City of Warrenton City Commission
Agenda
City Hall, 225 S. Main Warrenton, OR 97146
Tuesday, March 25, 2025

*****The meeting will be broadcast via Zoom at the following link*****
https://us02web.zoom.us/j/5332386326?pwd=VHNVVXU5blkxbDZ2YmxISWpha0dhUT09#success
Meeting ID: 533 238 6326 | **Passcode:** 12345 | **Dial-in Number**: 253-215-8782

Public Comment: To provide public comment, participants should register prior to the meeting. All remarks will be addressed to the whole City Commission and limited to 3 minutes per person. The Commission reserves the right to delay any action, if required, until such time as they are fully informed on a matter. Once your public comment is submitted it becomes part of permanent public record.

You may provide public comment using the following methods:

1. In-person: Complete a public comment card and submit to the City Recorder prior to the start of the meeting.
2. Via Zoom: Register with the City Recorder, at cityrecorder@warrentonoregon.us no later than 3pm the day of the meeting. Please ensure that your zoom name matches the name registered to comment.
3. Written comments: Submit via e-mail to the City Recorder, at cityrecorder@warrentonoregon.us, no later than 3:00 p.m. the day of the meeting.

City Commission Regular Meeting 6:00 PM

1. Call to order

2. Pledge of Allegiance

3. Consent Calendar

A. City Commission Meeting Minutes 2025.03.11
B. Joint Work Session Minutes 2025.03.11
C. Community Library Board Meeting Minutes 2024.12.12
D. NW Natural Franchise Agreement
E. Police Department Monthly Report – February 2025

4. Commissioner Reports

5. Public Comment

6. Public Hearings – None

7. Business Items

A. Consideration of Nuisance Citation – 247 Tyee Street
B. Consideration of Nuisance Declaration – 45 SW 4th Street
C. Consideration of Rezone and Site Design Review (Lum's Village) - Ordinance No. 1286; Second Reading & Adoption
D. Consideration of City Water Policy - Ordinance No. 1292; Second Reading & Adoption
E. Consideration of Waterline Replacement Project – RP 2
F. Consideration of Vactor Truck Purchase

Warrenton City Hall is accessible to the disabled. An interpreter for the hearing impaired may be requested under the terms of ORS 192.630 by contacting Dawne Shaw, City Recorder, at 503-861-0823 at least 48 hours in advance of the meeting so appropriate assistance can be provided.

G. Consideration of Seafarer's Park Bank Stabilization Contract Award

8. **Discussion Items** – None
9. **Good of the Order**
10. **Executive Session**
11. **Adjournment**

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City of Warrenton City Commission
Minutes
City Hall, 225 S. Main Warrenton, OR 97146
Tuesday, March 11, 2025

1. **City Commission meeting called to order at 6:07 pm.**

2. **Pledge of Allegiance**

Commission Members	Present	Excused
Gerald Poe	X	
Jessica Sollaccio	X	
Tom Dyer	X	
Paul Mitchell		X
Henry Balensifer, Mayor	X	

Staff Members Present	
City Manager Esther Moberg	Finance Director Jessica Barrett
City Recorder Dawne Shaw	Harbormaster Jessica McDonald
Police Chief Mathew Workman	Public Works Kevin Gorman
Deputy City Recorder Hanna Bentley	Interim Planning Director Scott Fregonese

3. **Consent Calendar**

*Items on the Consent Calendar have previously been discussed and/or are considered routine. Approval of the Consent Calendar requires a motion, a second, and no discussion, unless requested by a member of the City Commission.

A. City Commission Meeting Minutes 2025.02.25
B. Parks Advisory Board Minutes 2024.12.09
C. Harbormaster Report – February 2025
D. Marina Advisory Committee Minutes 2025.01.27
E. 11th Street Sewer Development Agreement (will be reviewed as item 8B)
F. Oxford House Update

Mayor Balensifer noted consent item 3E just came in and asked the commission if they wished to postpone its signature till the end of the meeting after they had had time to review it. There was unanimous consent. Mayor Balensifer noted it will be added as item 8B.

Commissioner Sollaccio requested to add 7D Edwards Property Decision. There were no objections.

Motion:	Move to approve the consent calendar as presented noting item E being withdrawn.				
Moved:	Poe				
Seconded:	Dyer	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			

	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

4. Commissioner Reports

Commissioner Sollaccio provided a reminder for the easter egg hunt and First Steps Color Run. She provided an update on meetings she attended.

City Manager Esther Mober reminded the commission of the upcoming budget committee meeting and provided an update on the King Street nuisance, noting it was remediated.

Mayor Balensifer noted a legal meeting with Oregonians for floodplain protection he attended. He noted that on March 28th the Ways and Means committee will be coming to Astoria and he will be testifying at the meeting.

5. Public Comment - None

6. Public Hearings

A. Rezone and Site Desing Review:

Mayor Balensifer opened the Public Hearing on the Rezone and Site Design Review for the Lum's Village. Formalities followed. No conflicts of interest or ex parte contacts were reported. Mayor Balensifer noted he received correspondence related to noticing and that the hearing was reset to comply with state law. Commissioner Sollaccio and Mayor Balensifer noted they visited the site. Commissioner Poe noted he has driven past the property. All Commissioners and the Mayor noted that there are no conflicts related to the site visit and that they can make a fair and impartial judgment. Interim City Planner Scott Fregonese presented the staff report. He noted he did not write the staff report; it was a previous planner however he has read it thoroughly and agrees with it. There were brief questions and answers between the commission and Fregonese. The applicants Developer Ryan Helligso reviewed the project and objectives. Brief questions and answers followed.

Mayor Balensifer asked for public comment. Tony Faletti submitted written comments for the record. There were no comments in favor or opposition. Faletti gave neutral comments as outlined in his written comments. The applicant John Toyooka gave additional comments. There being no further comments, Mayor Balensifer closed the public testimony section of the hearing; the commission deliberated. Commissioner Sollaccio asked if the city can wave the traffic study; Fregonese noted it is required in city code. Discussion continued on traffic density and requirements.

Motion:	Move to conduct the first reading, by title only, of Ordinance No. 1286.				
Moved:	Dyer				
Seconded:	Poe	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

Mayor Balensifer conducted the first reading by title only, of Ordinance No. 1286; an Ordinance Approving with Conditions, the Site Design Review Application SDR-24-2 and the Rezone Application

RZ-24-2 and Amending the City of Warrenton Zoning Map to Reclassify a Portion of Real Property Identified as Tax Lot 81028AD03400 from R-10 Intermediate Density Residential to R-H High Density Residential.

7. Business Items

A. Consideration of Resolution No. 2700; Annual Moorage Rates - Adoption:

Harbormaster Jessica McDonald presented for its adoption, Resolution No. 2700; updating annual moorage rates.

Motion:	Move to conduct the second reading by title only of Resolution No. 2700.				
Moved:	Sollaccio				
Seconded:	Dyer	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

Mayor Balensifer conducted the second ready by title only, of Resolution No. 2700; a Resolution Amending Marina Rates and Fees, and Repealing Resolution No. 2645

Motion:	Move to adopt Resolution No. 2700.				
Moved:	Poe				
Seconded:	Sollaccio	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

B. Consideration of Water Ordinance No. 1292:

Moberg discussed an ordinance updating the City's water policy and reviewed the changes. She noted there is a correction to page 9 that is not shown and that it should state leave water service in the ground instead of leave water meter in the ground. Discussion followed; Mayor Balensifer suggested amendments; lengthy discussion on reconnection fees/ SDC fees and the disconnect process; review of the ordinance continued. Moberg noted that the ordinance was not a full code revision. There was consensus to hold a work session at a future date to discuss the full policy.

Motion:	Move to amend Ordinance 1292 Section 5, Subsection 1, Paragraph J to read, may choose to leave the meter in the ground to may choose to leave the water service in the ground.				
Moved:	Dyer				
Seconded:	Poe	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			

	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

Motion:	Move to conduct the first reading, by title only, of Ordinance No. 1292, as amended.				
Moved:	Dyer				
Seconded:	Poe	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

Mayor Balensifer conducted the first reading, by title only, of Ordinance No. 1292; Providing for Rules and Regulations for City of Warrenton Water Department and All Areas Served by the Municipal Water Department Outside Warrenton's City Limits; Requiring Installation of Water Meters; Repealing any other Water Ordinances or Resolutions or Parts Thereof in Conflict Herewith; Providing a Penalty for Violation of any Terms and Conditions Herein.

C. Consideration of City Commission Goals 2025-2027:

Mayor Balensifer reviewed the commission goals discussed at the March 1, 2025 goal setting session. Brief discussion followed on each goal.

1. Amplify a more positive external and internal customer experience
2. Advance downtown development
3. Design Hammond fishing pier
4. Review and optimize all volunteer committees and boards experience
5. Reform the nuisance code
6. Ditch cleaning annual maintenance plan development
7. Secure funds and develop the wastewater treatment plant

Motion:	Move to approve the 2025-2027 City Commission Goals as stated.				
Moved:	Poe				
Seconded:	Sollaccio	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

D. Edwards Property Water Lein:

Due to a potential conflict, Mayor Balensifer recused himself from the meeting and handed the gavel to Senior Commissioner Dyer. Moberg discussed the process that has taken place with

the property. Commissioner Sollaccio stated that she wanted to bring it to the commission to see if they would satisfy the request to only bill for 12 months. Moberg suggested reducing the bill by a lump amount vs 12 months. There was brief discussion on how much should be waived. There was consensus to have $4,000 as the lien for payment minus any payments that have been made.

Motion:	Move to reduce the cost to settle this to $4,000 by the property owner.				
Moved:	Poe				
Seconded:	Sollaccio	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer				X
Passed:	3/0				

8. Discussion items

A. Support for Pursuit of the Moderate-Income Revolving Loan (MIRL) Fund for Fort Point Housing Project:

Moberg explained the request for support for the Fort Point housing project. Seth Hague provided a few comments explaining the loan and project. Mayor Balensifer asked for clarification on the program; Hague responded. Discussion continued. Hague noted he would like to revisit this in a more structured environment in the next month or two. The Commission was not in favor of waving tax income for the general fund but are willing to listen to more information and numbers at an April meeting.

B. Consent item 3-E:

Moberg reviewed the agreement with 3PO for the 11th Street sewer development.

Motion:	Move to approve the development agreement for sewer line improvements between the City of Warrenton and 3PO Networks.				
Moved:	Sollaccio				
Seconded:	Dyer	**Aye**	**Nay**	**Abstain**	**Recused**
	Sollaccio	X			
	Dyer	X			
	Poe	X			
	Balensifer	X			
Passed:	4/0				

9. Good of the Order

Commissioner Dyer stated it was nice to see the sun the other day.

Commissioner Sollaccio stated she loved the Urban Renewal Signs and thanked Tony Faletti for them.

Moberg noted the new City Planner is expected to start April 1st.

Mayor Balenisfer noted he is looking forward to executing their goals.

10. Executive Session - None

11. Adjournment

There being no further business, Mayor Balensifer adjourned the meeting at 8:15 pm.

Approved:

Attest:

Henry A. Balensifer III, Mayor

Dawne Shaw, CMC, City Recorder

DRAFT

City of Warrenton City Commission
Marina Advisory Committee
Joint Work Session Minutes
City Hall, 225 S. Main Warrenton, OR 97146
Tuesday, March 11, 2025

City Commission joint work session called to order at 4:30 pm.

Commission Members	Present	Excused
Gerald Poe	X	
Jessica Sollaccio	X	
Tom Dyer	X	
Paul Mitchell		X
Henry Balensifer, Mayor	X	

Marina Advisory Committee Members	Present	Excused
Lylla Gaebel	X	
William Kerr	X	
Jennifer Fowler	X	
Larry Ausman	X	
Mike Balensifer	X	

Staff Members Present	
City Manager Esther Moberg	Deputy City Recorder Hanna Bentley
City Recorder Dawne Shaw	Harbormaster Jessica McDonald
Marina Office Asst. Shara Ford	

Harbormaster Jessica McDonald gave brief comments and introduced Jon Forrester of North Coast Civil Design. Forrester presented the 2025 vision for the marinas, as outlined in the meeting packet. It was noted that the quotes do not include engineering, permitting, and contingency. There was brief discussion on the location of the ADA fishing pier. After reviewing the presentation and brief discussion, consensus of both the City Commission and the Marina Advisory Committee was to have the Marina Advisory Committee go over the presentation in detail and present a recommendation to the engineer then following that bring the final before the City Commission.

At 6:00pm, Mayor Balensifer adjourned the joint work session.

Approved:

Henry A. Balensifer III, Mayor

Attest:

Dawne Shaw, CMC, City Recorder

DRAFT

Minutes
Warrenton Community Library Advisory Board
Regular Meeting
December 12, 2024

Chair Walker called the meeting to order at 5:44 pm.
Members Present: Chair Andrew Walker, Abbie Johnson, Aggie Cooley, Amanda Donovan (via Zoom), Karyn Grass (via Zoom)

Members Absent: Eileen Percell, Brenda Atwood

Staff Present: Library Director Josh Saranpaa

Guests Present: Kelsey Balensifer

Public Comment: None.

Consent Calendar:

A. Regular Meeting Minutes 10.30.24

Abbie Johnson moved to approve the consent calendar as presented. Motion was seconded by Aggie Cooley and passed unanimously.

Discussion Items:

A. Friends of the Warrenton Community Library Update

Kelsey Balensifer updated the Library Board on the most recent Library After Dark event, which hosted Kama O'Connor, a local romance author. The event had around 8 attendees. The next Library After Darke Event is Saturday, December 14, 2024 at 4:00 pm. The Author is Arline LaMear, former Astoria Mayor. She will be joined by the illustrator of her children's books.
Kelsey shared that the Friends of the Warrenton Community Library was chosen as one of three non-profits to present in front of the 100 Women Who Care of Clatsop County, a local philanthropy organization. After the presentation, one of the three non-profits is chosen to receive $10,000 from the group. While the Friends of the Warrenton Community Library wasn't chosen as the recipient of the $10,000, they still received over $500 from attendees of the event.
The Friends of Warrenton Community Library now has an online donation option via PayPal and is working on an updated website.
The Friends of Warrenton Community Library heard that they will be receiving $2,000 from Hampton Lumber to support the Library's Summer Reading Program.
The Friends of Warrenton Community Library, with the help of Library Administrative Assistant Cass Williams, is applying for funds through Fred Meyer to finance the stocking of the Free Food Pantry at the library.
Kelsey also mentioned that the Friends of Warrenton Community Library is moving forward with their donation of $700 for bilingual books. They are going to be partnering with both Consejo Hispano and Lucy's Books to fulfill this goal.

B. Library Director Report

Library Director Josh Saranpaa did not have a written report this month, since the last meeting was not long ago. Josh shared verbally that he has written a grant to the Clatsop County Cultural Coalition in the amount of $2,500 to go towards an automatic door opener at the library. Josh recently heard that the grant will be fully funded at $2,500. Josh will be attending a presentation and award ceremony in mid-January to receive the grant funds.
Josh updated the board that he just finished revising the volunteer handbook at the library, and will begin the process of onboarding new library volunteers.
Josh closed his report by sharing a recap of the important projects that were accomplished by the library and board collectively. These were the revisions of the Bylaws and City Ordinances as well as completing the Strategic Plan.

Action Items:

A. Nomination of Officers for 2025

Chair Walker asked for clarification regarding which officers the board has and needs. Library Director Saranpaa reminded the board that the only official position is the Board Chair, and that the Library Director serves as the Secretary, though can delegate Minutes responsibilities to board members
Chair Walker expressed that he is willing and able to be the Board Chair again, if needed. Aggie Cooley nominated Andrew Walker to be Board Chair and Abbie Johnson seconded the nomination. Andrew Walker was appointed Board Chair unanimously.

B. Scheduling Meetings for 2025

The meetings for calendar year 2025 are scheduled as follows: March 12, June 11, September 10, November 19. Aggie moved to approved the schedule for the 2025 meetings. Abbie seconded. Schedule of 2025 meetings was approved unanimously.

Good of the Order:

Chair Walker reminded the board that both Eileen Percell and Brenda Atwood will not be on the board in 2025, since they have both reached their term limits. He also let the board know that two new board members will be joining the board in January 2025: Gregory Bian and Kelsey Balensifer.

Meeting was adjourned at 5:58



City Commission Agenda Memo

Meeting Date: March 25, 2025
From: Esther Moberg, City Manager
Subject: NW Natural Gas Franchise Agreement

Summary:

NW Natural Gas has requested a franchise agreement. Upon review, the City Manager has agreed a franchise agreement is appropriate. The attached agreement is for 10 years. This will remove the problem for this business having to get a performance bond every time they do utility work in the ROW. The Franchise agreement covers that ROW work (including required permits) and any curative issues. Everything else remains similar to existing tax requirements for NW Natural gas.

