	$ -	$ 3,440.00
	C	Coordination with Contractor/Contractor Management	9	$ 1,935.00	$ -	$ -	$ 1,935.00
	D	Develop Material Summary and Special Inspection Schedule	26	$ 5,590.00	$ -	$ -	$ 5,590.00
	E	Develop Submittal Approval Document	26	$ 5,590.00	$ -	$ -	$ 5,590.00
	F	SWPPP Review and Approval	8	$ 1,720.00	$ -	$ -	$ 1,720.00
	G	Preliminary Submittal Reviews	28	$ 6,020.00	$ -	$ -	$ 6,020.00
	H	Preconstruction Meeting	8	$ 1,650.00	$ -	$ -	$ 1,650.00
	I	Scheduling, Logistics	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	J	Field Representative Preparation	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	K	Mobilization	18	$ 3,870.00	$ -	$ -	$ 3,870.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**211**	**$ 44,672.00**	**$ -**	$ -	**$ 44,672.00**
Phase 2 - Contract Administration	A	Project Management (scope, schedule, budget mgmt.), Invoicing	57	$ 11,899.00	$ -	$ -	$ 11,899.00
	B	Submittals and Shop Drawing Reviews	60	$ 12,900.00	$ -	$ -	$ 12,900.00
	C	On-site Construction Observation & Administration	1260	$ 315,840.00	$ 60,621.00	$ -	$ 376,461.00
	D	Recordkeeping and Documentation	72	$ 15,480.00	$ -	$ -	$ 15,480.00
	E	SWPPP Oversight & Management	8	$ 1,720.00	$ -	$ -	$ 1,720.00
	F	Recurring Progress Meetings	42	$ 9,030.00	$ -	$ -	$ 9,030.00
	G	Design Assistance / Engineering Support for RFIs & COs	56	$ 11,340.00	$ -	$ -	$ 11,340.00
	H	Change Order Processing	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	I	Pay Application Recommendations	12	$ 2,580.00	$ -	$ -	$ 2,580.00
	J	Coordination with Contractor/Contractor Management	21	$ 4,515.00	$ -	$ -	$ 4,515.00
	K	Ad Hoc Correspondence and Meetings	30	$ 6,100.00	$ -	$ -	$ 6,100.00
	L	ATL Sub	-	$ -	$ -	$ 27,500.00	$ 27,500.00
	M	RSA Sub	-	$ -	$ -	$ 9,075.00	$ 9,075.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**1642**	**$ 396,564.00**	**$ 60,621.00**	**$ 36,575.00**	**$ 493,760.00**

DOWL

Summary

Robe River Dr and Meals Ave Corridors and Additive Alternates #1 to #6
City of Valdez
Project No. 22-310-1115
2/2/2026

Prepared By: **FJC**

Reviewed By: **JK**

Phase Name		Task	Labor Subtotal Hours	Labor Subtotal Cost	Direct Expenses Subtotal	Subconsultants	Project Totals
Phase 3 - Close-out	A	Project Management (scope, schedule, budget mgmt.), Invoicing	10	$ 1,972.00	$ -	$ -	$ 1,972.00
	B	Develop Close-out Documentation Summary/Checklist	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	C	Contractor As-built Coordination	16	$ 3,440.00	$ -	$ -	$ 3,440.00
	D	Substantial Completion Inspection	20	$ 4,300.00	$ -	$ -	$ 4,300.00
	E	Final Punch Lists	10	$ 2,150.00	$ -	$ -	$ 2,150.00
	F	Demobilization	12	$ 2,580.00	$ -	$ -	$ 2,580.00
	G	Record Drawings	48	$ 9,620.00	$ -	$ -	$ 9,620.00
	H	COV Close-out Package Development	24	$ 5,160.00	$ -	$ -	$ 5,160.00
	☐ T&M ☑ Lump Sum ☐ Other _____	***Subtotal***	**160**	**$ 33,522.00**	**$ -**	$ -	**$ 33,522.00**
Phase 4 - Additional CA & PM Site Visits	A	Additional Construction Administration	28	$ 5,880.00	$ -	$ -	$ 5,880.00
	B	PM Site Visits	55	$ 11,825.00	$ 2,279.00	$ -	$ 14,104.00
	☑ T&M ☐ Lump Sum ☐ Other _____	***Subtotal***	**83**	**$ 17,705.00**	**$ 2,279.00**	$ -	**$ 19,984.00**
		TOTAL	**2096**	**$ 492,463.00**	**$ 62,900.00**	**$ 36,575.00**	**$ 591,938.00**

File #: RES 26-0014, **Version:** 1

ITEM TITLE:
#26-14 - Declaring the Official Intent of the City of Valdez, Alaska, to Reimburse Capital Expenditures in Connection with Pavement Management Phase IV-V from Proceeds of a Future Borrowing

SUBMITTED BY: Nathan Duval, City Manager; Jordan Nelson, Finance Director

FISCAL NOTES:

Expenditure Required: n/a
Unencumbered Balance: n/a
Funding Source: n/a

RECOMMENDATION:

Approve

SUMMARY STATEMENT:

This resolution does not commit the City to a future borrowing, however, it allows the option for a bond in the current Fiscal Year, or next, if the revenue picture dictates the need for additional bonded indebtedness.

As a reminder, Ad Valorem (tax) revenue, including those related to oil and gas production and pipeline property (AS 29.45.080) has a statutory limitation (AS 29.45.090), except that there is “no limitation on taxes to pay bonds” (AS 29.45.100).

Procedurally, the bond has to be authorized by the voters and in place no later than 18 months after the later of the date of the payment of the capital expenditures or the date of substantial completion for the project. Staff would anticipate presenting information for a decision by City Council to bond or not bond by July, in preparation for, at the earliest, a ballot measure in October of 2026.

This resolution was created and reviewed by Bond Counsel, Municipal Advisor, City Clerk, and City Administration.

CITY OF VALDEZ, ALASKA

RESOLUTION #26-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, DECLARING THE OFFICIAL INTENT OF THE CITY OF VALDEZ, ALASKA, TO REIMBURSE CAPITAL EXPENDITURES IN CONNECTION WITH PAVEMENT MANAGEMENT PHASE IV-V FROM PROCEEDS OF A FUTURE BORROWING

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA:

Section 1: The City of Valdez, Alaska (the "City"), intends to make expenditures in connection with Pavement Management Phases IV and V (the "Project") from funds that are available but that are not (and are not reasonably expected to be) reserved, allocated on a long-term basis, or otherwise set aside for those expenditures, and reasonable expects to be reimbursed for those expenditures from proceeds of bonds or other obligations ("bonds") issued to finance those expenditures.

Section 2: Certain federal regulations relating to the use of proceeds of tax-exempt bonds to reimburse the issuer of the bonds for certain expenditures made before the issue date of the bonds require, among other things, that not later than 60 days after payment of the original expenditures the City (or any person designated by the City to do so on its behalf) declare a reasonable official intent to reimburse those expenditures from proceeds of bonds.