It is noted that in 2012 the City manager and commission had moved NW Natural to a tax, however this was the only franchise to do so and previously NW Natural has had franchise agreements with the City of Warrenton for many years. The request seemed reasonable and given that no other businesses were moved to the tax framework, a franchise agreement makes sense.

Attachments:

(All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.)

- **NW Natural Gas Agreement**

Approved by City Manager: _____

FRANCHISE AGREEMENT
WARRENTON, OREGON

This Franchise Agreement is between the City of Warrenton, Oregon, hereinafter referred to as the "Grantor" and Northwest Natural Gas Company, locally known as NW Natural Gas, hereinafter referred to as the "Franchisee".
This Franchise agreement Grants a Non-Exclusive Gas Utility Franchise to Northwest Natural Gas Company, and Fixing Terms, Conditions, and Compensation of Such Franchise

Section 1. Definitions and Explanations.

1. As used in this Agreement.

a. "City" means the City of Warrenton and the areas within its boundaries, including its boundaries as extended in the future.

b. "Commission" means the legislative body of the City.

c. "Grantee" means the corporation referred to in Section 2 of this Agreement.

d. "Gas" means natural methane-based gas.

e. "Gas Mains" includes all gas transmission and distribution facilities located on or under any Right of Way or Public Place within the City.

f. "Gross Revenue" means revenues received from gas operations within the City less related net uncollectibles. Gross Revenues shall include revenues from the use, rental, or lease of the Grantee's operating facilities other than residential-type space and water heating equipment. Gross Revenues shall not include proceeds from the sale of bonds, mortgage or other evidence of indebtedness, securities or stocks, sales at wholesale by one utility to another when the utility purchasing the service is not the ultimate customer and revenues paid directly by the United States of America or any of its agencies, and public purpose charges, provided that such charges or surcharges are required or authorized by federal or state statute, administrative rule, or by tariff approved by the Oregon Public Utility Commission (OPUC) and raise revenue used solely for a public purpose and not to compensate Grantee for the sale or use of natural gas. Public purpose activities include, but are not limited to, energy efficiency programs, market transformation programs, low-income energy efficiency programs, and carbon offset programs designed to benefit residential and commercial customers within Grantee's service territory in Oregon.

g. "Person" includes an individual, corporation, association, firm, partnerships and joint stock company.

h. "Public Place" includes any city-owned park, place or grounds within the City that is open to the public but does not include a Right of Way.

i. "Right of Way" includes a street, alley, avenue, road, boulevard, thoroughfare bridge or public highway within the City, but does not include a Public Place.

2. As used in this Agreement, the singular number may include the plural and the plural number may include the singular.

Section 2. Rights Granted.

Subject to the conditions and reservations contained in this Agreement, the City hereby grants to Northwest Natural Gas Company, a corporation, the right, privilege and franchise to:

1. Construct, maintain and operate only a gas utility system within the City.

2. Install, maintain and operate on and under the Rights of Way of the City, facilities for the transmission and distribution of gas to the City and its inhabitants and to other customers and territory beyond the limits of the City; and

3. Transmit, distribute and sell Gas.

Section 3. Use of Right of Way by Grantee.

1. Before the Grantee may use or occupy any Right of Way, the Grantee shall first obtain permission from the City to do so and shall comply with any special conditions the City desires to impose on such use or occupation.

2. The compensation paid by the Grantee for this Franchise includes all compensation for the use of Rights of Way located within the City as authorized. However, this subsection shall not be construed to prevent the City from requiring the Grantee to pay charges as provided in Section 14 of this Agreement.

Section 4. Duration.

This Franchise is granted for a period of ten (10) years from and after the Effective Date of this Agreement, unless sooner terminated as provided in this Agreement.

Section 5. Franchise Not Exclusive.

This Franchise is not exclusive, and shall not be construed as a limitation on the City in:

1. Granting rights, privileges and authority to other persons similar to or different from those granted by this agreement.

2. Constructing, installing, maintaining or operating any City-owned public utility.

Section 6. Public Works and Improvements Not Affected by Franchise.

The City reserves the right to:

1. Construct, install, maintain and operate any public improvement, work or facility;

2. Do any work that the City may find desirable on, over or under any Right of Way or Public Place.

3. Vacate, alter or close any Right of Way or Public Place, provided that the City shall make available to Grantee an alternative Right of Way for the location of its facilities, if an alternative Right of Way is necessary.

4. Control or prevent the use of any Public Place by Grantee and require payment of additional compensation for use of the Public Place at a reasonable amount.

5. Whenever the City shall excavate or perform any work in any of the present and future Rights of Way and Public Places of the City, or shall contract, for such excavation or work where such excavation or work may disturb Grantee's Gas Mains, pipes and appurtenances, the City shall, in writing, notify Grantee sufficiently in advance of such contemplated excavation or work to enable Grantee to take such measures as may be deemed necessary to protect such Gas Mains, pipes and appurtenances from damage and possible inconvenience or injury to the public. In any such case, the Grantee, upon request, shall furnish maps or drawings to the City or contractor, as the case may be, showing the approximate location of all its structures in the area involved in such proposed excavation or other work.

6. Whenever the City shall vacate any Right of Way or Public Place for the convenience or benefit of any Person or governmental agency or instrumentality, Grantee's rights under this Franchise shall be preserved as to any of its facilities then existing in such Right of Way or Public Place.

Section 7. Continuous Service.

The Grantee shall maintain and operate an adequate system for the distribution of Gas in the City. The Grantee shall use due diligence to maintain continuous and uninterrupted 24-hour a day service which shall at all times conform at least to the standards common in the business and to the applicable standards adopted by federal and state authorities and to standards of the City which are not in conflict with those adopted by the federal and state authorities. Under no circumstances shall the Grantee be liable for an interruption or failure of service caused by an act of God, unavoidable accident or other circumstances beyond the control of the Grantee through no fault of its own.

Section 8. Safety Standards and Work Specifications.

1. The facilities of the Grantee shall at all times be maintained in a safe, substantial and workmanlike manner.

2. For the purpose of carrying out the provisions of this Section, the City may provide such specifications relating thereto as may be necessary or convenient for public safety or the orderly development of the City. The City may amend and add to such specifications from time to time.

Section 9. Control of Construction.

The Grantee shall file with the City or otherwise provide access to maps showing the location of any construction, extension or relocation of its Gas Mains in the Right of Way and Public Places of the City and shall obtain from the City approval of the location and plans prior to commencement of the work. The City may require the Grantee to obtain a permit before commencing the construction, extension or relocation of any of its Gas Mains.

Section 10. Right of Way Excavations and Restorations.

1. Subject to the provisions of this Agreement, the Grantee may make necessary excavations for the purpose of constructing, installing, maintaining and operating its facilities. Except in emergencies, and in the performance of routine service connections and ordinary maintenance, prior to making an excavation in the traveled portion of any Right of Way, and, when required by the City, in any untraveled portion of any Right of Way, the Grantee shall obtain from the City approval of the proposed excavation and of its location. Grantee shall give notice to the City by telephone, electronic data transmittal or other appropriate means prior to the commencement of service or maintenance work and as soon as is practicable after the commencement of work performed under emergency conditions.

2. When any excavation is made by the Grantee, the Grantee shall promptly restore the affected portion of the Right of Way or Public Place to the same condition in which it was prior to the excavation. The restoration shall be in compliance with specifications, requirements, and regulations of the City in effect at the time of such restoration. If the Grantee fails to restore promptly the affected portion of the Right of Way or Public Place to the same condition in which it was prior to the excavation, upon thirty (30) days written notice to the Grantee, the City may make the restoration, and the reasonable cost thereof, including the City's cost of inspection, supervision and administration, shall be paid by the Grantee. Notice to Grantee required by this Section shall be sent by U.S. mail via registered or certified postage prepaid or by express mail or overnight courier as follows: Northwest Natural Gas Company, Legal Department – Franchises, 250 SW Taylor Street, Portland, Oregon 97204.

Section 11. Location and Relocation of Facilities.

1. All facilities of the Grantee shall be placed so that they do not interfere unreasonably with the use by the City and the public of the Rights of Way and Public Places and in accordance with any specifications adopted by the City governing the location of facilities.

2. The City may require, in the public interest, the removal or relocation of facilities maintained by the Grantee in the Rights of Way and Public Places of the City, and the Grantee shall remove and relocate such facilities within a reasonable time after receiving notice to do so from the City. The City shall provide the Grantee with timely notice of any anticipated requirement to remove or relocate its facilities. The cost of such removal or relocation of its facilities shall be paid by the Grantee. When a removal or relocation is required for the convenience or benefit of any Person, governmental agency or instrumentality other than the City, Grantee may refuse to accomplish such removal or relocation unless such party agrees to pay the reasonable cost thereof.

Section 12. Emergency Repair Service.

Grantee shall maintain emergency repair service available on a 24-hour a day basis.

Section 13. Compensation.

As compensation for the Franchise granted by this Agreement, the Grantee shall pay to the City an amount equal to five percent (5%) of the Gross Revenue collected by the Grantee from its customers for Gas consumed within the City.

2. The compensation required by this Section shall be due for each calendar year, or fraction thereof, within sixty (60) days after the close of such calendar year, or fraction thereof. Within sixty (60) days after the termination of this Franchise, compensation shall be paid for the period elapsing since the close of the last calendar year for which compensation has been paid.

3. The Grantee shall furnish to the City with each payment of compensation required by this Section a statement showing the amount of Gross Revenue of the Grantee within the City for the period covered by the payment computed on the basis set out in subsection (1) of this Section. The compensation for the period covered by the statement shall be computed on the basis of the Gross Revenue so reported. If the Grantee fails to pay the entire amount of the compensation due the City through error or otherwise, the difference due to City shall be paid by the Grantee within thirty (30) days from discovery of the error or determination of the correct amount. Any overpayment to the City through error or otherwise, shall be offset against the next payment due from the Grantee.

4. Acceptance by the City of any payment due under this Section shall not be deemed to be a waiver by the City of any breach of this Franchise occurring prior thereto, nor shall the acceptance by the City of any such payments preclude the City from later establishing that a larger amount was actually due, or from collecting any balance due to the City.

Section 14. Permit and Inspection Fees.

Nothing in this Agreement shall be construed to limit the right of the City to require the Grantee to pay reasonable charges imposed by the City in connection with issuing a permit, making an inspection or performing any other service, including projects in Public Places, for or in connection with the Grantee and its facilities, whether pursuant to this Agreement or any other ordinance or resolution now in effect or adopted by the City in the future, as long as these fees apply to all persons alike.

Section 15. Compensation to be Credit Against Certain Taxes.

The compensation required by Section 13 of this Agreement to be paid by the Grantee to the City shall be a credit against all license, occupation, business or excise taxes which the City may now or hereafter impose upon the Grantee. However, nothing contained in this Franchise shall give the Grantee any credit against any ad valorem property tax now or hereafter levied against real or personal property within the City, or against any local improvement assessment or against any charges imposed upon the Grantee as provided in Section 14 of this Agreement or reimbursement or indemnity paid to the City.

Section 16. Expiration.

At the end of the Franchise term, if the City and Grantee are negotiating another franchise and have not concluded their negotiations, Grantee's rights and responsibilities shall be controlled by this Franchise until the City grants a new franchise and Grantee accepts it.

Section 17. Book of Account and Reports.

The Grantee shall keep accurate books of account at an office in Oregon for the purpose of determining the amounts due to the City under Section 13 of this Agreement. Upon reasonable notice, the City may inspect the books of account at any time during business hours and may audit the books from time to time, provided that only payments that occurred or should have occurred during a period of thirty-six (36) months prior to the date the City notifies the Grantee of its intent to perform an audit or financial review will be included. The Commission may require periodic reports from the Grantee relating to its operations and revenues within the City. The Grantee will not provide the City with records containing customer information that identifies or can be attributed to a specific customer, without a written legal opinion by the City to the Grantee's reasonable satisfaction that such records will not be subject to public disclosure under state law, and that the City will inform Grantee and oppose their disclosure should a public disclosure be made.

Section18. Supplying Maps Upon Request

The Grantee shall maintain on file, at an office in Oregon, maps and data pertaining to its operations in the City. Upon reasonable notice, an authorized representative of the City may inspect the maps and data at any time, during business hours at an office of the Grantee. Grantee

and the City may determine that the locations of certain Gas facilities should be confidential as the public interest may require. In such a case, Grantee is under no obligation to provide records of the location of these facilities to the City and the City shall treat any public record disclosing the location of these facilities as confidential, subject to the provisions of state law and the Oregon Public Records Law. The City shall limit access to any such confidential record to trustworthy employees of the City with a need to know the information set out in the record. The City shall store any such confidential record in a secure and private place and avoid making and distributing copies of the record.

Section 19. Indemnification.

The Grantee shall indemnify and save harmless the City and its officers, agents and employees from any and all loss, cost and expense, including court costs and attorney fees, whether at trial or on appeal, arising from damage to property and/or injury to, or death of, persons due to any wrongful or negligent act or omission of the Grantee, its agents or employees in exercising the rights, privileges and franchise hereby granted.

Section 20. Assignment of Franchise.

This Franchise shall be binding upon and inure to the benefit of the successors, legal representatives and assigns of the Grantee; but no transfer of this Franchise by merger, consolidation, sale, assignment or otherwise shall be made unless the Commission first consents by resolution, which consent shall not be unreasonably withheld, conditioned, or delayed. If such transfer of this Franchise is by a merger, consolidation, sale, assignment or otherwise which is subject to review and approval by the Oregon Public Utility Commission (OPUC), the City shall accept final approval by the OPUC of any such merger, consolidation, sale, assignment or other change of control. Nothing in this Franchise requires the City's consent for any sale, lease, mortgage, assignment, merger or other transfer to entities that control, are controlled by, or are under common control with Grantee, so long as the entity is subject to substantially the same regulations of the OPUC as Grantee in relation to the Gas Mains within the City.

Section 21. Reservation of Statutory Authority; Incorporation of Charter Provisions.

The City reserves the right to exercise, with regard to this Franchise and the Grantee, all authority now or hereafter granted to the City by State statutes. All rights of the City under the City charter are reserved to the City and provisions of the City charter applicable hereto are incorporated by reference and made part of the Franchise.

Section 22. Termination of Franchise for Cause.

The City may terminate this Franchise as provided in this Section, subject to Grantee's right to a court review of the reasonableness of such action, upon the negligent or willful failure of the Grantee to perform promptly and completely each and every material term, condition or obligation imposed upon it under or pursuant to this Agreement. The City shall provide the Grantee written notice of any such failure and the Grantee shall have sixty (60) days from receipt of notice to cure such failure, or if such failure cannot reasonably be cured within sixty (60) days, to commence and diligently pursue curing such failure. Notice to Grantee required by this

Section shall be sent by U.S. mail via registered or certified postage prepaid or by express mail or overnight courier as follows: Northwest Natural Gas Company, Legal Department – Franchises, 250 SW Taylor Street, Portland, Oregon 97204.

Section 23. Remedies Not Exclusive, When Requirement Waived.

All remedies and penalties under this Agreement, including termination of the Franchise, are cumulative, and the recovery or enforcement of one is not a bar to the recovery or enforcement of any other such remedy or penalty. The remedies and penalties contained in this Agreement, including termination of the Franchise, are not exclusive and the City reserves the right to enforce the penal provisions of any city code, ordinance, or resolution and to avail itself of any and all remedies available at law or in equity. Failure to enforce shall not be construed as a waiver of a breach of any term, condition or obligation imposed upon the Grantee by or pursuant to this Agreement. A specific waiver of a particular breach of any term, condition or obligation imposed upon the Grantee by or pursuant to this Agreement shall not be a waiver of any other or subsequent or future breach of the same or of any other term, condition or obligation, or a waiver of the term, condition or obligation itself.

Section 24. Acceptance.

The Grantee shall, within thirty (30) days from the date this Agreement takes effect, file with the City its written unconditional acceptance of this Franchise, and if the Grantee fails to do so, this Agreement shall be void.

Section 25. Effective Date.

This Agreement will be effective thirty (30) days following the date of its approval by the City Commission.

Considered and approved by the City Commission of the City of Warrenton this ___ day of _____, 2025.

APPROVED:

_____
Henry A. Balensifer III, Mayor

ATTEST:

_____
City Recorder

ACCEPTANCE

City of Warrenton
City Recorder
PO Box 250
Warrenton, OR 97146

This is to advise the City of Warrenton, Oregon (the "City") that Northwest Natural Gas Company (the "Grantee") hereby accepts the terms and provisions of Franchise Agreement passed by the Warrenton City Commission on _____, 2025 (the "Franchise") granting a franchise for ten (10) years to Grantee.

(Name)
BY _____

TITLE Senior Vice President, Regulation & General Counsel

DATE _____

This Acceptance was received by the City of Warrenton on _____, 2025.

_____
City Recorder

WARRENTON POLICE DEPARTMENT MONTHLY REPORT

TO: The Warrenton City Commission

FROM: Chief Mathew Workman

DATE: March 25, 2025

RE: February 2025 Stats Report

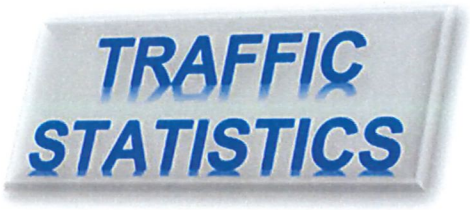
Upcoming Dates:

- *03/26 – 911 Subscriber Meeting*
- *04/11 – Autism Color Run; Ft. Stevens*
- *04/16 – Resilient Clatsop County Workshop*
- *04/17 – LEA Meeting*
- *04/22 - 04/25 – OACP Conf. Pendleton*
- *04/25 - 04/27 – Crab/Wine Festival*

Highlights Since the Last Report:

- *02/26 – 911 Subscriber Meeting*
- *02/26-02/28 – CIS Conference*
- *03/03 & 03/10 – Annual Hearing Tests*
- *03/06 – WPD Training Day*
- *03/07 – Emerg. Management IPPW Workshop*
- *03/20 – LEA Meeting*

Traffic Statistic Highlights:



- Two (2) DUII Arrests – Alcohol
- One (1) DUII Arrest – Drugs
- Six (6) Driving While Suspended Citations/Arrests
- Two (2) Speeding Citations
- One (1) Failure to Yield Citation
- One (1) Following Too Close Citation
- Seven (7) Insurance Citations
- One (1) Interlock Device Citation
- Two (2) Driver's License Citations
- One Hundred Thirty-Four (87) other Citations and Warnings
- Twenty (20) Traffic Crash Investigations
- **Citation vs Warning:** **160** Traffic Stops: **28** Citations, **132** Warnings; *Warning **83%** of the time.*

Overall Statistics:

February Statistics (% changes are compared to 2025)							
Category	2025	2024	%Chg	2023	%Chg	2022	%Chg
Calls for Service	581	742	-22%	629	-8%	562	3%
Incident Reports	190	222	-14%	182	4%	193	-2%
Arrests/Citations	63	154	-59%	122	-48%	116	-46%
Traffic Stops/ Events	110	248	-56%	208	-47%	132	-17%
DUII's	3	3	0%	1	200%	2	50%
Traffic Crashes	20	10	100%	10	100%	8	150%
Property Crimes	56	109	-49%	94	-40%	91	-38%
Person Crimes	62	57	9%	57	9%	54	15%
Drug/Narcotics Calls	1	5	-80%	1	0%	6	-83%
Animal Calls	29	18	61%	22	32%	14	107%
Officer O.T.	54.5	103.8	-47%	181.5	-70%	158	-66%
Reserve Hours	0	0	0%	0	0%	0	0%

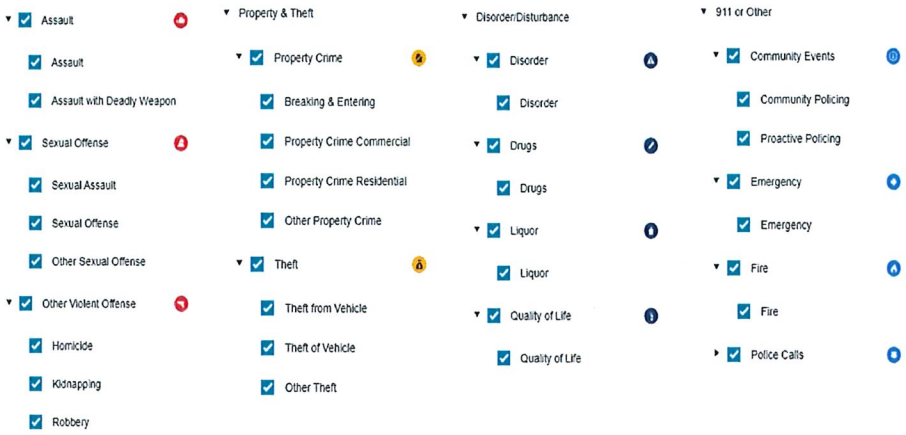
Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Calls for Service	644	581								
Incident Reports	205	190								
Arrests/Citations	91	63								
Traffic Stops/ Events	160	110								
DUII's	8	3								
Traffic Crashes	20	20								
Property Crimes	76	56								
Person Crimes	61	62								
Drug/Narcotics Calls	4	1								
Animal Calls	22	29								
Officer O.T.	160.25	54.5								
Reserve Hours	0	0								

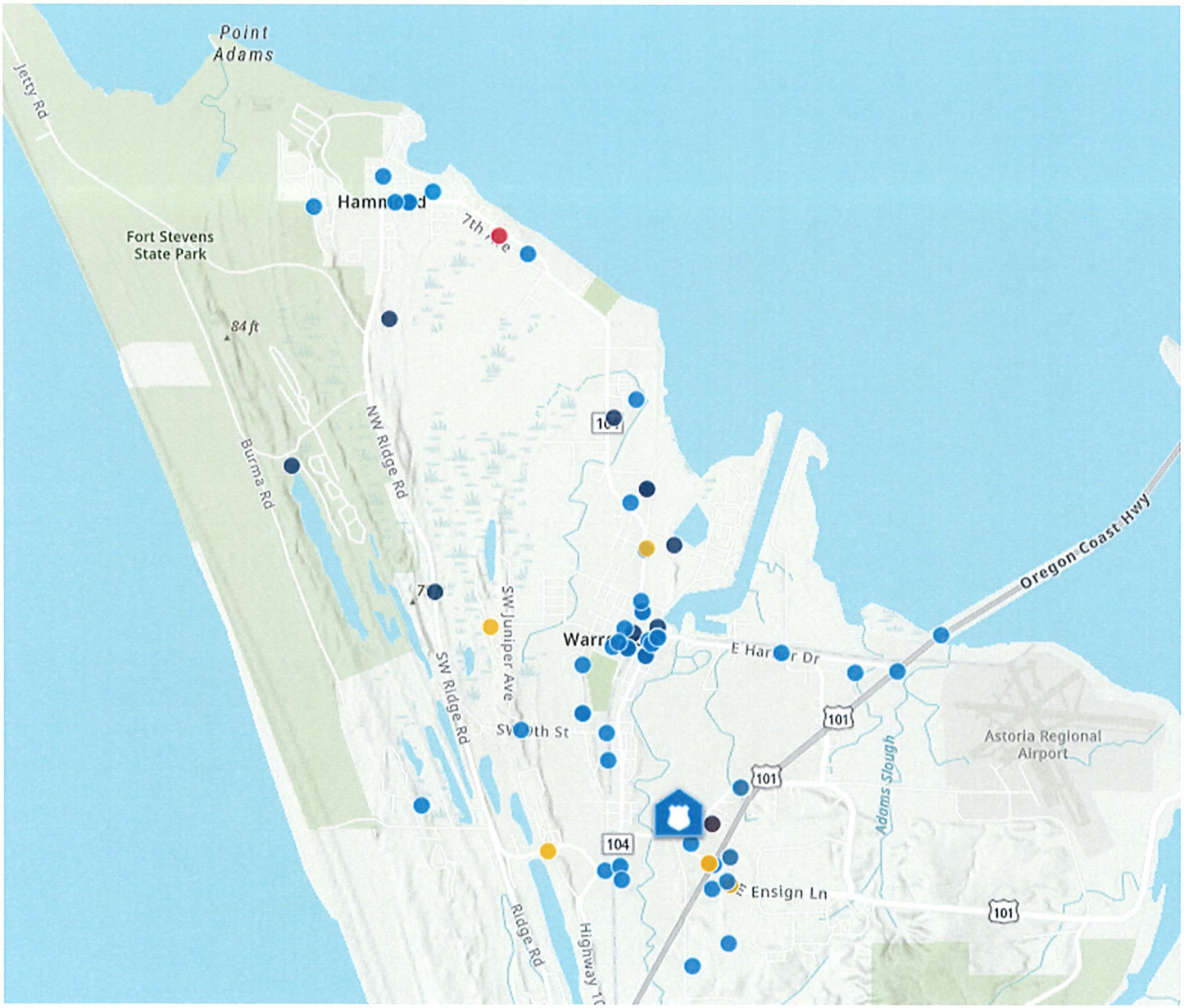
Category	Nov	Dec	2025 YTD	2025 Estimate	2024	2025 v 2024	2023	2024 v. 2023	2022	2025 v. 2022
Calls for Service			1225	7350	8458	-13%	9084	-19%	8050	-9%
Incident Reports			395	2370	2618	-9%	2529	-6%	2484	-5%
Arrests/Citations			154	924	1317	-30%	1335	-31%	1602	-42%
Traffic Stops/ Events			270	1620	2215	-27%	2369	-32%	1848	-12%
DUII's			11	66	27	144%	30	120%	34	94%
Traffic Crashes			40	240	209	15%	217	11%	168	43%
Property Crimes			132	792	1190	-33%	1127	-30%	1204	-34%
Person Crimes			123	738	786	-6%	825	-11%	811	-9%
Drug/Narcotics Calls			5	30	56	-46%	60	-50%	40	-25%
Animal Calls			51	306	307	0%	335	-9%	273	12%
Officer O.T.			214.75	1288.5	1635.3	-21%	1572	-18%	2212.8	-42%
Reserve Hours			0	0	0	0%	0	0%	0	0%

February Homeless Incidents	2025	2024	2023	2022
Code 40 (Normal)	16	48	30	31
Code 41 (Aggressive)	2	4	2	2
February Monthly Total:	18	52	32	33
YTD Total Homeless Incidents	52	83	41	52

February Elk Incidents	2025	2024	2023	2022
Interaction:	0	2	1	0
Traffic Accidents:	0	1	1	0
Traffic Complaints:	0	0	1	1
February Monthly Total:	0	3	3	1
YTD Total Elk Incidents	2	3	7	3

The following is a graphic representation of statistics for **February 2025** using our **CityProtect** membership (formerly CrimeReports.com). The "Dots" represent the location of a call, and if you zoom in on the map, you will see an icon for the type of call and some basic time/date details. Some dots represent multiple calls at one location. If you go to the website (www.cityprotect.com), you can zoom in on each incident for more details.





ADD 5

Warrenton City Commission
Public Comment Form

Name: John Wilson

Address: 1175 7th Hammond

Email: Wilsonfishing@yahoo.com

Does your comment have to do with an agenda item? (Y or N) _____

Briefly describe your topic: No service from City in Building operations and we are all tax payers.

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

Warrenton City Commission
Public Comment Form

Name: Jim Gannaway

Address: 82 SW Alder Ave, Warrenton

Email: jim@gbjewelers.com

Does your comment have to do with an agenda item? (Y or N) _____

Briefly describe your topic: Building Dept.

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

May 10, 2018

Linda Engbretson
City Manager
City of Warrenton
225 S Main Ave/PO Box 250
Warrenton, OR 97146

RE: Summary of troubles encountered by GB Jeweler's with their building project

Dear Ms. Engbretson:

Allow me to open by saying that in 1983, Tim and I moved our jewelry store from Astoria to Warrenton, largely because it was noticeably more business friendly than Astoria. In late 2006 we entered into a co-development agreement with Bank of the Pacific to develop the property we owned between the Dairy Queen and J & S Appliance and Home Furnishings on Marlin Avenue. The City was, as we expected, considerate and helpful in getting our permits. We were fully permitted in 2008 at the cost of about $1,400. In 2009 the bank and we decided that we could not in good conscience continue with the building project in the middle of the deepest recession of our lifetime. We put our projects on hold and filed for the first permit extension on 6/11/09. It was granted and signed by Chuck Goodwin, saying "6 month extention approved" *(copy attached).* We filed for another six month extension on or about 12/3/09 *(not included).* By the time we had to file for another extension, it was clear that the recession was going to be longer than we had anticipated, so I asked the city planner at the time, Carol Parker, if we could get an extension that would last until the economy improves and we could then resume our project. She agreed and told Chuck Goodwin who was visibly upset to approve the extension. Neither of them told me why there was so much tension other than it was customary to give six month extensions. For all I know it was nothing more than the everyday tension I had witnessed on previous visits to their office. Carol wrote a long explanatory note and put it in our file, but I did not receive a copy from Chuck who granted and signed my request under the statement "Per Carol Parker, another extention is granted" *(copy attached).* The date I used on the request letter of 6/11/09 was a clerical error on my part, as I used my original extension request letter as a template, forgetting to change the date; but, it is stamped with the actual date that Chuck received it.

We had always operated in good faith, obeying code requirements to the letter of the law. Little did we know we had opened the proverbial "can of worms." In late 2012 or early 2013 we wanted to continue our project. Chuck said that he would not recognize our extension and did not consider it a valid extension because he did not consider Carol Parker a valid "Building Official". That was when we discovered there was bad blood between Carol and Chuck; and, it became painfully obvious that both Skip and Chuck had become enemies to us as well. So I called the city manager who would not meet with me because he had met with Chuck and purportedly already knew everything he needed to know. All we wanted to know was, if Chuck had a problem with the validity of the extension he had granted 5/28/10, why didn't he tell us about the problem at the time the extension was granted. We told them we would abide by any new code requirements, we just had a problem with paying the permit fees again which had increased to about $10,200. We did not pursue this matter at the time as we needed to get our project finished and we were being terrorized by Skip and Chuck. We had our entire life's savings wrapped up in this project and they threatened to scuttle it if we did not drop the subject and just do what we were told. We do not believe we owed the permit fees you charged us in 2013, and we are now asking for a refund of them in total.

Thank you for your consideration,

James W Gannaway
503-791-1168 Cell

10/7/19

City of Warrenton – Public Works
45 SW 2nd Street / P. O. Box 250
Warrenton, OR 97146

Attention: Collin Steizig

RE: Water Leak at 675 SE Marlin Ave., Aug-Sept 2019
Account #: 001209-000
Meter EID: 8680866

Collin;

We were shocked when we received our city services bill of $699.23 for August usage. We were even more surprised to see that the water usage more than ten times the usual for that time of year. We immediately ordered a meter reading and then a usage analysis. I then went to work on the discovery of the source of the problem. I finally narrowed it down to the irrigation system that was installed by the bank next door according to an agreement made when we built the building in 2014. We got no instructions on how to use, or program the computer that operates the "Rainbird" irrigation system, so I went to "You Tube" for help. I learned how to turn it on and off, but not how to program it. Whatever I was doing for the last 4 years seemed to be working fine, and I had no idea I did anything so different this year that it would use that much water. So, this time I called "Rainbird" and discovered that there was a program pre-installed in the system that was the likely culprit in our problem. We re-programed the system and it was supposed to have fixed the problem. I did test it, and it seems to be good now. Yes, this was my human error, but it was totally unintentional, and we fixed it as soon as we identified the problem.

We recognize that technically this is not a leak, but if leaks can result from poor installation of plumbing, carless digging up of water lines, aging equipment, or human error. I honestly do not believe my human error was any worse than a plumber's, or a gardener, digging a little to deep in his/her garden. We are asking for mercy. Will you please grant us a leak adjustment? I promise I will not watch "You Tube" again.

Sincerely,

Jim Gannaway
503-861-1481 Work
503-791-1168 Cell

Warrenton City Commission
Public Comment Form

Name: Kenneth L Culp

Address: 1416 Hwy 101 #17

Email: CNS Builder INC @ Gmail.com

Does your comment have to do with an agenda item? (Y or N) _____

Briefly describe your topic: Difficulty of Building in Warrenton

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

Warrenton City Commission
Public Comment Form

Name: CHARLES BERGERSON

Address: _____

Email: CHUCK.BERGERSON@GMAIL.COM

Does your comment have to do with an agenda item? (Y or N) Y

Briefly describe your topic: BUILDING CODES

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

Warrenton City Commission
Public Comment Form

Name: Liane M Bogh

Address: P.O. Box 157

Email: liane.bogh@gmail.com

Does your comment have to do with an agenda item? (Y or N) ?