Section 3: The City intends to make (and/or, not more than 60 days before the date of this declaration, has made) expenditures, and reasonably expects to reimburse the Capital Project Fund of the City for those expenditures from proceeds of bonds, for the Project.

Section 4: The City expects that the maximum principal amount of bonds that will be issued to finance the Project will be $7,000,000

Section 5: The Council has reviewed its existing and reasonably foreseeable budgetary and financial circumstances and has determined that the City reasonably expects to reimburse itself for expenditures for the Project from proceeds of bonds because the City has no funds available that already are, or are reasonably expected to be, reserved, allocated on a long-term basis, or otherwise set aside by the City for those expenditures on the Project.

Section 6: The City will know, within one year after the expected reimbursement amounts corresponding to proceeds received from bonds issued in the future to reimburse the City for previously paid expenditures for the Project in any manner that results in those amounts being treated as replacement proceeds of any tax-exempt

bonds, for example, as a result of being deposited in a reserve fund, pledged fund, sinking fund or similar fund (other than a bona fide debt service fund) that is expected to be used to pay principal of or interest on tax-exempt bonds, nor will the City use those amounts in any manner that employs an abusive arbitrage device to avoid arbitrage restrictions.

Section 7: This declaration of official intent shall be dated as the date of passage and approval of this resolution.

Section 8: Any actions of the City or its officers prior to the date thereof and consistent with the terms of this resolution are ratified and confirmed.

Section 9: This resolution shall take effect upon passage and approval.

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March, 2026.

City of Valdez, Alaska

_____
Dennis Fleming, Mayor

ATTEST:

_____
Sheri L. Pierce, MMC, City Clerk

File #: RES 26-0015, **Version:** 1

ITEM TITLE:
#26-15 - Amending the FY26 City Budget by Accepting a Fire Department Grant of Equipment from State of Alaska Department of Transportation Extraction Tools Project in the Amount of $42,229

SUBMITTED BY: Tracy Raynor, Fire Chief

FISCAL NOTES:

Expenditure Required: na
Unencumbered Balance: na
Funding Source: na

RECOMMENDATION:

Approve resolution accepting grant.

SUMMARY STATEMENT:

The Valdez Fire Department applied for and received a grant of equipment from the State of Alaska Department of Transportation Extraction Tools Project in the amount of $42,229. The Fire Department received the following three extraction items:

1 combi tool and 2 hydraulic rams

Acquisition of these tools will enhance firefighter safety and operational efficiency, and improve extrication capabilities during emergency incidents.

CITY OF VALDEZ, ALASKA

RESOLUTION #26-15

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, AMENDING THE 2026 CITY BUDGET BY ACCEPTING A FIRE DEPARTMENT GRANT OF EQUIPMENT FROM THE STATE OF ALASKA DEPARTMENT OF TRANSPORTATION ALASKA EMS EXTRICATION TOOLS ASSISTANCE PROJECT VALUED AT $42,229

WHEREAS, motor vehicle collisions and other emergency incidents involving patient entrapment continue to occur within the city and surrounding response areas whereby rapid and effective extrication of entrapped patients is critical to reducing morbidity and mortality and improving overall patient outcomes; and

WHEREAS**,** acquisition of updated extrication tools, including but not limited to hydraulic cutters, spreaders, rams, power units, stabilization equipment, and associated accessories, will enhance firefighter safety and operational efficiency and improved extrication capabilities will reduce scene times, increase responder safety, and better serve the community during emergency incidents; and

WHEREAS, the city applied to the Alaska Department of Transportation, Alaska EMS Extrication Tools Assistance Project, and was successfully granted three pieces of extrication equipment;1 combi tool and 2 hydraulic rams valued at $42,229; and

WHEREAS, budget amendments must be formally appropriated via Budget Amendment Resolution.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, that the 2026 City Budget is amended as follows:

Section 1: Misc State Grants Revenue, 350.0000.33424 is increased by $42,229.00.

Section 2: Major Equipment Reserve Expense, 350.0400.58000 is increased by $42,229.00

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March 2026.

City of Valdez, Alaska

ATTEST: Dennis Fleming, Mayor

Sheri L. Pierce, MMC, City Clerk

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Transportation and Public Facilities

Office of the Commissioner

550 West Seventh, Suite 295
Anchorage, AK. 99516
Phone: 907.269.0448

August 28, 2025

Ms. Tracy Raynor, Fire Chief
Valdez Fire Department
407 W. Pioneer St.
Valdez, Alaska 99686

Dear Ms. Raynor,

We are pleased to inform you that your agency has been selected to receive equipment through the Alaska EMS Extrication Tools Assistance Project. This award is based on a competitive review process that considered your agency's demonstrated need, operational capacity, and readiness to safely deploy and maintain the equipment.

As part of this award, your agency will receive a customized extrication tool package. In the coming weeks, a member of our team will reach out to confirm delivery details and next steps.

Thank you for your continued service to Alaska's communities. We are honored to support your lifesaving work.

If you have any immediate questions, please contact us at dot.besafe@alaska.gov.

Sincerely,

Pamela K. Golden

Pam Golden, P.E.
State Traffic and Safety Engineer

File #: RES 26-0016, **Version:** 1

ITEM TITLE:
#26-16 - Accepting DNR Department of Forestry Volunteer Fire Assistance Grant in the Amount of $9,900

SUBMITTED BY: Tracy Raynor, Fire Chief

FISCAL NOTES:

Expenditure Required: NA
Unencumbered Balance: NA
Funding Source: NA

RECOMMENDATION:

Approve Resolution #26-16.

SUMMARY STATEMENT:

The State of Alaska, Department of Natural Resources, Division of Forestry has awarded the 2026 Volunteer Fire Assistance grant to the City of Valdez Fire Department in the amount of $9,900.00. The Volunteer Fire Assistance grant funds will be used for the Fire Attack Training course.

CITY OF VALDEZ, ALASKA

RESOLUTION #26-16

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, AMENDING THE 2026 CITY BUDGET BY ACCEPTING THE STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES, DIVISION OF FORESTRY 2026 VOLUNTEER FIRE ASSISTANCE GRANT IN THE AMOUNT OF $9,900 AND AUTHORIZING EXPENDITURE OF THE SAME

WHEREAS, the State of Alaska, Department of Natural Resources, Division of Forestry has awarded the 2026 Volunteer Fire Assistance grant to the City of Valdez Fire Department in the amount of $9,900.00; and

WHEREAS, the City will use the Volunteer Fire Assistance grant funds for the Fire Attack Training course; and

WHEREAS, a portion of the grant revenue received exceeds what was previously budgeted.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, that:

Section 1. The city authorizes the acceptance of grant funds from the SOA DNR Forestry Volunteer Fire Assistance Grant (001-0000-33430) in the amount of $9,900.00 and increases the additional revenue appropriation in the amount of $3,600.00.

Section 2. The City increases the appropriation for the SOA DNR Fire Assistance Grant Training (001-3200-45910) in the amount of $9,900.00.

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March 2026.

CITY OF VALDEZ, ALASKA

_____
Dennis Fleming, Mayor

ATTEST:

_____
Sheri L. Pierce, MMC, City Clerk

CITY OF VALDEZ, ALASKA

RESOLUTION #26-16

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, AMENDING THE 2026 CITY BUDGET BY ACCEPTING THE STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES, DIVISION OF FORESTRY 2026 VOLUNTEER FIRE ASSISTANCE GRANT IN THE AMOUNT OF $9,900 AND AUTHORIZING EXPENDITURE OF THE SAME

WHEREAS, the State of Alaska, Department of Natural Resources, Division of Forestry has awarded the 2026 Volunteer Fire Assistance grant to the City of Valdez Fire Department in the amount of $9,900.00; and

WHEREAS, the City will use the Volunteer Fire Assistance grant funds for the Fire Attack Training course; and

WHEREAS, a portion of the grant revenue received exceeds what was previously budgeted.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, that:

Section 1. The city authorizes the acceptance of grant funds from the SOA DNR Forestry Volunteer Fire Assistance Grant (001-0000-33430) in the amount of $9,900.00 and increases the additional revenue appropriation in the amount of $3,600.00.

Section 2. The City increases the appropriation for the SOA DNR Fire Assistance Grant Training (001-3200-45910) in the amount of $9,900.00.

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March 2026.

CITY OF VALDEZ, ALASKA

_____
Dennis Fleming, Mayor

ATTEST:

_____
Sheri L. Pierce, MMC, City Clerk

File #: RES 26-0017, **Version:** 1

ITEM TITLE:
#26-17 - Approval of Annual Renewal of City/School Health Insurance Benefit Plan for Period Beginning 4/1/2026

SUBMITTED BY: Rhea E Cragun, Director Human Resources

FISCAL NOTES:

Expenditure Required: $5.5M
Unencumbered Balance: $5.6M
Funding Source: Cost code 41300, pro-rated among all staffed departments

RECOMMENDATION:

Approve Resolution #26-17approving the annual renewal of City/School health insurance benefit plan for period beginning 4/1/2026

SUMMARY STATEMENT:

The attached resolution formalizes the annual renewal of the health insurance benefit plan and authorizes the City Manager or designee to sign any corresponding paperwork.

- This health insurance renewal comprises a +10.7% increase
- The 2026 City of Valdez Personnel Budget anticipated this health insurance renewal due to nationwide trend of rising healthcare costs and has adequate appropriations to absorb the costs.
- Consultant fee is reflected in City plan for shared broker services between City of Valdez and Valdez City Schools.
    - Page 8 of Renewal Workbook outlines PEPM Composite and Annual Percent Change
- Renewal Premium Change:
    - City +10.7%: total monthly $3,293.21 to $3,646.62
        - Employer monthly: $ 3,161.48 to $3,500.75
        - Employee monthly: $ 131.73 to $145.87

Plan Changes:

- Switching Medical Management from Personify to Meritain results in a 1.8% savings

The schools have separately reviewed and approved their plan renewal specifications.

- School: +20%

CITY OF VALDEZ, ALASKA

RESOLUTION #26-17

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, APPROVING THE ANNUAL RENEWAL OF THE CITY'S EMPLOYEE HEALTH INSURANCE BENEFIT PLAN

WHEREAS, the City of Valdez provides a health insurance benefit plan for eligible City employees as part of its employee compensation and benefits program; and

WHEREAS, the City of Valdez is committed to providing quality, competitive benefit packages as a recruitment and retention tool; and

WHEREAS, the City annually reviews and renews its health insurance benefit plan to ensure continued coverage and financial sustainability of the program; and

WHEREAS, the proposed 2026 renewal of the City's health insurance benefit plan reflects an overall premium increase of approximately 10.7 percent, consistent with nationwide trends of rising healthcare costs; and

WHEREAS, the City of Valdez 2026 Personnel Budget anticipated the increase in health insurance costs and includes sufficient appropriations to absorb the projected premium increase; and

WHEREAS, the City participates in a shared broker and consulting services arrangement with Valdez City Schools, and the associated consultant fee is reflected within the City's health insurance plan costs; and

WHEREAS, the Valdez City Schools have separately reviewed and approved their own plan renewal specifications; and

WHEREAS, the City Council finds that renewing the health insurance benefit plan and authorizing execution of the renewal documents is in the best interest of the City and its employees.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, that:

Section 1. The City Council approves the renewal of the City of Valdez health insurance benefit plan for the upcoming plan year under the terms presented to the City Council.

Section 2. The City Manager, or the City Manager's designee, is authorized to execute any and all documents necessary to complete the renewal of the City's health insurance benefit plan.

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March 2026.

CITY OF VALDEZ, ALASKA

_____
Dennis Fleming, Mayor

ATTEST:

_____
Sheri Pierce, City Clerk, MMC

City of Valdez City Council Meeting

3/17/2026

HEALTH PLAN STRUCTURE

+ Self-funded
    - Offers flexibility with plan design
    - Reduces cost with eliminating premium and state taxes
+ City and School purchase stop loss to mitigate risk
    - Stop loss renewal 27%
+ Admin costs are a small percentage of total costs
    - Meritain will have a slight increase of 1.4% - with the recommendation of moving Case Management from Personify to Meritain. This switch will also result in a one-time $5,000 Healthy Merit Credit
    - Meritain Dental/Vision no admin rate change
    - The Hartford life and disability in rate guarantee to 2027

CLAIMS EXPERIENCE

+ Total health plan costs fluctuate from year to year
+ Large claims are the drivers of cost fluctuations
    - 37% of claims are above $62,500

STOP LOSS RFP

+ For 2026 we sent out an RFP for Stop Loss carriers. Tokio Marine is the current Stop Loss carrier.
    - Most carriers declined to quote.
    - Berkley was the one carrier that did quote, however, moving to them would result in a 43% increase from current.