Briefly describe your topic: healthy community

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

Warrenton City Commission
Public Comment Form

Name: TROY SCHAFFER

Address: 89838 HIGHWAY 101, WARRENTON, OR 97146

Email: TROY.SCHAFFER.12@GMAIL.COM

Does your comment have to do with an agenda item? (Y or N) N COCHRAN

Briefly describe your topic: NUISANCE DECLARATION @ 45 SW 4TH ST.

Please give this card to the city recorder prior to the meeting

Once this card is submitted to the City Recorder, it becomes a part of the permanent public record.

City Commission Agenda Memo

Meeting Date:	March 25, 2025
From:	Christian Salinas, Code Compliance
Subject:	Declaration of Public Nuisance Marie Medjo and Dale McSherry
Parcel No:	81006DA05600 and 81006DA05500
Address:	247 Tyee St.

Summary:

On 01/28/2025, the Warrenton City Commission declared the property at 247 Tyee St. a Nuisance in accordance with 8.16.120 "Junk." A notice of judgment was sent by certified mail and hand-delivered to Ms. Medjo. The notice advised Ms. Medjo of the declaration and that the commission granted 30 days to abate the violation. The notice also stated that if, after 30 days, the violation was not abated, a commission meeting to readdress the nuisance would be scheduled, possibly resulting in citations.

On 02/27/2025, I conducted a site visit and noted that Ms. Medjo had not taken any action to comply. All items identified and stated at the previous commission meeting were still on the property and viewable from the roadway. Items on the property included, but were not limited to, three deteriorating fifth wheels, an aluminum boat filled with garbage, inoperable appliances, scrap metal, and wood.

Timeline:

On October 08, 2023, the City of Warrenton received a complaint regarding the condition of the above-described property, including deteriorating campers, inoperative vehicles, debris, and hazardous waste kept on-site in plain view. City employees conducted a site visit, verified the validity of the complaint, and found the property was in violation of Municipal Code 8.16.120 Junk.

On October 17, 2023, the city sent a certified letter to advise Mr. Dale McSherry and Ms. Marie Medjo to advise of the violation. The certified letter was returned undeliverable.

On April 22, 26, and June 1, 2024, the city received additional complaints regarding the property's condition being unchanged.

On November 06, 2024, I received the case file for the above-described property. I conducted a site visit and verified that the conditions had not changed from the previous reports. Photographs were taken.

On November 14, 2024, I sent a certified letter to Marie Medjo informing her the City of Warrenton was still seeking compliance with the code violation on her property. A copy of this letter was hand-delivered, and I had the opportunity to speak with Ms. Medjo. During my conversation with Ms. Medjo, she made it clear that she would not comply.

On December 09, 2024, I conducted a site visit and observed no attempts to abate the code violation. Photographs were taken.

On January 13, 2025, I hand-delivered a Notice of Hearing to Ms. Medjo.

On January 28, 2025, I conducted a sight visit to obtain photographs of Ms. Medjo's property.

On January 28, 2025, the Warrenton City Commission declared the above-described property and "Nuisance."

On January 29, 2025, I hand-delivered a notice of judgment to Ms. Medjo.

On February 27, 2025, I conducted a site visit and determined that the nuisance had not been abated, nor had there been significant improvement.

Recommendation/Suggested Motion:

I move that the Warrenton City Commission declare that a citation not to exceed $1000.00 is warranted in accordance with Municipal Code 8.16.220.

Alternative:

Other action as deemed appropriate by the City Commission

Fiscal Impact:

There is a potential cost for abatement that will need to be determined if the property owner fails to remove the nuisance.

Attachments:

Approved by City Manager: Esther Mberg


AutoMate
28 JAN 2025


wilderness
28 JAN 2025


27 FEB 2025


27 FEB 2025


27 FEB 2025


wilderness
28 JAN 2025


27 FEB 2025


247
28 JAN 2025

47 Tyee - Medjo




09249552


247
216



City Commission Agenda Memo

Meeting Date:	March 25, 2025
From:	Christian Salinas, Code Compliance
Subject:	Declaration of Public Nuisance Karen Cochran
Parcel No:	81021DB01900 and 81021DB01901
Address:	45 SW 4th Street

Summary:

The property at 45 SW 4th St. in Warrenton violates the City of Warrenton's Nuisance Municipal Code section 8.16.120 "Junk." This violation was initially reported on the 14th of January. The property owner, Karen Cochran, was notified and requested by the city to abate the violation. The property is a four-unit rental. Since being warned, Ms. Cochran stated that she has attempted to have the occupants responsible for the violation, her daughter and son-in-law, William and Melissa Spivey, remove the items from the property. I have conducted numerous site visits since officially warning Ms. Cochran and can only report that two vehicles were removed, but most items are still on the property.

The violation is in the property's front yard/ parking area, viewable from the roadway. It has three makeshift sheds constructed of tarps and bungee cords surrounded by numerous inoperable vehicles in deteriorating conditions. Other items include but are not limited to, automotive parts and tools, containers (gallon jugs, 5-gallon oil cans, 55-gallon drums) containing unknown fluids, scrap wood and metal, propane tanks, appliances, and various other items.

January 14, 2025 – Original Complaint, Site visit, and violation confirmation, photographs.

January 17, 2025 – Identified Karen Cochran as the owner of the property, 45 SW 4th Street.

January 20, 2025 – Contacted and officially advised Ms. Cochran of the violation and the city's request for abatement.

January 21, 2025 – A certified letter was sent to Ms. Cochran officially advising of the Nuisance Code Violation.

February 3, 2025 – Conducted a site visit and observed no change.

February 4, 2025 – Received an email from Ms. Cochran advising of the status.

February 5, 2025 – Emailed Ms. Cochran to allow more time.

February 24, 2025 – Received an email from Ms. Cochran advising a plan.

March 6, 2025 – Conducted a site visit and observed no change.

March 6, 2025 – Spoke with Ms. Cochran and expressed concerns that the property has shown no improvement.

March 17, 2024 – Conducted a site visit and observed no change; photographs were taken.

Recommendation/Suggested Motion:

I move that the Warrenton City Commission declare a public nuisance exists at 45 SW 4th Street, Warrenton, OR 97146, and direct staff to move forward with the appropriate abatement procedures or citations as outlined in the municipal code.

Alternative:

Other action as deemed appropriate by the City Commission

Fiscal Impact:

There is a potential cost for abatement that will need to be determined if the property owner fails to remove the nuisance.

Attachments:

Approved by City Manager: Esther Moberg

City of Warrenton

225 S Main Avenue ▪ P.O. Box 250 ▪ Warrenton. OR 97146
Phone: 503.861.0920 Fax: 503.861.2351

Notice of Nuisance Determination Hearing

A public hearing is scheduled before the Warrenton City Commission to consider a nuisance declaration for this property:

Address: 45 SW 4th Street
Property Owner Name: Karen Cochran
Mailing Address: 89838 Hwy 101, Warrenton OR. 97146
Parcel: 81021DB01900 and 81021DB01901
Public Hearing Notice Date: 03/25/2025
Public Hearing Time: 6:00 pm.
Location: Warrenton City Hall, 255 South Main Avenue, Warrenton, OR 97146

The hearing is scheduled to determine if the above-described property is in violation of Section 8.16 of the Warrenton Municipal Code. Section 8.16.120 states that no person shall keep junk outdoors on a street, lot, or premises or in a building that is not wholly or entirely enclosed except for doors used for ingress and egress.

B. The term "junk," as used in this section, means and includes all old motor, old motor vehicle parts, abandoned automobiles, old machinery, old machinery parts, old appliances, parts, old iron or other metal, glass, paper, lumber, wood or other waste or discarded material.

C. The term "abandoned automobiles", as used in this section, means inoperable and/or unregistered vehicles on private property.

Any person who has an interest in this property may appear before the City Commission to address these concerns. Should the City Commission declare a public nuisance, the property owner shall be notified to abate the above-described nuisance within the prescribed time frame.

Failure to abate the nuisance prior to the hearing may cause the City of Warrenton to abate said nuisance and assess the costs as allowed under state statutes and Section 8.16 of the Warrenton Municipal Code.

For additional information, please contact the Warrenton Code Compliance Officer at 503-298-0618.

Christian Salinas
Code Compliance Officer
City of Warrenton

P.O.BOX 250 ▪ WARRENTON, OR 97146-0250 ▪ OFFICE: 503.861.2233 ▪ FAX: 503.861.2351

January 21, 2025

Karen Cochran
45 SW 4th Street
Warrenton, OR 97146

RE: Warrenton Code Violation: 45 SW 4th Street

Dear Ms. Cochran,

Our office is sending you this letter to advise you of a Nuisance Code Violation in accordance with the City of Warrenton Municipal Code 8.16.120 Junk. Our records show that you own 45 SW 4th Street.

You are receiving this certified letter because, on 01/20/2025, the above-described property was determined to still be in violation of Warrenton Municipal Code 8.16.120 Junk. I inspected the property and noted four inoperable vehicles, three tarped canopies covering vehicles and other items, automotive parts, scrap metal and wood, and various miscellaneous items throughout the front yard, all viewable from the roadway.

Section 8.16 states that it is unlawful to allow the accumulation of junk on a property.

***8.16.120* Junk.**

A. No person shall keep junk outdoors on a street, lot, or premises or in a building that is not wholly or entirely enclosed except for doors used for ingress and egress.

B. The term "junk," as used in this section, means and includes all old motor, old motor vehicle parts, abandoned automobiles, old machinery, old machinery parts, old appliances, parts, old iron or other metal, glass, paper, lumber, wood or other waste or discarded material.

C. The term "abandoned automobiles", as used in this section, means inoperable and/or unregistered vehicles on private property. (Ord. 1229 § 1, 2019; Ord. 848-A § 22, 1989)

Please note that I will conduct an additional visual inspection of the property in fourteen (14) days to confirm compliance with the City Code.

Thank you for your prompt attention in this matter.

Christian Salinas
Code Compliance Officer
City of Warrenton Police Department









45 SW 4th Street

Enforcement Timeline

January 14, 2025 – Original Complaint, Site visit, and violation confirmation, photographs.

January 17, 2025 – Identified Karen Cochran as the owner of the property, 45 SW 4th Street.

January 20, 2025 – Contacted and officially advised Ms. Cochran of the violation and the city's request for abatement.

January 21, 2025 – A certified letter was sent to Ms. Cochran officially advising of the Nuisance Code Violation.

February 3, 2025 – Conducted a site visit and observed no change.

February 4, 2025 – Received an email from Ms. Cochran advising of the status.

February 5, 2025 – Emailed Ms. Cochran to allow more time.

February 24, 2025 – Received an email from Ms. Cochran advising a plan.

March 6, 2025 – Conducted a site visit and observed no change.

March 6, 2025 – Spoke with Ms. Cochran and expressed concerns that the property has shown no

On 01/14/2025, I received a complaint regarding a nuisance code violation at 45 SW 4th Street. The complaint was of numerous inoperable vehicles, tarped-covered canopies, car parts, and various scrap metal and wood throughout the front yard that were viewable from the roadway.

I conducted a site visit and confirmed the complaint. I saw all the mentioned items and many other miscellaneous items. The property was identified as violating the City of Warrenton Nuisance Municipal Code 8.16.120 Junk.

I researched the property and identified the owner as Karen Cochran. I attempted to contact her at a number in the law enforcement database but was unsuccessful. I conducted an internet search of Ms. Cochran and located other numbers, which I tried. I reached a female subject, later identified as Karen's daughter (name unknown). She told me she would pass along the information and have her mother contact me.

On 01/17/2025, Ms. Cochran left a voice message on my work cell. She confirmed that she was the property owner and that her daughter told her the city of Warrenton was contacting her regarding its condition.

On 01/20/2025, I contacted Ms. Cochran and told her that her property at 45 SW 4th violated the nuisance municipal code. I informed her that the city had received complaints regarding the condition of the front yard.

Ms. Cochran said the property was a four-plex, and two of the units were occupied. She said she was not residing there, but her daughter and her son-in-law were. She stated that most of the items in the front of the property belonged to her son-in-law. She said that she had been dealing with this for the last three years, and up until this past summer, progress

was made in removing most of the items. She said that this past fall, her daughter and son-in-law lost their storage rental, and all previously stored items returned to the property are now stored in the driveway.

Ms. Cochran said her son had challenges interacting with others and possibly was dealing with mental health issues. She said the only person who could encourage and /or motivate him to deal with relocating the items in the driveway is her daughter.

I explained the steps that would be taken if she was unwilling or unable to comply with the city's request. I told her this was an official verbal warning and that I would be sending her a certified letter for her records regarding the nuisance code violation.

Email from Ms. Cohran

02-04-25

Hello Christian;

I wanted to give you an update on our progress with cleaning up the mess at 45 SW 4th.

It turned out that my daughter and son-in-law had already found a location to rent for storage of all of his things, including his vehicles. As you know I had already given them until March to clean up, and they were in the process of attempting to do that in their own way. They hadn't rented the space yet because they were trying to save up money for 1st and last months' rent. I gave them the money to go ahead and rent and they now have signed a contract and received the keys to the place.

My daughter took two weeks off at her job to work on the mess. I rented a U-Haul truck and tow dolly for them to use, and they have been cleaning up around the vehicles under awnings so that they can be towed. They thought they would be able to start towing this last weekend, but the weather kind of overwhelmed them. So far, they have managed to move at least 3 loads of stuff away out from under/within the awnings.

Unfortunately, at the time of this writing the outside of the awnings hasn't visibly changed much yet. I have been told that the car sitting under the awning that sits in the middle of the parking lot should be ready for moving today or tonight; and that the awning can then be

removed. This should significantly improve access to the lot for my other tenant. The little white car in the lot belongs to the other tenant.

My daughter needs to return to work tomorrow, but has the weekend off and so will help to continue the work on cleaning up the mess. The other vehicles will then begin to be removed once the first one is out of the way.

l Starr from Al's Towing was a friend of my late husband. I plan to ask him to help move the vehicles if my daughter and son-in-law get bogged down and seem to be having trouble proceeding. My goal already was to completely clean up the parking area, lay new gravel, and I already have a handicapped parking sign for a handicapped parking spot.

I am aware that the clean-up may not be moving as fast as the City of Warrenton would like, and that I may still be given a citation for the mess, but I wanted to assure you that progress is being made and that there is a plan in place to mitigate the issue.

Sincerely,

Karen Cochran

Response

Ms. Cochran,

Thank you for this update. As I mentioned when we last spoke, the 14 days stated in the letter sent is not set in stone. As long as we make progress and maintain communication, I have flexibility. I saw the U-Haul and trailer earlier this week and understand that the weather is a factor.

Email to Christian at City of Warrenton:

Re: property at 45 SW 4th.

02-24-25

Hello Christian; I wanted to give you another update on our progress with cleaning up the mess at 45 SW 4th.

I have been nagging my daughter about getting the awning taken down that is sitting in the middle of the lot. I guess that they have been using it to stage smaller things before moving them in order to keep them dry.

I have also been nagging her about getting the cars moved. I have agreed to loan her my truck on Wednesday and/or Thursday, but only if she is the driver; I am aware that my son-in-law does not have a valid driver's license. I am also aware that at least one City of Warrenton police officer seems to be taking the issue of my son-in-law's illegal driving practices to heart, and so keeps a close eye on him, often pulling him over and giving him citations.

My concern with loaning my truck to my daughter is that whomever observes the truck on that day not assume the truck is stolen or something, and impound my truck. The truck is fully insured and registered, and I have informed my insurance company that my daughter has permission to drive the truck. Only my daughter has permission to drive it, with one exception; since she is not good at backing the truck up when it is towing another vehicle, I have agreed that my son-in-law may back up and station the towed vehicle once they are off the road and are on private property.

I was wondering if you might communicate this letter to the police department and let them know that the truck is mine. I am not defending my son-in-law's driving practices, nor am I in any way criticizing the City of Warrenton police department doing their job. I am only asking that they be aware that I am aware of the situation and that I have taken measures to the best of my ability to protect my truck. (Lol)

I was also hoping that the police might back off a little bit on those days so that they don't impede progress. My daughter had to return to her job, so she can really only work on things on her days off now, which slows down the progress. And I can't really afford at this time to rent another U-Haul for them to drive, but I feel the pressure of time passing with not enough improvement being made fast enough.

I appreciate very much the patience being shown by the city, and I am doing everything that I can to improve the situation on that property.

Sincerely,

Karen Cochran

On 03/06/2025, I spoke to Ms. Cochran over the phone to check in on the property and the nuisance violation. She informed me that she had lent her vehicle to her daughter to have some of the vehicles towed away but was still having trouble removing the other items. She stated that all the items in the front yard belonged to her daughter's husband, William Spivey. She also said that she and her Mr. Spivey did not get along, and her daughter was the only person she could communicate with.

She told me that Mr. Spivey was typically defiant, especially regarding law enforcement. She felt that he was suffering from mental health, and she was concerned that he would use it as an excuse to prevent from having to clean up.

I told her that I initially contacted her on January 14th, and I was trying to give her enough time to get the property into compliance. However, it had been nearly two months since then, and there had been very little progress.

She said she would have a talk with her daughter and try to motivate them to abate the violation.

Zoom to Full Extent | Measure | Print | Identify | Select Features | Search Taxlots | Search Utility Data | Find | Bookmark | Start Over

Catalog | Results | User Guide | Disclaimer

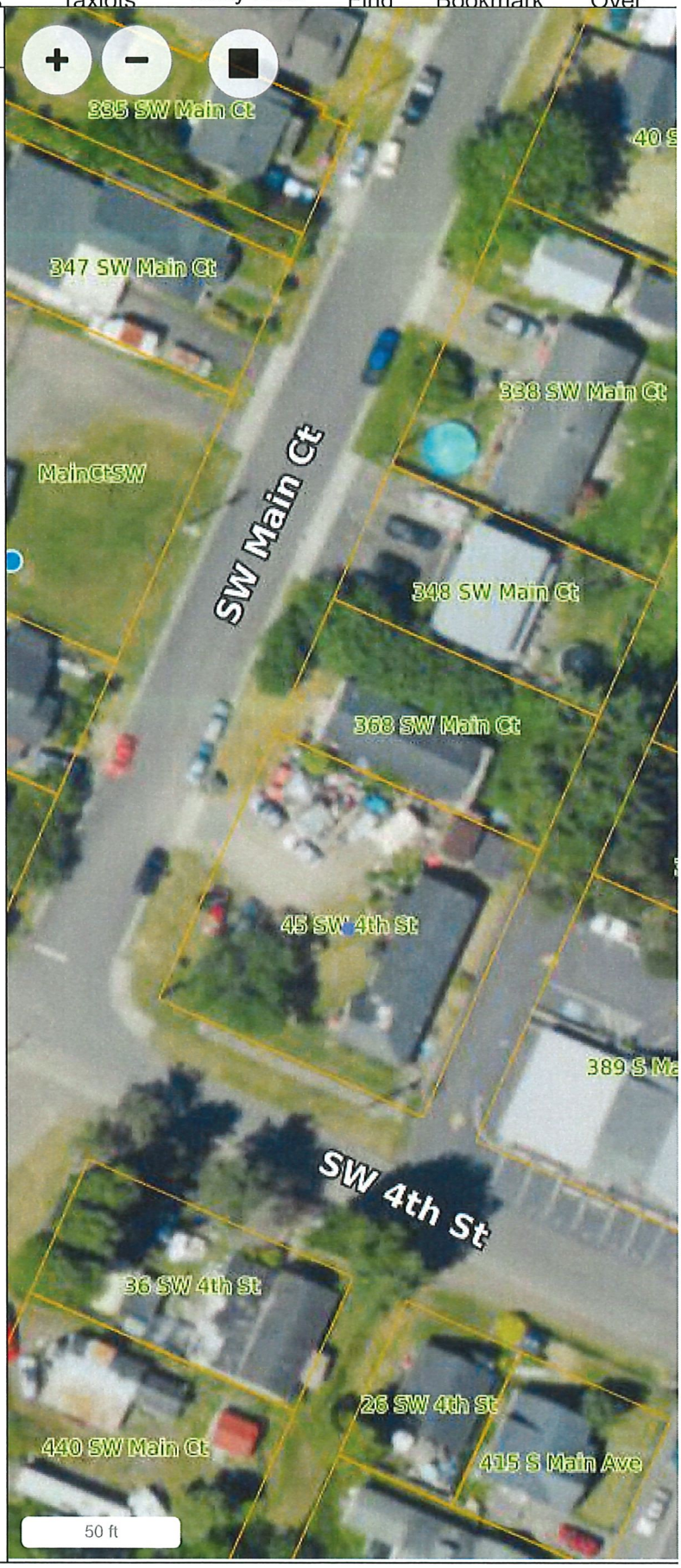
Identify Results

Clear results | Zoom to results

Layers 2
Features 1

Taxlots

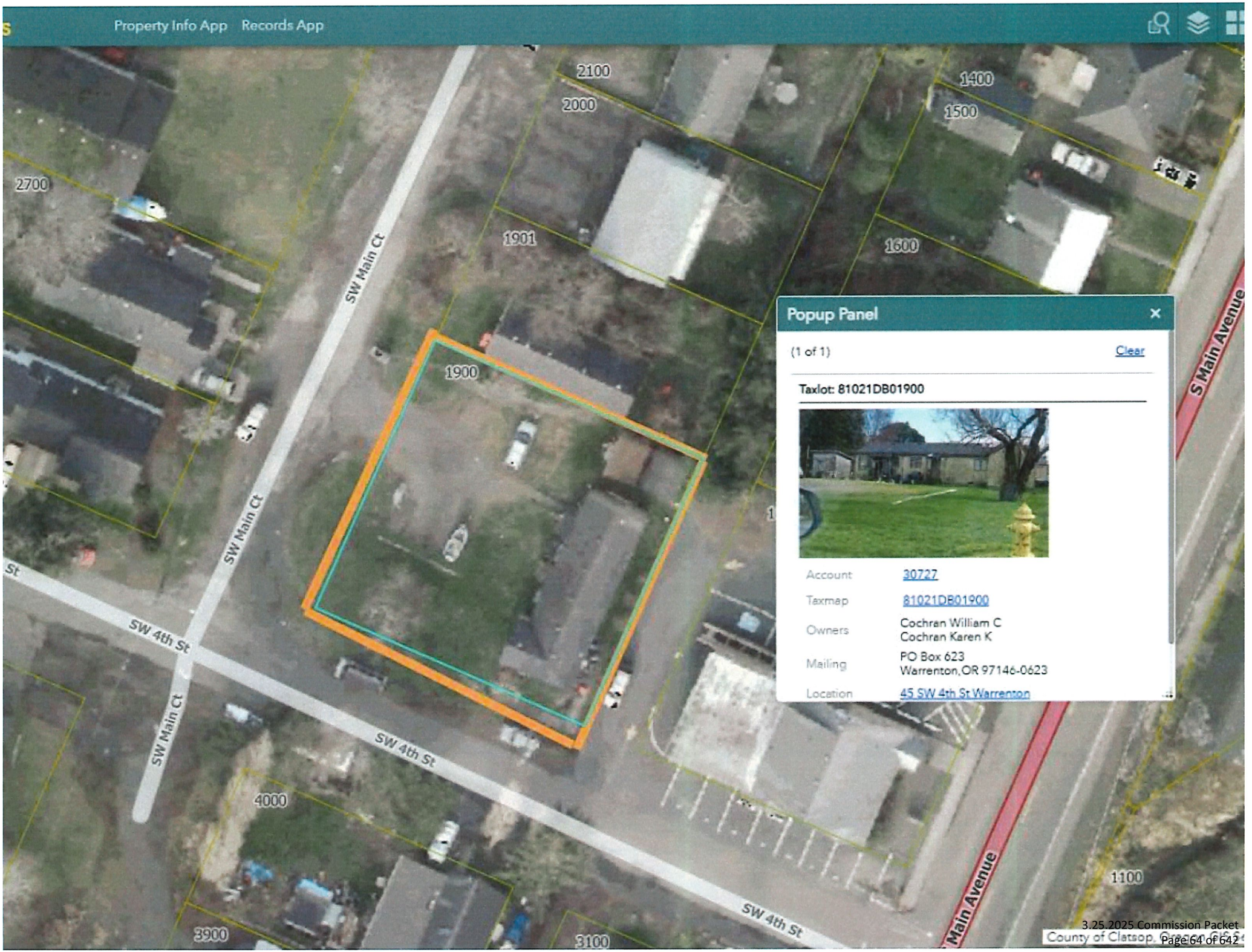
- **Assessor Link:** 30727
- **ORMAP LINK:** 8.10.21DB
- **Taxlot Number:** 81021DB01900
- **Taxlot Account ID:** 30727
- **Owner:** Cochran William C
- **County Street Address:** 45 SW 4th St
- **Map Number:** 8.10.21DB
- **Lot Number:** 1900
- **lot Size sq ft:** 10000
- **lot Size acres:** 0.23
- **Year Built:** 1924
- **Property Code Description:**
- **Owner Name 1:** Cochran William C
- **Owner Name 2:** Cochran Karen K
- **Owner Name 3:**
- **P.O. Box:** 623
- **Unit Number:**
- **In Care of:**
- **Mailing Address:** PO Box 623
- **CITY, ST, ZIP:** Warrenton, OR, 97146-0623



3.12.0

X,Y-13795574.3, 5806381.7 **USNG**10T DS 28372 12488 **Lat,Lon**46.162210, -123.927752

Zoom to Extent


Property Info App
Records App
2100
2000
1400
1500
2700
1901
1600
1900
SW Main Ct
SW Main Ct
S Main Avenue
St
SW 4th St
SW Main Ct
SW 4th St
4000
Main Avenue
1100
3900
3100
SW 4th St
Popup Panel
(1 of 1)
Clear
Taxlot: 81021DB01900
Account
30727
Taxmap
81021DB01900
Owners
Cochran William C
Cochran Karen K
Mailing
PO Box 623
Warrenton,OR 97146-0623
Location
45 SW 4th St Warrenton


557 GME
Jeep
20 JAN 2025


20 JAN 2025


20 JAN 2025


20 JAN 2025


20 JAN 2025


17 MAR 2025


17 MAR 2025


17 MAR 2025


17 MAR 2025

45 SW 4th - Cochran

7.B Updated Photos






BOO!

City Commission Agenda Memo

Meeting Date: March 25, 2025
From: Scott Fregonese, Interim Planning Director
Subject: Ordinance 1286, Rezone and Site Design Review

Summary:

Helligso Construction Company, on behalf of LU NE Properties LLC, has applied to rezone a portion of the property from R-10 Intermediate Density Residential to R-H High Density Residential and applied for a Site Design Review to construct a new multi-family housing development at 380 SE Alt Hwy 101 and identified as Tax Lot 81028AD03400.

The Warrenton Development Code directs applicants requesting a rezone of any property within the City to follow the Type IV Procedures outlined in Section 16.208.060. The Site Design Review and Rezone applications were reviewed concurrently in accordance with those procedures. The application went before the Planning Commission on December 12, 2024, who moved to forward the applications to the City Commission for a decision. The application then went to the City Commission for the first reading on March 11th, 2025. A motion to move to the second reading was unanimously approved and scheduled for March 25th, 2025.

The Interim Planning Director recommends 3 conditions of approval for the City Commission's consideration. These conditions of approval are in the City Commission Staff Report attached. The three conditions of approval recommended for City Commission approval summarized as: (1) the applicant must submit a Traffic Impact Study as required by the Warrenton Development Code for zoning changes; (2) all transportation mitigations identified in the study must be implemented; and (3) before permits are issued, the applicant must comply with Oregon DSL wetland requirements, including submitting reports, obtaining approvals, and addressing wetlands if present.

The action requested tonight is to either adopt or reject Ordinance 1286 for the approval of the rezone and site design review applications.

Recommendation/Suggested Motion:

1. *"I move to conduct the first reading, by title only, of adopt Ordinance number 1286, AN ORDINANCE APPROVING, WITH CONDITIONS, THE SITE DESIGN REVIEW APPLICATION SDR-24-2 AND THE REZONE APPLICATION RZ-24-2, AND AMENDING THE CITY OF WARRENTON ZONING MAP TO RECLASSIFY THE ZONING OF A PORTION OF REAL PROPERTY IDENTIFIED AS TAX LOT 81028AD03400 FROM R-10 INTERMEDIATE DENSITY RESIDENTIAL TO R-H HIGH DENSITY RESIDENTIAL."*

2. *"I move to adopt Ordinance No. 1286."*

Alternative (without conditions of approval):

"I move to conduct the first reading, by title only, of Ordinance number 1286, AN ORDINANCE APPROVING THE SITE DESIGN REVIEW APPLICATION SDR-24-2 AND THE REZONE APPLICATION RZ-24-2, AND AMENDING THE CITY OF WARRENTON ZONING MAP TO RECLASSIFY THE ZONING OF A PORTION OF REAL PROPERTY

IDENTIFIED AS TAX LOT 81028AD03400 FROM R-10 INTERMEDIATE DENSITY RESIDENTIAL TO R-H HIGH DENSITY RESIDENTIAL."

"I move to adopt Ordinance No. 1286."

Fiscal Impact:

N/A

Attachments:
(All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.)

- Staff Report
- Ordinance No. 1286
- Exhibit 1

Approved by City Manager: Esther Mberg

ORDINANCE NO. 1286
INTRODUCED BY ALL COMMISSIONERS

AN ORDINANCE APPROVING THE SITE DESIGN REVIEW APPLICATION SDR-24-2, AND AMENDING THE CITY OF WARRENTON ZONING MAP TO RECLASSIFY THE ZONING OF A PORTION OF REAL PROPERTY IDENTIFIED AS TAX LOT 81028AD03400 FROM R-10 INTERMEDIATE DENSITY RESIDENTIAL TO R-H HIGH DENSITY RESIDENTIAL.

WHEREAS, Helligso Construction Company, on behalf of LU NE Properties LLC, has applied to rezone a portion of the property from R-10 Intermediate Density Residential to R-H High Density Residential and applied for a Site Design Review to construct a new multi-family housing development at 380 SE Alt Hwy 101 and identified as Tax Lot 81028AD03400; and

WHEREAS, the Warrenton Planning Commission conducted a public hearing on the proposal on December 12, 2024, and forwarded a recommendation of approval to the City Commission based on the findings and conclusions of the December 12, 2024, staff report and public testimony; and

WHEREAS, the Warrenton City Commission conducted a public hearing on the proposal on January 28, 2025, and has determined that with the Conditions of Approval imposed, the proposal is consistent with the Comprehensive Plan and meets the applicable criteria in the Warrenton Municipal Code based on the findings and conclusions of the January 28, 2025, staff report, public testimony, and the Planning Commission findings;

NOW THEREFORE, the City of Warrenton ordains as follows:

Section 1. The City of Warrenton Zoning Map is amended to reflect the rezone herein described as Exhibit 1 based on the findings and conclusions referenced above.

Section 2. This ordinance shall take full force and effect 30 days after its adoption by the Commission of the City of Warrenton.

First Reading: March 11, 2025
Second Reading: March 25, 2025

ADOPTED by the City Commission of the City of Warrenton, Oregon this 25th day of March, 2025.

APPROVED:

_____

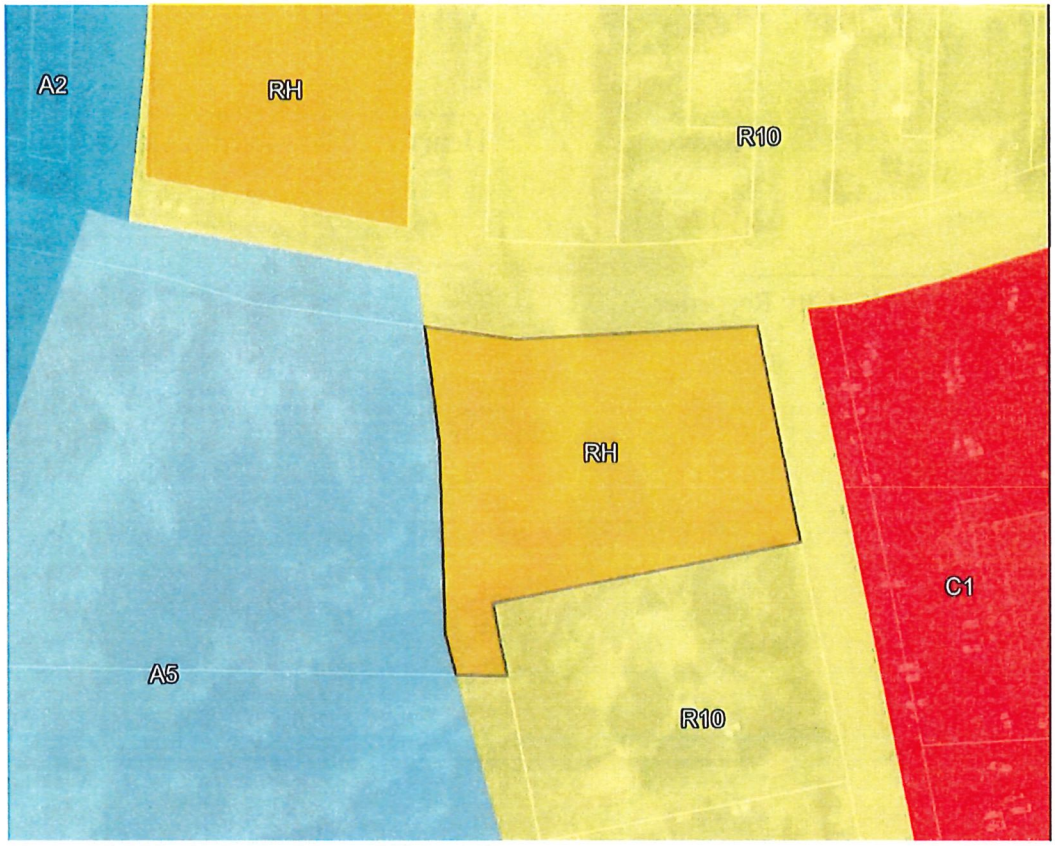
Henry A. Balensifer III, Mayor

ATTEST:

_____

Dawne Shaw, CMC, City Recorder

Ordinance 1286.
Exhibit 1



City Commission Agenda Memo

Meeting Date: March 25, 2025
From: Esther Moberg, City Manager
Subject: Water Ordinance #1292

Summary:

Requesting second reading and adoption of Ordinance #1292 includes staff and commission recommended updates included pay deadline changed to 11:59pm instead of 5pm, new procedures in case of property owner becoming deceased, and in the case of the city deciding not to remove a water meter/line (in extreme circumstances) and no longer billing the user due to city determination. Reminder, staff will be bringing the full ordinance back for more discussion in a few months. This ordinance update is capturing those items that need immediate attention.