FUTURE TRENDS

+ Pipeline of expensive gene therapies
+ GLP-1 influence on prescription costs
+ Cost pressure on hospital systems and contracting will increase health plan costs
+ Higher health plan trends

MEDICAL SUMMARY for City of Valdez for April 1, 2026			
	In-Network Benefits	Current	Renewal
Cost Sharing	Ded (single|family)	$100 | $300	$100 | $300
	Coins (plan pays|member pays)	90% | 10%	90% | 10%
	Embedded Ded & OOP Max	No	No
	Total OOP (single|family)	$488 per person	$488 per person
Benefits	Office Visit (primary|specialist)	10% | 10%	10% | 10%
	Telehealth Visit	10%	10%
	Preventive Care	10%	10%
	Diagnostic Lab	10%	10%
	Diagnostic X-Ray	10%	10%
	Advanced Imaging	10%	10%
	Urgent Care Facility	10%	10%
	Emergency Room	10%	10%
	Inpatient Hospital	10%	10%
	Outpatient Facility	10%	10%
	Inpatient MH/SUD	10%	10%
	Outpatient MH/SUD	10%	10%
	Spinal Manipulation	10%, 40 visits/yr	10%, 40 visits/yr
Out of Network	OON Ded (single|family)	$100 | $300	$100 | $300
	OON Coins (plan pays|member pays)	90% | 10%	90% | 10%
	OON Total OOP (single|family)	$488 per person	$488 per person
Prescription Drugs	Ded (single|family) (if separate)	N/A	N/A
	OOP Max (single|family) (if separate)	N/A	N/A
	Generic (retail|mail)	$5	$5
	Brand Formulary (retail|mail)	$10	$10
	Brand Non-Formulary (retail|mail)	N/A	N/A
	Specialty (retail|mail)	N/A	N/A

TPA FIXED COSTS SUMMARY for City of Valdez for April 1, 2026				
IMA		Meritain	Meritain - Personify	Meritain
		Current	Status Quo Renewal	Renewal Option 2
Admin	Composite Est. of Medical Adjudication	$28.15	$28.15	$28.15
27	Employee Only	$28.15	$28.15	$28.15
27	Employee + Spouse	$28.15	$28.15	$28.15
21	Employee + Child(ren)	$28.15	$28.15	$28.15
60	Employee + Family	$28.15	$28.15	$28.15
	Composite Est. of Network Fees			
135	Network 1	15% of savings	15% of savings	15% of savings
135	Network 2	25% of savings	25% of savings	25% of savings
	Utilization Management	$2.75	$2.89	$2.80
	Case Management	$160 / hour	$165 / hour	$130 / hour
	Utilization Management Carve-Out Fee	N/A	$1.50	N/A
	COBRA	$2.40	$2.40	$2.40
	External PBM Interface Fee	$2.00	$2.00	$2.00
	National Cooperative Rx PMPM Fee	$0.20	$0.20	$0.20
	Teladoc	$3.10	$3.10	$3.10
	Healthy Mertis	$4.50	$4.50	$4.50
	Transcarent	$2.70	$2.70	$2.70
	NSA Air Ambulance Administration	$1.00	$1.00	$1.00
	EAP	$1.65	$1.65	$1.65
	Consulting Fee	$40.54	$41.75	$41.75
	Stop Loss Interface	$1.60	$1.60	$1.60
	Plan Document	$250 annually	$250 annually	$250 annually
	Commissions	0%	0%	0%
		$62.44	$65.29	$63.70
27	Employee Only	$62.44	$65.29	$63.70
27	Employee + Spouse	$62.44	$65.29	$63.70
21	Employee + Child(ren)	$62.44	$65.29	$63.70
60	Employee + Family	$62.44	$65.29	$63.70

Enrollment & Total Est. TPA Fixed Costs	Current	Status Quo Renewal	Meritain
Composite Est. of PEPM TPA Fees	$90.59	$93.44	$91.85

135	Est. Total/Mo	$12,229	$12,615	$12,400
	Est. Total/Yr	$146,754	$151,381	$148,805
	Est. Annual Change		$4,627	$2,051
	from Current		+3.2%	+1.4%
	Est. Annual Change			($2,576)
	from Renewal			-1.7%

IMA

Rates and provisions are determined by the underwriting carrier. While IMA has endeavored to provide an accurate and clear summary, each carrier's formal proposal prevails over any representations shown in this summary.

STOP LOSS FIXED COSTS SUMMARY for City of Valdez for April 1, 2026				
		Tokio Marine HCC	Tokio Marine HCC	Berkley
		Current	Status Quo Renewal	Illustratitive Proposal
Specific Stop Loss		Specific Deductible	$200,000	$200,000	$200,000
		Contract Term (Incurred|Paid)	Paid	Paid	24/12
		Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx
	27	Employee Only	$292.50	$371.48	$418.42
	27	Employee + Spouse	$292.50	$371.48	$418.42
	21	Employee + Child(ren)	$292.50	$371.48	$418.42
	60	Employee + Family	$292.50	$371.48	$418.42
	135	PEPM Est. of Spec Premium	$292.50	$371.48	$418.42
		Est. Total/Mo	$39,488	$50,150	$56,487
		Est. Total/Yr	$473,850	$601,798	$677,840
		Est. Annual Change		$127,948	$203,990
		from Current		+27.0%	+43.0%
		Est. Annual Change			$76,043
		from Renewal			+12.6%
		Aggregate Corridor	125%	125%	125%
		Contract Term (Incurred|Paid)	Paid	Paid	24/12
		Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx
		Max Reimbursement (Contract)	$1,000,000	$1,000,000	$1,000,000
		Minimum Attachment %	100%	100%	100%
	27	Employee Only	$12.31	$15.63	$18.13
	27	Employee + Spouse	$12.31	$15.63	$18.13
	21	Employee + Child(ren)	$12.31	$15.63	$18.13
	60	Employee + Family	$12.31	$15.63	$18.13
	135	PEPM Est. of Agg Premium	$12.31	$15.63	$18.13
		Est. Total/Mo	$1,662	$2,110	$2,448
		Est. Total/Yr	$19,942	$25,321	$29,371
		Est. Annual Change		$5,378	$9,428
		from Current		+27.0%	+47.3%
		Est. Annual Change			$4,050
		from Renewal			+16.0%

Enrollment & Total Est. Stop Loss Premiums		Tokio Marine HCC - Current	Tokio Marine HCC - Status Quo Renewal	Berkley - Illustratitive Proposal
135	PEPM Est. of Spec & Agg Premium	$304.81	$387.11	$436.55
	Est. Total/Mo	$41,149	$52,260	$58,934
	Est. Total/Yr	$493,792	$627,118	$707,211
	Est. Annual Change		$133,326	$213,419
	from Current		+27.0%	+43.2%
	Est. Annual Change			$80,093
	from Renewal			+12.8%

STOP LOSS CLAIMS SUMMARY for City of Valdez for April 1, 2026

			Tokio Marine HCC	Tokio Marine HCC	Berkley
			Current	Status Quo Renewal	Illustratitive Proposal
Carrier's Expected Claims		Specific Deductible	$200,000	$200,000	$200,000
		Contract Term (Incurred|Paid)	Paid	Paid	24/12
		Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx
	27	Employee Only	$2,607.22	$2,902.53	$2,844.82
	27	Employee + Spouse	$2,607.22	$2,902.53	$2,844.82
	21	Employee + Child(ren)	$2,607.22	$2,902.53	$2,844.82
	60	Employee + Family	$2,607.22	$2,902.53	$2,844.82
	135	PEPM Est. of Expected Claims	$2,607.22	$2,902.53	$2,844.82
		Est. Total/Mo	$351,975	$391,841	$384,051
		Est. Total/Yr	$4,223,703	$4,702,095	$4,608,615
		Est. Annual Change		$478,392	$384,912
		from Current		+11.3%	+9.1%
		Est. Annual Change			($93,480)
		from Renewal			-2.0%
IMA Expected Claims		IMA's PEPM Est. of Expected Claims	$2,938.35	$3,167.66	$3,167.66
		Est. Total/Mo	$396,677	$427,634	$427,634
		Est. Total/Yr	$4,760,127	$5,131,604	$5,131,604
		Difference		$229	$229
		from Current Budgeted		+7.8%	+7.8%
		% Difference from Carrier's Expected	+12.7%	+9.1%	+11.3%
Max Claims		Aggregate Corridor	125%	125%	125%
		Contract Term (Incurred|Paid)	Paid	Paid	24/12
		Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx
	27	Employee Only	$3,259.03	$3,628.16	$3,556.03
	27	Employee + Spouse	$3,259.03	$3,628.16	$3,556.03
	21	Employee + Child(ren)	$3,259.03	$3,628.16	$3,556.03
	60	Employee + Family	$3,259.03	$3,628.16	$3,556.03
	135	PEPM Est. of Max Claims	$3,259.03	$3,628.16	$3,556.03
		Est. Total/Mo	$439,969	$489,802	$480,064
		Est. Total/Yr	$5,279,629	$5,877,619	$5,760,769
		Est. Annual Change		$597,991	$481,140
		from Current		+11.3%	+9.1%
		Est. Annual Change			($116,851)
		from Renewal			-2.0%

Rates and provisions are determined by the underwriting carrier. While IMA has endeavored to provide an accurate and clear summary, each carrier's formal proposal prevails over any representations shown in this summary.

SELF FUNDED FIXED COSTS & CLAIMS SUMMARY for City of Valdez for April 1, 2026						
		Meritain - Tokio Marine HCC	Meritain - Personify - Tokio Marine HCC	Meritain - Personify - Berkley	Meritain - Tokio Marine HCC	Meritain - Berkley
		Current	Status Quo Renewal	Illustratitive Proposal	Status Quo Renewal	Illustratitive Proposal
Fixed Costs w/o Claims	PEPM of TPA & Network Fees	$90.59	$93.44	$93.44	$91.85	$91.85
	PEPM of Stop Loss Premium	$304.81	$387.11	$436.55	$387.11	$436.55
	PEPM of Other Fixed Costs					
	PEPM Est. of Total Fixed Costs	$395.40	$480.55	$529.99	$478.96	$528.40
	Est. Monthly Total Fixed Costs	$53,379	$64,875	$71,549	$64,660	$71,335
135	Est. Annual Total Fixed Costs	$640,546	$778,499	$858,592	$775,923	$856,016
	Est. Annual Change		$137,953	$218,046	$135,377	$215,470
	from Current		+21.5%	+34.0%	+21.1%	+33.6%
	Est. Annual Change			$80,093	($2,576)	$77,517
	from Renewal			+10.3%	-0.3%	+10.0%
Fixed Costs & Claims at IMA's Expected	Specific Deductible	$200,000	$200,000	$200,000	$200,000	$200,000
	Contract Term (Incurred|Paid)	Paid	Paid	24/12	Paid	24/12
	Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx	Med, Rx	Med, Rx
	PEPM of Fixed Costs	$395.40	$480.55	$529.99	$478.96	$528.40
	PEPM of Expected Claims	$2,938.35	$3,167.66	$3,167.66	$3,167.66	$3,167.66
	PEPM of Lasers/Other Claims Costs					
	PEPM Plan Costs at Expected	$3,333.75	$3,648.21	$3,697.65	$3,646.62	$3,696.06
	Monthly Plan Costs at Expected	$450,056	$492,509	$499,183	$492,294	$498,968
135	Annual Plan Costs at Expected	$5,400,673	$5,910,103	$5,990,196	$5,907,527	$5,987,620
	Est. Annual Change		$509,430	$589,522	$506,854	$586,947
	from Current		+9.4%	+10.9%	+9.4%	+10.9%
	Est. Annual Change			$80,093	($2,576)	$77,517
	from Renewal			+1.4%	-0.0%	+1.3%
Fixed Costs & Claims at Max	Aggregate Corridor	125%	125%	125%	125%	125%
	Contract Term (Incurred|Paid)	Paid	Paid	24/12	Paid	24/12
	Contract Coverage (Med, Rx, etc.)	Med, Rx	Med, Rx	Med, Rx	Med, Rx	Med, Rx
	PEPM of Fixed Costs	$395.40	$480.55	$529.99	$478.96	$528.40
	PEPM of Max Claims	$3,259.03	$3,628.16	$3,556.03	$3,628.16	$3,556.03
	PEPM of Lasers/Other Claims Costs					
	PEPM Plan Costs at Max	$3,654.43	$4,108.71	$4,086.02	$4,107.12	$4,084.43
	Monthly Plan Costs at Max	$493,348	$554,677	$551,613	$554,462	$551,399
135	Annual Plan Costs at Max	$5,920,175	$6,656,118	$6,619,360	$6,653,542	$6,616,785
	Est. Annual Change		$735,944	$699,186	$733,368	$696,610
	from Current		+12.4%	+11.8%	+12.4%	+11.8%
	Est. Annual Change			($36,758)	($2,576)	($39,334)
	from Renewal			-0.6%	-0.0%	-0.6%

DENTAL SUMMARY for City of Valdez for April 1, 2026			
		Meritain	Meritain
		Current	Renewal
Cost Sharing	**Ded** (single|family)	$25 | $75	$25 | $75
	Max Benefits/year	$2,500	$2,500
In-Network Benefits	**I - Diagnostic & Preventive (Plan Pays)**	Plan pays 100%	Plan pays 100%
	◦ Frequency of Exams/Cleanings	2 visits per year	2 visits per year
	II - Basic (Plan Pays)	90% | 10%	90% | 10%
	III - Major (Plan Pays)	50% | 50%	50% | 50%
	IV - Ortho (Plan Pays)	50% | 50%	50% | 50%
	Periodontics	II	II
	Endodontics	II	II
	Dental Implants	III	III
Misc	**Dependent Child Age Limit**	19	19
	Ortho Age Limit	19	19
	Non-Contrib/Contrib/Voluntary	Voluntary	Voluntary

Self Funded Costs	Meritain - Current	Meritain - Renewal
Dental/Vision PEPM Admin Costs	$2.35	$2.35
Dental PEPM Claims Funding	$150.09	$143.06

Rates and provisions are determined by the underwriting carrier. While IMA has endeavored to provide an accurate and clear summary, each carrier's formal proposal prevails over any representations shown in this summary.