Recommendation/Suggested Motion:

"I move to conduct the second reading, by title only, of Ordinance No. 1292."

"I move to adopt Ordinance No. 1292 only."

Alternative:

Other action as deemed appropriate by the City Commission

OR

None recommended

Fiscal Impact:

Will change how much billing is assessed in extreme cases where the meter and water line are not removed (billing stops after 12 months). Also stops billing for 12 months when single property owner is deceased or until property changes ownership (whichever comes first).

Attachments:

- Ordinance #1292

Approved by City Manager: _____

ORDINANCE NO 1292

INTRODUCED BY ALL COMMISSIONERS

PROVIDING FOR RULES AND REGULATIONS FOR CITY OF WARRENTON WATER DEPARTMENT AND ALL AREAS SERVED BY THE MUNICIPAL WATER DEPARTMENT OUTSIDE WARRENTON'S CITY LIMITS; REQUIRING INSTALLATION OF WATER METERS; REPEALING ANY OTHER WATER ORDINANCES OR RESOLUTIONS OR PARTS THEREOF IN CONFLICT HEREWITH; PROVIDING A PENALTY FOR VIOLATION OF ANY TERMS AND CONDITIONS HEREIN

The City of Warrenton, Oregon, Ordains as follows;

Section 1. **DEFINITIONS**

"Accessory Dwelling" is defined as a small, secondary housing unit, usually the size of a studio apartment, located on the same lot as an established detached single-family residence. The accessory dwelling can be a detached cottage, a unit attached to a garage, or in a portion of an existing house. An accessory dwelling is an accessory structure and shall comply with the accessory structure standards of Municipal Code Chapter 16.180 and more particularly Section 16.180.040, Accessory Dwelling Standards.

"Applicant" is defined as any person, corporation, association, or agency applying for water service.

"Approved Air Gap" is defined as a physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel. An "Approved Air Gap" shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel and in no case less than 1 inch (2.54 cm), and in accord with Oregon Plumbing Specialty Code.

"Approved Backflow Prevention Assembly" is defined as a Reduced Pressure Principle Backflow Prevention Assembly, Reduced Pressure Principle-Detector Backflow Prevention Assembly, Double Check Valve Backflow Prevention Assembly, Double Check-Detector Backflow Prevention Assembly, Pressure Vacuum Breaker Backsiphonage Prevention Assembly, or Spill-Resistant Pressure Vacuum Breaker Backsiphonage Prevention Assembly, of a make, model, orientation, and size approved by the Oregon Health Authority. Assemblies listed in the currently approved backflow prevention assemblies list developed by the University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research, or other testing laboratories using equivalent testing methods, are considered approved by the Oregon Health Authority. Approved assemblies include the attached shutoff valves on the inlet and outlet end of the assembly, assembled as a complete unit.

"Auxiliary Water Supply" is defined as any water supply on or available to the premises other than the City's approved public water supply. These auxiliary waters may include water from another City's public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or used waters or industrial fluids. These waters may be contaminated or polluted or they may be objectionable and constitute an unacceptable water source over which the City does not have sanitary control.

"Backflow" is defined as the flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable supply of water from any sources other than its intended source, and is caused by backsiphonage or backpressure.

"City" is defined as City of Warrenton, its staff and/or designee (authorized representative).

"City Service Line" is defined as any pipe and fittings which connect a water main to a water meter or customer service line.

"Commercial" is defined as one who is engaged in commerce and uses water during the course of a business where profit is a chief aim.

"Cross Connection" is defined as any actual or potential unprotected connection or structural arrangement between the public or user's potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices and other temporary or permanent devices through which, or because of which, backflow can or may occur are considered to be cross connections.

"Customer Service Line" is defined as any pipe, valves, and fittings leading from the water meter or City service line into the premises served or the point of ultimate use.

"Inaccessible to Read" is defined as a water meter of any size or type which is not conveniently accessible for purpose of reading, inspecting, repairing, and connecting or disconnecting service.

"Industrial" is defined as a business involved in the commercial production and sale of goods.

"Institutional" is defined as an organization or foundation dedicated to education, public places of worship or culture, e.g., schools, rest homes (including adult foster homes), hospitals, jails.

"Living Unit" is defined as any living quarters in which cooking or toilet facilities are provided.

"Multi-Family" is defined as a building or portion thereof designed for occupancy of two or more families.

"Person(s) Responsible" is defined as a person, including a buyer under a land sales agreement, lawfully occupying a property to which utility services are provided pursuant to an agreement with the owner.

"Property Owner" is defined as an individual or organization that has legal ownership as evidenced by a deed filed with the County for the service address. It is further understood that any individual or organization that is listed on the deed (no matter the percentage ownership) is authorized to conduct business for the service address and to incur charges accordingly.

"Public Works Director, their Designee or State Health Official" is defined as the City of Warrenton Public Works Director in charge of the water department, their designee or the representative of the State of

Oregon Health Department who is invested with the authority and the responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provision of this ordinance.

"Service" is defined as a combined facility made up of both a City service line, and a customer service line.

"Single Family" is defined as one who uses water for normal residential use.

"Single Service Connection" is defined as a property with a water service serving a single customer.

"User" is defined as any person(s), corporation, or other entity using water through an established service line.

"Water Main" is defined as any pipe owned by the City of Warrenton laid in a street, alley, or easement, and used or intended to be used for the distribution of water to customers through service lines.

"Water Meter" is defined as any device used for the measurement of water delivered to an individual location or user.

"Water Service Disconnection" is defined as permanent removal of both water and sewer connections from City mains. The sewer service is required to be capped as close to the sewer main without cutting into the road surface. Sewer connections shall be capped prior to the City removing the water meter. A Public Works Department representative shall be present during the capping of services. All costs for capping of water and sewer services will be borne by the property owner.

Section 2. **APPLICATIONS**

(1) **New Water Meter Connection:** An application for the installation of a new water meter connection shall be made to the Public Works Department. Upon completion of the new water meter application process and prior to the physical installation of the meter, the applicant shall apply for a utility account with the Finance Department.

(2) **Utility Account Application:** An application for an existing water service shall be made to the Finance Department in person, on printed forms to be furnished by the City. The applicant must state fully and truly all purposes for which the water may be required and must agree to conform to rules and regulations as a condition for the use of water. The owner of each property to be served must sign for such service; if the property is to be rented, leased or occupied by other than the owner, and if it is the stipulation of the owner that such occupant, hereafter referred to as person(s) responsible, must pay for the water service, then this person must also complete and sign an application form. A new application must be made for each change in use or ownership.

(3) **Outstanding Account Balances:** The City will not allow a new utility service to customers with an outstanding balance on their account(s) with the City until the entire balance that has accrued to the former account(s) has been paid in full.

(4) **Water User:** Any person supplied with water from the City main will not be entitled to use it for any purpose other than that stated in the application, or to supply it in any way to other person(s) or families not mentioned in the application. Penalties and shutoff will apply.

(5) **Change of Ownership or Person(s) Responsible:** Any tenant moving from or change of property ownership must indicate their release of responsibility by notifying the City prior to the date of leaving.

(6) **Property Ownership Responsibility:** The property owner of record shall be ultimately responsible for the payment of all charges prescribed in this ordinance. If the person(s) responsible fails to pay the charges, the City shall submit the bill to the property owner.

Section 3. **INSTALLATION**

(1) **Installation:** A new service may be installed upon an approved water availability and payment of current water connection fee, any additional costs for labor and materials and System Development Charges (SDCs), as set by resolution. All meters shall be installed only in the public right-of-way adjacent to: (1) the property to be served, or (2) a recorded easement which allows placement of utilities, which easement benefits the property to be served.

(2) **Water Availability Statements:** New water service can be applied for through the Public Works Department. The City makes no guarantee of water availability. Water will be determined available if a water main is within 100 feet of the property line where the meter would be placed and no other restrictions apply. The property line may be adjusted in the case of an easement granting the property owner the right to a utility easement for water. If a water main is not available then the applicant is responsible to extend an adequately-sized water main in an established right of way (ROW) or dedicated utility easement across the full frontage along the ROW of the property being developed in accordance with the City of Warrenton Engineering Standards. These applications will expire after 90 days from the date of issuance if the appropriate connection fees listed on the statement are not paid in full. Applicant has the right to reapply if the previous application has expired. Meter connection charges that have been paid for but not installed after 12 months from the date of payment for connection charges will be refunded in full and the water availability statement will be void. Applicant has the right to reapply for a water availability statement.

a. The water availability statement will note the size of meter, purpose of water use, fees, conditions and responsibilities of the owner/contractor.

b. The applicant must state fully and truly all purposes for which the water may be required and must agree to conform to rules and regulations as a condition for the use of water.

c. Unexpired water availability applications, that have not been paid and meter(s) installed, will be subject to increased fees, as set by resolution.

(3) **Single Family Residential Water Meter Connection:** All single family residential properties, including new subdivision development lots, shall be required to use water meters, the kind or make of said meter to be approved or designated by the Public Works Department.

a. Where an existing City service line is installed, approval by all required departments has been received, and the applicant's payment, of all associated charges and fees have been paid in full, a water meter will be dropped-in by the Public Works Department within two (2) business days.

b. Upon the applicant's payment, in full, of both current meter connection fees and SDCs, the full installation of the City service line with meter box and meter shall be installed by the Public Works Department. The department will attempt to make any and all installations within 30 days or as soon as possible, in the order received.

(4) **Commercial, Industrial and Multi-family Water Meters:** All water meter(s), the kind or make of said meter(s) to be approved or designated by the Public Works Department and service connections will be installed by the owner/contractor. All meter information and numbers will be delivered to the Public Works Department upon installation. A single water meter will be installed to serve multiple living units, such as duplexes, apartment houses, etc., unless the owner requests a separate service for each unit. If a separate service is requested, each such service will be metered and charged the appropriate rate. An approved backflow prevention assembly is required immediately behind the water meter on the customer's service line, for premise isolation.

a. Water services including all infrastructure, water meters and meter boxes with lids the size and type required by the City Public Works Department will be installed by the owner/developer and the meter information will be remitted to the City at the time of installation. All meters larger than 1" will be flanged. A daily inaccessible to read penalty will apply if meter information is not submitted at the time of installation.

Section 4. **MAINTENANCE**

(1) **Accessibility of Meters:** The person(s) responsible for any property where a water meter is located shall see that said meter is free from obstructions and conveniently accessible at all times for the purpose of reading, inspecting or repairing. Failure to do so shall result in a letter of warning and may result in water service disconnection. Meters shall be located 12 inches inside the public or street right-of-way. A daily inaccessible to read penalty will apply when meters are blocked for more than two (2) business days.

(2) **Canceling Accounts/Meter Removal:** Voluntary account cancellations/disconnections require prepayment of fees and will apply to garbage, sewer and storm sewer utilities associated with this water service. Involuntary account cancellations will have all applicable fees assessed on the utility bill. All costs associated with water service disconnection are the responsibility of the property owner, whether voluntary or involuntary. Utility base rates shall not apply to cancelled accounts. The property owner will be required to reapply for water service and pay all applicable water connection fees as set by resolution to be reconnected to the utility system.

The City of Warrenton will have the discretion to disconnect a property from the utility system with or without the property owner's permission. If a structure is damaged or falls into a state of serious disrepair, after 90-days the City may remove the water meter from the property thereby disconnecting the property from the utility system. A notice of intent to disconnect will be sent to the property owner 30 days prior to disconnection. The property owner will have the right to present the City any relevant information to forgo forced disconnection, though not all reasons shall be deemed sufficient.

A petition for cancellation shall only be allowed under the following conditions:

a. Existing accounts associated with properties that have no structure.

b. Structures that are not required to have water service per building code and/or fire code.

c. A dangerous building or structure that has been ordered abated by order of the Building Official or Fire Chief and will be removed according to the Municipal Code 15.08.100.

d. Owners of buildings or structures that have been extensively damaged by fire, earthquake or other catastrophic event and will not be rebuilt may petition to have a meter removed upon review by the Building Official and/or Fire Chief according to the Municipal Code 15.08.100.

Once a petition is approved by the City Manager and the applicant has met all the requirements of the Public Works Department for water service disconnection, the City will remove the water meter service associated with the account and the account will be cancelled. The fee for meter removal is set by resolution.

(3) **Service Pipe:** Service pipe(s) of any size between the main and the meter shall be of the type and material specified by City of Warrenton Engineering Standards. Service pipe(s) between the main and meter shall be maintained by the City Public Works Department. The water service line from a meter to the premises shall be maintained by the property owner. If check valves restricting backflow are installed on a customer's service line, a proper relief system shall also be installed to protect from thermal expansion, as required by Oregon Plumbing Specialty Code.

(4) **Repair and Protection:** All service pipes except that portion between the connection from the City main to the curb stop or meter must be kept in repair and protected from freezing at the expense of the owner, lessee or agent, who will be responsible for all damages resulting from leaks or breaks. Failure to comply will result in discontinuance of service.

(5) **Meter Repair- ¾ and 1 inch:** The expense of maintaining three-quarter (¾) and one (1) inch water meters will be borne by the City; provided, however, that where replacements, repairs, or adjustments of a meter are made necessary by an act of negligence or carelessness of the person(s) responsible of the premises, the expense to the City caused thereby may be charged and collected

from the party that caused such act, negligence, or carelessness whether property owner or person(s) responsible of the premises.

(6) **Meter Repair- larger than 1 inch**: The expense of maintaining meter assemblies larger than one (1) inch and corresponding vault(s) will be borne by the property owner. The City may require testing of the water meter at any time in which the readings of the meter reflect a significant drop in usage and the owner has not provided a reasonable explanation for such change in usage. The property owner will be notified prior to such testing.

The City may require immediate replacement of the water meter with a meter of the same size, type and style that meets City standards should it cease to function as designed and a repair is not possible. Water meters will be replaced by the City at the owners expense. No water will be supplied to unmetered service connections.

Meters that are currently in place and do not meet the City meter specification standard at the passage of this ordinance, will be maintained and replaced by the City. Upon replacement by the City, the person(s) responsible will then become responsible for all maintenance and replacement costs of the meter assembly.

(7) **Private Shut-Off:** A shut-off on the customers side of the water meter shall be installed and maintained by the owner for each service and made available for emergency use. The shut-off is required to be placed directly behind the water meter on the customer service line.

(8) **Meter Out of Order:** If a meter is out of order and not registering accurately, the consumption charge shall be computed on the basis of a monthly average of the previous twelve (12) months when the meter was functioning properly, such time sequence being necessary to encompass seasonal use.

(9) **Tampering:** No person shall connect, remove, repair, turn-on, turn-off or otherwise disturb any water meter or service after once set; but, at the discretion of the City, a meter may be removed by the City for an unpaid account. Water services that have been locked off for non-payment of a utility bill, and turned back on by anyone other than a City official shall be reported to the Police Department as theft of service.

(10) **Damages:** The person(s) responsible or property owner shall be responsible for any damages to the locking device affixed at the time of shut-off, or to any meter or meter box which gives evidence of having been damaged by carelessness or vandalism. These charges will be billed separately; however, failure to pay within 90 days shall result in meter removal and be subject to connection charges for reconnection as set by resolution.