VISION SUMMARY for City of Valdez for April 1, 2026			
		Meritain	Meritain
		Current	Renewal
Cost Sharing	Exam Coinsurance	10%	10%
	Exam Frequency	12 Months	12 Months
	Materials Coinsurance	100%	100%
	Lens Frequency	12 Months	12 Months
	Frame Frequency	24 Months	24 Months
	Contacts Frequency	1 pair hard lenses or 12 month supply disposable per calendar year	1 pair hard lenses or 12 month supply disposable per calendar year
In-Network Benef	Elective (Cosmetic) Contact Lenses	50%	50%
	Standard Frames	10% coinsurance, benefit paid up to $200	10% coinsurance, benefit paid up to $200
	Single Vision Lenses	10%	10%
	Bifocal Lenses	10%	10%
	Trifocal Lenses	10%	10%
Out-of-Network B	Elective (Cosmetic) Contact Lenses	50%	50%
	Standard Frames	10% coinsurance, benefit paid up to $200	10% coinsurance, benefit paid up to $200
	Single Vision Lenses	10%	10%
	Bifocal Lenses	10%	10%
	Trifocal Lenses	10%	10%
Misc	Lasik	$2,000 Lifetime Maximum	$2,000 Lifetime Maximum

Self Funded Costs	Meritain - Current	Meritain - Renewal
Dental/Vision PEPM Admin Costs	$1.05	$1.05
Vision PEPM Claims Funding	$46.25	$50.80

Rates and provisions are determined by the underwriting carrier. While IMA has endeavored to provide an accurate and clear summary, each carrier's formal proposal prevails over any representations shown in this summary.

CONTRIBUTION SUMMARY for City of Valdez for April 1, 2026

	Assumed Current Enrollment	2025 (Current) Plan year Budget Rates	2026 (Renewal) Plan year Budget Rates
Employee	27	$1,459.10	$1,605.49
Employee + Spouse	27	$3,020.32	$3,323.37
Employee + Child(ren)	21	$2,830.65	$3,114.66
Family	60	$4,450.26	$4,896.78
Total Enrolled	135		
PEPM Composite:	135	$3,314.10	$3,646.62
Monthly:		$447,404	$492,294
Annual Cost:		$5,368,842	$5,907,527
Annual Change:			$538,685
Annual Percent Change:			10.0%

File #: RES 26-0018, **Version:** 1

ITEM TITLE:
#26-18 - Authorizing the Sale of a Surplus 2009 Nissan Crosswind Street Sweeper

SUBMITTED BY: John Witte, Director, Public Works Department

FISCAL NOTES:

Expenditure Required: N/A
Unencumbered Balance: N/A
Funding Source: N/A

RECOMMENDATION:

Authorize the sale of the 2009 Nissan Crosswind Street Sweeper as surplus property, with a minimum acceptable bid (reserve) of $15,000.

SUMMARY STATEMENT:

The City of Valdez currently owns a 2009 Nissan Crosswind Street Sweeper. The unit has been evaluated and determined to have an estimated fair market value of $30,000 in fair condition. Public Works has identified this equipment as surplus to the City's operational needs and recommends disposal through an online public sale via GovDeals.com.

Pursuant to Valdez Municipal Code § 4.06.020, "No surplus or obsolete supplies, equipment, or personal property of a fair market value in excess of ten thousand dollars may be disposed of by any means without city council approval. The city manager shall recommend to the city council the minimum acceptable bid."

The City Manager recommends setting the minimum acceptable bid price at no less than $15,000. Approval of this action will authorize staff to proceed with advertising and listing the equipment for sale, with all proceeds to be deposited into the Major Equipment Reserve within the General Fund.

CITY OF VALDEZ, ALASKA

RESOLUTION #26-18

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, AUTHORIZING THE SALE OF A SURPLUS 2009 NISSAN CROSSWIND STREET SWEEPER AND ESTABLISHING A MINIMUM ACCEPTABLE BID

WHEREAS, the City of Valdez owns a 2009 Nissan Crosswind Street Sweeper that has been identified as surplus to the needs of the City; and

WHEREAS, the street sweeper has been evaluated and determined to have a fair market value of thirty thousand dollars ($30,000); and

WHEREAS, pursuant to Valdez Municipal Code § 4.06.020, no surplus or obsolete equipment with a fair market value in excess of ten thousand dollars ($10,000) may be disposed of without approval of the City Council, and the city manager shall recommend the minimum acceptable bid; and

WHEREAS, the city manager recommends a reserve price of fifteen thousand dollars ($15,000) as the minimum acceptable bid for this sale.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, that

Section 1. The 2009 Nissan Crosswind Street Sweeper is declared surplus to the needs of the City of Valdez.

Section 2. The city manager is authorized to sell the equipment through competitive means with a minimum acceptable bid (reserve price) of fifteen thousand dollars ($15,000).

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF VALDEZ, ALASKA, this 17th day of March 2026.

CITY OF VALDEZ, ALASKA

_____
Dennis Fleming, Mayor

ATTEST:

_____
Sheri L. Pierce, MMC, City Clerk

Fair Market Value Approval Form

For Disposal of Surplus Personal Property

Item to be Sold:	2009 Nissan Crosswinds Street Sweeper

Description of the Item:	This 2009 Nissan UD3000 equipped with an Elgin Crosswind regenerative air sweeper is a functional municipal street sweeper offered in fair condition with normal wear and tear consistent with age and use. The

Issues/Damages of the Item:	Normal wear and tear.

Date of Purchase:	2009
Original Purchase Price:	$187,350.00

Estimated Fair Market Value	$30,000.00
Auction Reserve Price	$15,000.00

Department Director Signature: John Witte Digitally signed by John Witte Date: 2026.03.02 13:58:00 -09'00'

Printed Name/Title: _____ **Date:** _____

City Manager Approval

☑ Approve – I agree with the fair market value and reserve price of the item.

☐ Deny – I do not agree with the fair market value and reserve price of the item.

Additional Comments:

City Manager Signature: _____ Digitally signed by Jordan Nelson Date: 2026.03.02 14:15:24 -09'00'

Printed Name/Title: _____ **Date:** _____

Include pictures with this form for the City Manager.


0226
ELGIN
Crosswind

File #: 26-0107, **Version:** 1

ITEM TITLE:
Report: Temporary Land Use Permit 26-02 for the Valdez Adventure Alliance for a Portion of 1500 Valdez Glacier Road (Tract A, ASLS 79-116), a Portion of 1730 Homestead Road (Tract J Raven Subdivision) & 3351 Falcon Avenue (Lot 5, Block 9 Robe River Subdivision) owned by the City of Valdez

SUBMITTED BY: Nicole Chase, Senior Planner

FISCAL NOTES:

Expenditure Required: N/A
Unencumbered Balance: N/A
Funding Source: N/A

RECOMMENDATION:

N/A - report only

SUMMARY STATEMENT:

The Community Development Department received a temporary land use permit application 26-02 from the Valdez Adventure Alliance for use of a portion of 1500 Valdez Glacier Road, Tract A, ASLS 79-116 for staging of a fat bike race in the Valdez Glacier Lake parking lot as well as use of city-owned lot 3351 Falcon Avenue Lot 5 Block 9, Robe River Subdivision for staging and parking for a downhill fat bike race. Valdez Adventure Alliance also requested the use of property on Homestead Road trailhead for race staging as well. The downhill Sunday race was cancelled.

The term of the permit is from March 13th-March 15th, 2026.

Valdez Adventure Alliance submitted proof of insurance coverage satisfying the minimum limits set forth in code as well as their participant waivers for legal review.

The Chief of Police, Parks and Recreation Director, and Public Works Director were solicited for comments on the application and had no concerns.

Fees for temporary land use permits were established by City Council with Resolution #23-43 which states that “for temporary land use permits for areas that are less than two acres in size, the fee shall be a flat monthly rate of $311 per month or a pro-rated daily fee of $11 per day for those periods less than one month.” The fee for this permit was $33.00. Per Valdez Municipal Code 17.12.120 (F), this short-term temporary land use permit was administratively issued at the discretion of the Community Development Director. Per Valdez Municipal Code 17.12.120 (I) (4) the issuance of this permit shall

be reported to the Planning and Zoning Commission and City Council at their next regular meeting.

CITY OF VALDEZ
TEMPORARY LAND USE PERMIT AGREEMENT

Permit No. 26-02

This Temporary Land Use Permit Agreement (hereinafter referred to as Permit) is entered into this 21st **day of February, 2026** by and between the **CITY OF VALDEZ**, an Alaska municipal corporation (hereinafter referred to as "Valdez"), whose address is P.O. Box 307, Valdez, Alaska, 99686, and **VALDEZ ADENTURE ALLIANCE**, (hereinafter referred to as "Permittee"), whose address is **P.O. Box 33, Valdez AK 99686**.

W I T N E S S E T H:

1. Permit. Valdez hereby grants to Permittee the right and privilege to be present upon the following described real property belonging to Valdez pursuant to the terms of this Permit Agreement:

- **An Approximately 6,000 Square Foot Portion of 1500 Valdez Glacier Road Tract A ASLS 79-116**
- **1730 Homestead Road Tract J Raven Subdivision**
- **3351 Falcon Avenue Lot 5 Block 9, Robe River Subdivision**
  (See Exhibits "A- C")

2. Term and Termination. Permittee may use the Property for the purposes set forth herein beginning on **the 13th day of March 2026 and ending on the 15th day of March, 2026**. Permittee shall vacate the Property immediately after the expiration of this Permit.

3. Use. Permittee shall use the Property for staging for a fat bike racing event taking place over multiple days and locations. The permit includes permission for parking, event staging, and portable restrooms and no other purposes without the prior written consent of the City of Valdez. **No permanent structures shall be erected on the property; and no permanent alteration of the land shall occur.**

4. Permittee Not a Lessee. No legal title or leasehold interest in the Property shall be deemed or construed to have been created or vested in Permittee by anything contained herein. The purpose of this permit is to convey a non-possession interest by the City of Valdez to Permittee in that certain property (not to exceed two acres) described in paragraph 1 above. The City of Valdez shall maintain all right, title, and interest in that Property as fee simple owner thereof, and Permittee by virtue of this Permit has only the right and privilege to be present upon the Property and to make use of it for the purpose set forth in paragraph 3 above.

5. Fee. In consideration for use of land owned by the City of Valdez, Permittee agrees to pay a pro-rated daily rate of nine dollars ($11.00) per day for the number of days this permit is in effect.

6. Insurance Requirement. The Permittee shall, at its own expense, purchase, maintain and otherwise keep in force the following insurance for the duration of this Agreement. The City shall be notified immediately prior to any termination, cancellation, or any other material change in such insurance. The Permittee shall provide the City a Certificate of Insurance prior to the commencement of any activity undertaken in connection with this Temporary Land Use Permit Agreement. Failure to provide adequate proof of insurance prior to the occupation of the Property will result in revocation of the Permit.

Event Liability Insurance: Covering the Permittee and the City for any and all claims for personal injury, bodily injury (including death) and property damage (including environmental degradation or contamination) arising from any activity occurring as a result of this Temporary Land Use Permit Agreement.

Minimum limits:
$1,000,000 Each Occurrence
$100,000 Damage to Rented Premises
$5,000 Medical Payments
$1,000,000 Personal & Adv Injury
$2,000,000 General Aggregate
$2,000,000 Products and Completed Operations Aggregate

The City of Valdez shall be included as an Additional Insured.

Workers' Compensation: Permittee shall maintain Workers' Compensation and Employer's Liability Insurance.

Minimum Limits:
1. Workers' compensation – statutory limit
2. Employer's liability:
   $100,000 bodily injury for each accident
   $100,000 bodily injury by disease for each employee
   $500,000 bodily injury disease policy limit

Waiver of Subrogation. For the purpose of waiver of subrogation, Permittee releases and waives all rights to claim or recover damages, costs or expenses against Valdez for any casualty of any type whatsoever in, on or about the Premises if the amount of such damage, cost or expense has been paid to such damaged party under the terms of any policy of insurance required herein. All participants and/or competitors participating in racing activities shall execute a waiver of liability form approved by the City.

7. Maintenance. Permittee agrees to maintain the property in a neat and orderly fashion. Upon termination of this Permit, Permittee agrees to leave the premises in a neat and clean condition.

8. Mechanic's Liens. Permittee shall pay all costs for construction done by it or caused to be done by it on the Property as permitted by this Permit. Permittee agrees not to construct any permanent structures on the property.

9. Utilities. Permittee shall be solely liable for and shall timely pay when due all expenses and fees for all utilities used or consumed with respect to the Property. The Permittee shall be required to provide and maintain sanitary facilities to include, but not be limited to, port-a-potties and garbage dumpsters.

10. Exculpation of Valdez. Valdez shall not be liable to Permittee for any damage to Permittee or Permittee's property from any cause. Permittee waives all claims against Valdez for damage to persons or property arising from any reason.

11. Indemnity. Permittee shall hold the City of Valdez harmless from and against any and all damages arising out of any damage to any persons or property occurring in, on, or about the Property.

12. Condemnation. If during the term of this Permit there is any taking by condemnation of the Property or any interest in this Permit, this Permit shall terminate on the date of taking. Any condemnation award shall belong to and be paid to The City of Valdez, and Permittee hereby assigns to the City of Valdez Permittee's interest therein.