Section 5. CHARGES, PAYMENTS AND PENALTIES

(1) **Billing, Due Dates and Past Due Penalties:**

a. Bills are sent on a monthly basis, regardless of occupancy or if the water is off. Each bill rendered shall contain the final date on which payment is due. If the bill is not paid by that date, the account shall be considered delinquent. Water charges for consumption in the previous month shall be billed at the beginning of the following month and are due and payable at Warrenton City Hall on the last business day of the same month in which the bill is issued. All payments on account shall reference the appropriate customer number.

b. If payment in full is not received by 11:59 p.m. on the last business day of the month, a late charge penalty set by resolution will be added. If the account is still unpaid on the 1st of the month following the date the payment was due, a bill will be mailed to the person(s) responsible showing all charges due with a past due notification.

c. The City will send a reminder letter of these late charges to the property owner and person(s) responsible (if they are not the same) on or near the 7th of the month.

d. A door hanger will be hung on or near the 14th day of the month stating water service will be shut-off on, or a specified date near, the 20th of that month if the account remains unpaid. Once a door hanger has been sent, payment must be made in full for the past due amount to avoid service termination. The customer will be charged a door hanger penalty as set by resolution. A door hanger will be hung on the subject property and the corresponding fee will be attached to the past due account, even if the prior person(s) responsible/owner no longer resides at the property.

e. Water service will be shut off if past due balance is not paid before 11:59 p.m. on the date specified on the door hanger. Past due accounts will be charged a shut-off penalty as set by resolution. Water service shall not be restored until all charges and penalties are paid in full.

f. When payment has been made in full and the request for restoration has been made before 2:00 p.m., same day service is available. If an immediate restoration is required after 2:00 p.m., an emergency turn on fee will apply.

g. In the event the City is unable to physically terminate service to a customer for non-payment, the customer will still be charged a shut-off penalty. It is the responsibility of the person(s) responsible or owner to make certain payment in full has been received by the City in a timely manner.

h. If the past due amount on a closed account remains unpaid at shut-off day, the shut-off penalty will be assessed to the previous person(s) responsible/owner even though the water is not shut-off. No new Utility Applications will be taken until such time that all accounts at the address associated with the past due account are paid in full.

i. Owners and/or person(s) responsible shall be notified of and have the opportunity to be heard by the Finance Director or employee empowered to resolve any valid objections to the billing prior to the disconnection.

j. Properties whose service has been shut-off for non-payment for 12 months with no payments made on the City billing accounts or any balances in collections will be disconnected from the utility system. A fee for meter removal, as set by resolution, as well as any cost to remove garbage, sewer or storm sewer utilities will be assessed to the utility billing account and billing for utilities will discontinue as of the date of meter removal. Any outstanding balances may be referred to a collection agency. The property owner will be required to reapply for water service, pay applicable water connection fees as set by resolution and pay all outstanding balances including any balances in collections in order to be reconnected to the utility system. The property owner will be required to pay the balances owed or establish an approved payment plan with the City in order to avoid forced disconnection. See section 4.2 Canceling Accounts/Meter Removal.

In extreme circumstances, such as if removal costs are excessive and/or removal of services requires cutting into road surfaces or will disrupt other utilities, Public Works, with approval from the City Manager, may choose to leave the water service in the ground to monitor for leaks, but billing will cease.

(2) **Meter Reading:** Water meters will be read monthly on a regularly scheduled basis. The charge for each meter shall be made from one reading to the next on a monthly basis. In the event it is not reasonable to read the meter on a monthly basis due to inclement weather or City emergency, the monthly charge may be estimated based on the prior twelve (12) month's read.

(3) **Mixed Use Structures:** Where a structure has a commercial use and a residential use or any other combination of uses, the higher monthly rate will apply.

(4) **Multi-Units:** Where two or more units are served through one master meter, the owner or authorized agent will be billed for the meter use, on a monthly basis. If separate units in a multi-unit complex have separate individual connections, the individual units will be billed individually on a monthly basis.

(5) **Service Calls:** A fee set by resolution will be assessed to a customer requesting a service call to their address. Final reads are considered a service call. For the protection of the account holder's property, residents may request to have their water turned off for a fee, as set by resolution. Upon request, the City will then turn the service back on for an additional fee. Base rates, including water, sewer, storm drain, garbage and recycling will apply regardless of whether or not the water meter is on or off.

(6) **Notice for Service:** The Public Works Department requests two (2) business days notice be given in order to schedule service calls; however, whenever possible, requests for service will be handled as promptly as possible.

(7) **Refund:** Customers who have closed their utility accounts with the City and have credit-account balances equal to or greater than $3.00 will receive refunds. No refunds will be issued for

accounts with less than $3.00. Refund checks that have not cleared the City's bank within 90 days of issuance will be cancelled and will be referred to the State of Oregon Unclaimed Property Division. Customers who have an active account at a different address with the City will have their credit balance applied to their active account unless the customer requests otherwise.

(8) **Leaks:** When a leak occurs on the customer's side of the meter, it is the responsibility of the owner to have the leak repaired within 10 days of the discovery or notification by the City of the leak.

a. Adjustment for Leaks: If the leak has caused the monthly charge to be excessive, the responsible person may submit a written request for an adjustment. If the excessive charge exceeds the average monthly charge by 300% or more, the responsible person may be granted a reduced payment equal to the average monthly charge plus 20% of the excessive charge. In order to receive the reduced payment option, the person(s) responsible must submit a completed leak adjustment request form attesting to the repair of the leak and with all available substantiating documents and receipts attached. All others will be responsible for the total charge while the leak adjustment is in process. A completed leak adjustment request form with the substantiating documents and receipts is required for all leak adjustments. Leak adjustments will be processed once the water consumption has returned to a normal level based on the pre-leak period. The formula for the leak adjustment is average monthly charge plus 20% of the excessive charge. Leak adjustments will be made for a maximum of the six months prior to the repair of the leak that demonstrates leak consumption. Adjustments will not be made for leak consumption occurring outside the most recent six-month period. Only two separate adjustments may be made per account per calendar year.

b. Shut off Due to Waste: The City of Warrenton Water Department shall not knowingly furnish water to premises where there is an ongoing leak. When there is a defective or leaking fixture, leaking customer service line, irrigation system, or there is no shutoff device on the customer side and the customer fails to take prompt corrective action to repair the leaking line or fixture, the City may at its option, within 60 days of customer notification, shut off the water on the City side of the meter. All monthly charges fees and penalties will apply if the City must shut off the water meter to ensure water conservation.

(9) **Special Charges:** A fee will be charged for any returned payments. Customers have five (5) business days to make returned payments good. The returned transaction is only made good with cash including the returned payment fee, as set by resolution.

a. The City will immediately contact the customer to notify them of the returned payment. If direct contact is not made, then the City will leave messages at the phone numbers of record. If no phone contact is made, the City will post notice on customer's residence. This will suffice to give notice to customer that the payment must be made good and advise them of the policy of the City.

b. The five (5) business days begins the day the City receives notice from the bank and ends on the fifth business day at 5:00 p.m. (counting the day of notice to the City).

c. The City will assess the status of the account and if the returned payment transaction is not made good within the five business days, then the City will enforce all collection policies as per Section 5 of this City ordinance.

d. Returned payment fees attach to all returned payment transactions including checks, auto-pay and online payments.

e. Any account that has 3 returned payments during a twelve (12) month period will be placed on a Cash Only status for twelve (12) calendar months from the date of the last returned transaction.

(10) **Water Liens:** All service, usage, penalty and fees shall be a lien against the premises served. Ledger and other records will be accessible for inspection by anyone interested in ascertaining the amount of such charges against the property with the submission and approval of a public records request, if applicable.

(11) **Billing Addresses:** Billing will be addressed exactly as the applicant has directed on the application for service. The Finance Department must be notified immediately of any change of billing address. Should the proper address not be supplied by the customer and/or owner, the City will attempt to solicit this information by delivery of a door hanger, which will list a date on which the water will be shut-off if no reply is forthcoming.

(12) **Rates:** All rates, charges, penalties and fees will be designated by resolution and approved by the Warrenton City Commission.

(13) **Vacancy/Vacation:** City of Warrenton water customers may request a temporary billing suspension for a period not to exceed six (6) months. This temporary billing suspension is limited to six (6) months in a twelve (12) month period. Customers will be charged a temporary suspension fee, as set by resolution, at the time their temporary billing suspension is to take effect. The customer will be required to pay their account balance, including all utility charges up to the date of suspension and the temporary suspension fee, at the time the service is suspended. The billing will continue and there will be no service suspension if the utility account has a balance. Upon the effective date of the temporary billing suspension, the City will turn off and lock the water meter. Upon the termination of the temporary billing suspension period, the water meter will be turned on and a temporary suspension fee will be assessed to the utility account for reactivating the meter and reconnection of service. Upon meter activation, billing for utility service will restart. At the end of the six (6) month temporary billing suspension period, the water meter will be turned on and billing will be reinstated regardless of property occupancy status. Customers with special surcharge(s) or fee(s) attached to their utility bill are not eligible for a vacancy/vacation rate.

In the event that the sole property owner has passed away, billing may be suspended for a period of not more than twelve (12) months or until the property changes ownership, whichever comes first. A death certificate must be submitted to the City Manager, or designee for verification, at which time the account will be suspended. The account must be paid in full through the date of suspension. Billing shall not be backdated. The account is not subject to the temporary suspension fee but is be subject to the miscellaneous service call fee, as set by resolution.

(14) **New Construction Rates:** All service accounts associated with new construction projects shall be subject to the minimum base water rate plus consumption upon water meter installation. Rates for all other services will apply upon issuance of occupancy permit.

(15) **Use of a Collection Agency:** Past due amounts from prior renters or owners may be sent to collection after the City has attempted to collect for 90-days. The owner of the property is the responsible party and therefore, the owner will be sent to collection for renter's past due charges. The City will not shut-off water on a new tenant but will send past due amounts to collection. The City will shut-off water on a new property owner if prior owner left any outstanding balance (the new property owner assumes any liens on the property). A collection fee of 50% of the principal amount owing will be added to the balance at the time of referral to the collection agency.

Section 6. **FIRE PROTECTION, FIRE HYDRANTS, AND HYDRANT METERS**

(1) **Fire Service Lines:** Fire service lines may be installed at the expense of the property owner according to the City Engineering Standards. No use or connection other than fire protection is permitted on fire service lines.

(2) **Unauthorized Use:** Unauthorized use of water from a fire line or fire hydrant shall result in an unauthorized use penalty, set by resolution, for the first billing cycle during which the use occurs. Any subsequent unauthorized use during a subsequent billing cycle within twelve (12) months of the first such use shall be charged an additional unauthorized use penalty, provided the City Manager or their designee may also impose an additional fee at their discretion after consideration of the circumstances of the use.

a. If unauthorized use of a fire line or fire hydrant occurs four or more times within twelve (12) months of the first such use (including the first use in the count), the City Manager or their designee may thereafter treat the fire line or fire hydrant as a standard service subject to all applicable provisions of this Ordinance.

(3) **Use of Fire Hydrant:** It shall be unlawful for any person to cut, alter, change, remove, disconnect or connect with, or in any manner interfere, meddle or tamper with any hydrant owned or used by the City of Warrenton Public Works Department. The provision of this section shall not apply to the authorized local fire department. Other departments of the City may be allowed to connect on said hydrants with a hydrant meter, and must use a spanner or regulation wrench in connection therewith.

(4) **Hydrant Meter:** Permits may be issued for the temporary connection to and operation of fire hydrants for construction sites and other approved uses. Permits can be obtained through the Public Works Department. Fees associated with said permit are set by resolution.

a. Hydrant meters may only be used at the site specified on the permit, may not be left unattended, and must be removed from the hydrant after each use. Any hydrant meter still attached to the hydrant may be removed by the fire department or City designee in the case of an emergency or drill and the permittee will be billed for any damages to the hydrant or hydrant meter.

b. Spanner or regulation wrenches will be provided for check-out from the Public Works Department at the time of permit application.

Section 7. **CROSS CONNECTION CONTROL**

(1) **Cross Connections Prohibited:** Cross connection(s) shall be prohibited and protection must be provided against such cross connection, as specified in Oregon Administrative Rules (OAR), Chapter 333. In the case of any premise where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete in-plant cross connection survey, the public water system shall be protected against backflow from the premise(s) by either an approved air gap or an approved backflow prevention assembly on each service to the premise, to provide premise isolation.

(2) **Testing:** Tests must be submitted to the City's Water Quality Technician within ten (10) working days from test date and on a form acceptable to the City. Inspection and testing must be completed as specified.

a. At the time of installation;
b. If repaired or relocated;
c. At least annually;
d. More frequently if required by the City;
e. After a backflow incident; or
f. After an approved air gap is re-plumbed

(3) **New Connections:** Any new connection of one and one half (1 ½) inches in diameter or greater shall be required to install an approved backflow prevention assembly commensurate with the degree of hazard, as per table 43 in OAR Chapter 333, the Oregon Plumbing Specialty Code and the Public Works Director or their designee. The term "new" as herein used in reference to new construction, annexation, or the City of Warrenton gaining jurisdiction over the water system.

(4) **Float Valve:** No water shall be used in open tanks, troughs or other containers into which water drips continuously without the installation of automatic float valves.

(5) **Irrigation:** All irrigation systems, residential and commercial, shall be protected by an approved backflow prevention assembly commensurate with the degree of hazard, as per table 43 in OAR Chapter 333, the Oregon Plumbing Specialty Code and the Public Works Director or their designee.

(6) **Auxiliary Water Supply:** Premises supplied with water other than that furnished by the City may obtain City water at regular rates, provided no physical connection shall in any way, directly or indirectly, exist between the private and municipal systems. An approved backflow prevention assembly shall be installed on the customer service line to a premise where there is auxiliary water supply which is or could be connected to the municipal water system. Should such connection be found to exist without an approved backflow prevention assembly, the connection to City water will be shut-off.

(7) **Pumps:** No person shall connect to any water main or service connection in the City's water system, a pump or other apparatus for purposes of increasing pressure, which is capable of introducing any foreign liquid or material into said system, unless an approved backflow prevention assembly is used.

(8) **Authority:** The Public Works Director, their designee or State Health Official has the authority to discontinue water service to premises for:

a. Failure to remove or eliminate an existing unprotected or potential cross connection;
b. Failure to install a required approved backflow prevention assembly, as required;
c. Failure to maintain an approved backflow prevention assembly; or
d. Failure to conduct the required testing of an approved backflow prevention assembly.

Water service may be reinstated once the above condition(s) are remedied. A fee may apply for disconnection/reconnection of water service.

Section 8. **UNLAWFUL USE**

(1) **Unlawful Connection:** It shall be unlawful for any person to attach or detach from any water main or service pipe or other connection through which water is supplied by the City, or to interfere in any manner with such pipes or connections.

It shall be unlawful for any auxiliary water supply to be connected with the municipal supply in any way. If such connection is found to exist, the City water service will be disconnected and penalties will be assessed to the utility account.

It shall be unlawful for any unit, with the exception described for multi-units, to be occupied or used, either as a residence or as a place of business, without an individual connection and meter if required.

All unlawful connections found shall be reported to the Police Department for theft of service and subject to unauthorized use penalties.

(2) **Supply to Vessel:** It shall be unlawful for any person operating a vessel to obtain water for its use from City mains except through a meter and from persons duly authorized to supply such water.

(3) **Electrical Connections:** It shall be unlawful to ground any electrical appliance to any pipe connected to the water system.

(4) **Prohibited or Restricted Use:** The City may prohibit the use of water for any purpose, such regulation being within the authority of the City Manager, Public Works Director or their designee or the Oregon Health Authority Drinking Water Program Official. These precautions are to promote the health and safety of the inhabitants of the City of Warrenton water system.

If a shortage of water shall exist, the City Manager shall have authority at any time to restrict the use of water. Failure to comply may result in penalties.

(5) **Turn-On/Off by other than City Crew:** It is in violation of this ordinance for any unauthorized person to tamper with the City's shut-off valve; however, in case of emergency, City personnel may grant permission to the property owner or person(s) responsible to turn the water off or on, but only upon making notation of the account number, name of the permittee, date, address, meter number and whether or not the shut-off is to be temporary or permanent. Such information must be provided to the City for entry into the records within 48 hours of granting permission.

When permission has been granted to the owner or person(s) responsible for emergency turn on/turn off of the meter and where replacements, repairs, or adjustments of a meter are made necessary by an act of negligence or carelessness of the person(s) responsible for the premises, the expense to the City caused thereby may be charged and collected from the party that caused such act, negligence, or carelessness whether property owner or person(s) responsible for the premises.