13. No Encumbrance or Assignment Permitted. Permittee shall not voluntarily encumber its interest in this Permit or in the Property or attempt to assign all or any part of the Property, or allow any other person or entity, except its authorized representatives, to occupy or use all or any part of the Property.

14. Default. The occurrence of any of the following shall constitute a default under this Permit by Permittee:

(a) Failure to pay fees when due, if the failure continues for fifteen (15) days after written notice for payment;

(b) Any default in or failure to perform any term, covenant, or condition of this Permit;

(c) The cessation by Permittee of the operation of the Permittee's business located on the Property for a period of thirty (30) days;

(d) The making of any assignments for the benefit of creditors of Permittee, the appointment of a receiver for Permittee's business, the entry of an Order for Relief as to Permittee under the United States Bankruptcy Code as now in effect or hereafter amended, the insolvency of Permittee, or any similar situation.

15. Remedies. In the event of any default by Permittee under the provisions of paragraph 14 of this Permit, all of Permittee's rights hereunder shall immediately terminate; and the City of Valdez may, in addition to any rights and remedies that it may be given by statute, common law, express agreement, or otherwise, enter and take sole possession and control of the Property.

16. Valdez' Entry on Premises. The City of Valdez shall have the right to enter the Property at any time and, in view of the fact this Permit constitutes a license on real property rather than a lease, shall at all times remain in possession of the Property.

17. Notices. Any notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other party or any other person shall be in writing and either served personally or sent by certified mail, return receipt requested, and shall be addressed to the other party at the address set forth in the introductory paragraph of this Permit. Either party may change its address by notifying the other party of the change of address. Such notices shall be deemed given when mailed irrespective of whether or not they are received.

18. Modification, Amendment, Waiver. No delay or omission in the exercise of any right or remedy of the City of Valdez on any default by Permittee shall impair such a right or remedy or be construed as a waiver. No modification, amendment, or waiver of any of the provisions of this Agreement shall be effective unless in writing, specifically referring hereto, and authorized by both parties.

19. Governing Law/Jurisdiction. This Permit shall be governed by, interpreted, and enforced in accordance with the laws of the State of Alaska and the laws of the United States, as applicable. The venue for all litigation arising out of or relating to this Agreement shall be Valdez, Alaska. The parties hereto irrevocably agree to submit to the exclusive jurisdiction of such courts in the State of Alaska and waive any defense of *forum non conveniens*.

20. Miscellaneous. Time is of the essence with respect to each provision of the Permit, and it shall be binding upon and inure to the benefit of the parties, their heirs, assigns, and successors in interest. The enforceability, invalidity, or illegality of any provisions of this Permit shall not render the other provisions of this Permit unenforceable, invalid, or illegal.

IN WITNESS WHEREOF the parties have caused this Permit to be executed by their duly authorized officers the day and year first above written.

CITY OF VALDEZ, ALASKA

Signed by:
By: Kate Huber
AEE0C60B912D4AF...
Kate Huber, Community Development Director

Date: 2/25/2026 | 10:15 AM AKST

PERMITTEE: VALDEZ ADVENTURE ALLIANCE

Signed by:
By: Lanette Oliver
769AB07E41134CC...
Lanette Oliver, Executive Director

Date: 2/21/2026 | 11:54 AM AKST

Approved as to Form:
BRENA, BELL & WALKER, P.C.
Attorneys for the City of Valdez

By: Jake W. Staser 2/20/26

ATTEST:
By: Sheri L Pierce
Sheri L. Pierce, MMC, City Clerk

SEAL OF THE CITY INC. 1901 VALDEZ, ALASKA

"EXHIBIT A"

"EXHIBIT B"

"EXHIBIT C"

File #: 26-0108, **Version:** 1

ITEM TITLE:
Procurement Report: Purchase of Caselle Annual Maintenance and Support from Caselle in the Amount of $45,933.80
SUBMITTED BY: Matthew Osburn, IT Director

FISCAL NOTES:

Expenditure Required: $45,933.80
Unencumbered Balance: $2,126,058.19
Funding Source: 350-5050-55000 Tech Reserve

RECOMMENDATION:

Receive and file.

SUMMARY STATEMENT:

This procurement report relates to the purchase of the City's financial management software and support.

Funds have been expended from the Tech Reserve.

This report is filed per Valdez Municipal Code 2.80.040.

File #: 26-0100, **Version:** 1

ITEM TITLE:
City Manager Written Report

SUBMITTED BY: Nathan Duval, City Manager

FISCAL NOTES:

Expenditure Required: N/A
Unencumbered Balance: N/A
Funding Source: N/A

RECOMMENDATION:

Receive and file.

SUMMARY STATEMENT:

Attached report outlines events that have occurred since the last Council meeting. A verbal update will be provided in conjunction with report.

212 Chenega Avenue | Valdez, AK 99686 | 907-835-4313 | Valdezak.gov

Council Priorities

- **Child Care** [Complete an operating, active, licensed childcare facility by Fall 2026]
  - Head Start target March for one class to be operating. Currently accepting enrolment applications. Chugachmiut has hired some staff but is still looking to hire teachers to begin full operations in the 1st quarter.
  - Consultant still working on environmental review for old district office (HUD funding requirement)

- **Housing** [Increase housing stock by Fall 2027, utilizing the housing needs survey]
  - Discussed with a number of legislators in Juneau, including Coast Guard
  - Major topic in conversations with USCG in DC
  - Having conversations with developers on opportunities
  - Will schedule subcommittee meeting after DC

- **Maintenance** [Annually appropriate funds toward deferred maintenance on critical infrastructure]
  - Capital Facilities preparing Major Maintenance projects for approval for next Council meeting

- **Modernize Aging Infrastructure** [Annually modernize aging infrastructure, while leveraging natural and transportation assets, to expand: Outdoor Recreation, Tourism, Maritime, Community]

Legislative Interactions

- DC fly-in, had meetings with the following
  - Alaska Delegation
  - Senate & House committee staff on Indian Affairs & Coast Guard
  - US Coast Guard
  - US Navy Marine Industrial Base Program
  - Forest Service
- Continuing participation in AML property tax working group
- Received notice from DOJ on $5.5M Radio community grant appropriation

Operations & Initiatives

- Tourism Task Force meetings ongoing, preliminary recommendation forthcoming
- Planning Council strategic planning session (work session 3/17 scheduled)
- Coordinating Director's retreat / strategic planning
- Museum requested a work session with Council (scheduled 4/7).
- Valdez 125th planning and community collaboration ongoing
- Working with Schools on insurance renewal
- Meeting with CVEA to discuss upcoming needs and opportunities.

Personnel

- Officer Hudson started with the PD, welcome aboard.
- Working with Fire Department to bring forth ordinance to consider recognition of their local for collective bargaining

Projects

- Awaiting furniture to move into new offices at HHES 7 new district office.
- Monthly project reports begin in June to correspond with the summer season.