Section 9. **MISCELLANEOUS**

(1) **Inspection:** For the purpose of inspecting the condition of the pipes and fixtures, and the manner in which water is used, the City Manager or designee shall have free access, at proper hours of the day, to all parts of any building or premises in which water is delivered from City mains.

(2) **Realtor Inspections:** A licensed realtor who wishes to have a property's water turned on and then off, for a house inspection, may pay an advance fee as set forth by City resolution (disconnect/reconnect), for a maximum of twenty-four (24) hours.

(3) **Repairs:** The water may be shut-off from the mains, without notice at any time, for repairs or other necessary purposes, and the City of Warrenton Public Works Department and its delegates shall not be responsible for any consequent damages.

(4) **Surplus Water:** The water department may furnish surplus water which would not affect the City's supply to areas outside the City boundaries, and charge the rates currently in force. Furnishing of water shall be conditioned by terms of a contract drawn for this service.

(5) **Liability:** Any person violating any provision of this ordinance, causing the City to bring civil action against that person, shall be liable for court cost and reasonable attorney fees to be set by the court, including any appellate court fees, in the event the City is successful.

(6) **Fine:** Any person violating any of the provisions of this ordinance may, upon conviction thereof, be punished by a minimum fine of $1,000.

(7) **Validity:** In case any portion or provisions of this ordinance should be held to be invalid for any reason whatsoever by any court, then all other provisions shall be held and considered to be independent of, and separable from, such invalid portions and shall not be affected or rendered void by the invalidity of such other portions.

(8) **Effective Date:** This Ordinance shall take effect 30 days after its adoption.

ADOPTED by the City Commission of the City of Warrenton, Oregon, this ____ day of _____, 2025.

First Reading: March 11, 2025
Second Reading:

_____
Henry A. Balensifer, III, Mayor

ATTEST:

_____
Dawne Shaw, City Recorder

City Commission Agenda Memo

Meeting Date: March 25th, 2025
From: Kevin Gorman, Public Works Director
Subject: Request for Commission Approval to Advertise for Bids - Raw Waterline Replacement Project RP -2

Summary:

The Raw Waterline Replacement Phase 2 project involves the installation of approximately 3,800 linear feet of buried 24-inch diameter HDPE pipe, including isolation valves, appurtenances, and connections to existing fiberglass and HDPE mains. This is the second phase of the Raw Waterline Replacement project, with Phase 1 successfully completed in 2022.

The raw water conveyance system is a vital component of the City's water supply system, and any failure in the raw water pipeline would leave the City of Warrenton's customers without water, affecting both drinking water and firefighting capabilities until repairs are made.

Public Works requests Commission approval to proceed with advertising the request for bids for Phase 2 of the Raw Waterline Replacement project. Bid items will include traffic control, tree removal, trench protection, and dewatering, abandoning the existing waterline, new waterline installation, and record drawings. The final project completion is anticipated to be within 150 days from the Notice to Proceed.

Recommendation/Suggested Motion:

"I move to Approve the request to advertise for bids for Phase 2 of the Raw Waterline Replacement project. "

Alternative:

Other action as deemed appropriate by the City Commission
OR
None recommended

Fiscal Impact:

The Raw Waterline Replacement RP-2 project is included in the adopted 2024-2025 fiscal year budget, with an allocated amount of $2.74 million. There will be no additional fiscal impact beyond the committed budgeted amount.

Attachments:

- RP-2 Contract Documents for Raw Waterline Replacement

Approved by City Manager: Esther Moberg

CONTRACT DOCUMENTS

FOR

RAW WATERLINE REPLACEMENT RP-2 PROJECT

MARCH 2025

VOLUME 1 OF 2

DIVISION 00 – PROCUREMENT & CONTRACTING REQUIREMENTS

INTRODUCTORY INFORMATION

CONTRACT DOCUMENTS

FOR

CONSTRUCTION OF

RAW WATERLINE RELACEMENT RP-2 PROJECT

FOR

CITY OF WARRENTON, OREGON

MARCH 2025

Consor Engineers

One SW Columbia Street, Suite 1700, Portland, OR 97204

Phone 503.225.9010

SECTION 00 01 07 - SEALS PAGE

FOR
RAW WATERLINE REPLACEMENT RP-2 PROJECT
FOR
CITY OF WARRENTON, OREGON

See Table of Contents for author of each specification section, identified by author's initials as follows:

AUTHOR'S NAME = INITIALS

JUSTIN C. REEVES = JCR (Consor North America, Inc.)



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01 22 20	JCR	Unit Price Measurement & Payment	1-4
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NOT USED

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NOT USED

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NOT USED

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NOT USED

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09 90 00 JCR Painting and Coating 1-17

Division 10 - Specialties
NOT USED

Division 11 - Equipment
NOT USED

Division 12 - Furnishings
NOT USED

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NOT USED

Division 14 – Conveying Equipment
NOT USED

Division 21 – Fire Suppression
NOT USED

Division 22 - Plumbing
NOT USED

Division 23 – Heating, Ventilating, and Air Conditioning (HVAC)
NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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31 05 16	JCR	Aggregates for Earthwork	1-5
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33 12 19	JCR	Fire Hydrants	1-5
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Division 41 – Material Processing and Handling Equipment
NOT USED

Division 42 – Processing Heating, Cooling and Drying Equipment
NOT USED

Division 43 – Process Gas & Liquid Handling, Purification and Storage Equipment
NOT USED

Division 44 – Pollution and Waste Control Equipment
NOT USED

Division 46 – Water and Wastewater Equipment
NOT USED

Division 48 – Electrical Power Generation
NOT USED

SUPPLEMENTARY INFORMATION

1. *Geotechnical Engineering Report, Raw Waterline Replacement Project RP-2, Warrenton OR*, dated February 2024, prepared by Shannon & Wilson.
2. *City of Warrenton Raw Waterline Replacement Project RP-2, Wetlands and Waters of the State/U.S. Delineation Report, Clatsop County, Oregon*, dated December 14, 2023, prepared by Mason Bruce & Girard, Inc.
3. Oregon Department of State Lands, Removal-Fill Permit No. 65021-RF.

VOLUME II

DRAWINGS
See Sheet G-001 for Drawing Index

END OF SECTION

PROCUREMENT REQUIREMENTS

SECTION 00 11 13 - ADVERTISEMENT FOR BIDS

CALL FOR BIDS - PUBLIC WORKS IMPROVEMENT

Sealed bids will be received up to the hour of 2:00 PM, local time, on April 24, 2025, by Kevin Gorman, Public Works Director, at the front desk of Warrenton City Hall, 225 South Main Street, Warrenton, OR 97146:

RAW WATERLINE REPLACMENT RP-2 PROJECT

PROJECT DESCRIPTION

The intent of this contract is to replace a section of the City's raw water transmission main. The following is a brief summary of the major elements of Work that are to be provided by the Contractor.

1. Installation of approximately 3,800 linear feet of buried 24-inch diameter HDPE DR17 pipe, including isolation valves and other appurtenances, and connections to existing raw waterline.

Project Substantial Completion shall be 120 days from Notice to Proceed and Project Final Completion shall be 150 days from Notice to Proceed.

A voluntary pre-bid meeting will be held on April 15, 2025, at 10:00 AM, local time, at Warrenton City Hall, PO Box 250, 225 South Main Street, Warrenton, OR 97146. A project site tour will follow the pre-bid meeting.

Any bids received after the above specified time will not be considered. The carrier, including the United States Postal Service, is considered an agent of the bidder.

Solicitation Documents may be obtained via email request to tvittetoe@warrentonoregon.us. Documents are available at no charge in electronic file format (PDF).

Questions regarding the project during the bid period shall be submitted to Twyla Vittetoe, Engineering Technician, City of Warrenton via phone at 503-861-0912 or email at tvittetoe@warrentonoregon.us.

Bids will be publicly opened and read by the Public Works Director at 2:00 PM, local time on April 24, 2025, in the Warrenton Fire Training Room. All bids must be accompanied by a certified check, a cashier's check, or bid bond in an amount equal to at least 5% of the total bid.

If the total bid exceeds $50,000.00 the contract will be subject to Prevailing Wage Statute ORS 279C.800 to 279C.870. The contract is NOT subject to federal prevailing wage rates under the Davis-Bacon Act (40 U.S.C. 3141 et seq).

Prior to submission of its bid, bidder shall be registered with the Oregon Construction Contractor's Board as required by ORS 701.055, and thereafter comply with the requirements of ORS 701.035 to 701.055.

Bidders shall be qualified in accordance with the applicable parts of ORS 279C in order to submit a bid for public works in Oregon.

By: Kevin Gorman, Public Works Director
City of Warrenton, Oregon

END OF SECTION

SECTION 00 41 43 - BID PROPOSAL FORM

The undersigned, having full knowledge of the quality and quantity of work and material required, hereby proposes to furnish all labor, material and equipment required to complete the work of:

RAW WATERLINE REPLACEMENT RP-2 PROJECT

in accordance with the ODOT/APWA 2015 Oregon Standard Specifications for Construction and the Special Provisions, Plans and Specifications hereto, and at the following Bid Schedule prices by the following completion dates:

- Substantial Completion – 120 days from Notice to Proceed
- Final Completion – 150 days from Notice to Proceed

Enclosed herewith is a bid surety deposit in the amount of at least five percent (5%) of the bid.

The undersigned bidder hereby represents as follows: That this bid is made without connections with any person, firm or corporation making a bid for same, and is in all respects fair and without collusion or fraud.

Contractor agrees comply with ORS 279C.838 or ORS 279C.840 or 40 USC3141, et seq, if the contract is subject to state or federal prevailing wage laws.

The undersigned is _____YES _____NO a resident bidder, as defined in ORS 279A.120. (PLEASE CHECK ONE)

Oregon Construction Contractor Board No. _____.

The bidder acknowledges receiving and incorporating changes described in

Addenda No. _____ through _____.

Complete in black ink or by typewriter. If BIDDER is:

An Individual

Signature _____

_____

(Individual's Name, Typed or Printed)

Doing business as _____

Business address _____

_____

Phone No. _____

A Partnership

Firm Name _____

Signature _____

_____

(Individual's Name, Typed or Printed)

Business address _____

_____

Phone No. _____

A Limited Liability Company (LLC)

LLC Name _____

By _____

(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed) _____

Business address _____

_____

State in which company was formed _____

Phone No. _____

A Corporation

Corporation Name _____

Signature _____

_____

(Officer's Name, Typed or Printed)

_____

(Title)

_____

(State of Incorporation)

Attest _____

(Secretary's Signature)

Business address _____

_____

Phone No. _____

Date of Qualification to do business _____

BID SCHEDULE RAW WATERLINE REPLACEMENT RP-2 PROJECT					
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE ($)	BID AMOUNT ($)
1	Mobilization, Bonds, Insurance and Demobilization	1	LS		
2	Record Drawings	1	LS		
3	Temporary Work Zone Traffic Control	1	LS		
4	Temporary Erosion & Sediment Control	1	LS		
5	Construction Survey & Staking	1	LS		
6	Trench Safety System	1	LS		
7	Temporary Dewatering System	1	LS		
8	Rock Excavation	10	CY		
9	General Surfacing Restoration	1	LS		
10	Tree Removal	1	LS		
11	24-in Water Pipe, HDPE (IPS) DR17	3,800	LF		
12	Trench Dam	10	EA		
13	2-in Combination Air Release Valve Assembly	2	EA		
14	Blow-Off Valve Assembly	2	EA		
15	Fire Hydrant Assembly	1	EA		
16	Connection to Existing Waterline, West	1	LS		
17	Connection to Existing Waterline, East	1	LS		
18	Abandon Existing Water Pipe	1	LS		
19	Fire Watch	60	DAY		

TOTAL BID AMOUNT $_____

SECTION 00 43 13 - BID BOND

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, _____, hereinafter called
(Name of Contractor)

the PRINCIPAL, as Principal, and _____.
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of _____ and authorized to transact a surety business in the State of Oregon, hereinafter called the SURETY, as Surety, are held and firmly bound unto the City of Warrenton, a Municipal Corporation of the State of Oregon, hereinafter called the OBLIGEE, in the penal sum of

_____Dollars ($_____) for the payment of which sum well and truly to be made, the said PRINCIPAL and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATIONS IS SUCH THAT:

WHEREAS the PRINCIPAL has submitted a Bid Proposal for the RAW WATERLINE REPLACEMENT RP-2 PROJECT.

NOW, THEREFORE, if the Bid Proposal submitted by the PRINCIPAL is accepted, and the Contract awarded to the PRINCIPAL, and if the PRINCIPAL shall execute the proposed Agreement and shall furnish such Performance and Payment Bonds as required by the Contract Documents within the time fixed by the Documents, then this obligation shall be void; if the PRINCIPAL shall fail to execute the proposed Agreement and furnish the bonds, the SURETY hereby agrees to pay the OBLIGEE the penal sum as liquidated damages, within ten (10) days of such failure.

Signed and sealed this _____ day of _____, _____.

CONTRACTOR AS PRINCIPAL:	SURETY:
(Corp. Seal)	(Corp. Seal)
Company: _____	Company: _____
Signature: _____	Signature: _____
Name: _____	Name: _____
Title: _____	Title: _____
	(Attach Power of Attorney)

SECTION 00 43 36 – FIRST TIER SUBCONTRACTOR DISCLOSURE FORM

PROJECT NAME: RAW WATERLINE REPLACEMENT RP-2 PROJECT

BID CLOSING: DATE: April 24, 2025 TIME: 2:00 PM Local Time

This form must be submitted at the location specified in the Call For Bids on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor who will be furnishing labor or materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed.

(ATTACH ADDITIONAL SHEETS IF NEEDED.)

Name	Dollar Value	Category of Work
1)_____	$ _____	_____
2) _____	$ _____	_____
3) _____	$ _____	_____
4) _____	$ _____	_____

Failure to submit this form by the disclosure deadline will result in a nonresponsive bid. A nonresponsive bid will not be considered for award.

Form Submitted by (Bidder Name): _____

Contact Name: _____

Phone no.: _____

END OF SECTION

SECTION 00 43 93 – BID SUBMITTAL CHECKLIST

FORMS TO EXECUTE FOR SUBMISSION OF BID

The Bidder's attention is especially called to the following forms which must be executed in full before bid is submitted:

(a) Bid Form: The Bid Form is to be filled in and signed by the bidder and returned with bid.

(b) Bond Accompanying Bid: All bids shall be accompanied by a guarantee equal to at least five percent (5%) of the bid amount. This guarantee may be in the form of a bond, certified check, or cashier's check. Bid bonds will be accompanied by a power of attorney bearing the same date as the bond.

(c) Certification of Nondiscrimination: This form must be signed and submitted with bid.

(d) If applicable, First-Tier Subcontractor disclosure form, within 2 hours of bid closing.

(e) Pre-qualification application received at Engineering Division Office at least 7 calendar days prior to bid opening.

Facsimile transmissions of bids, bid security or subcontractor disclosure forms will not be accepted.

FORMS TO EXECUTE AFTER AWARD OF BID

(a) Contract: The agreement provided in these Solicitation Documents is to be executed by the successful bidder within 14 calendar days of award of the contract.

(b) Insurance must comply with the General Conditions and Special Provisions of the Contract Documents. Proof of such insurance and additional insured certificate must be delivered to the Agency at the same time the contract is signed.

(c) The contractor shall furnish a performance bond and a payment bond each in an amount equal to one hundred percent (100%) of the contract price as security for the faithful performance of this contract and for the protection of claimants under ORS 279C.600.

SECTION 00 45 45.01 - CERTIFICATION OF NON-DISCRIMINATION

Pursuant to the requirements of ORS 279A.110, I certify that I have not discriminated and will not discriminate against a subcontractor in awarding a subcontract because the subcontractor is a minority, woman or emerging small business enterprise certified under ORS 200.055 or a business enterprise that is owned or controlled by or that employs a disabled veteran, as defined in ORS 408.225.

_____ _____

DATE BIDDER

NOTE: THIS STATEMENT MUST BE RETURNED WITH THE BID

CONTRACTING REQUIREMENTS

SECTION 00 51 00 – NOTICE OF AWARD

Date of Issuance: _____

Owner: _____ Owner's Project No.: _____

Engineer: _____ Engineer's Project No.: _____

Project: _____

Contract Name: _____

Bidder: _____

Bidder's Address: _____

You are notified that Owner has accepted your Bid dated_____ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Raw Waterline Replacement RP-2 Project

The Contract Price of the awarded Contract is $_____. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

_____ unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner _____counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the General Conditions, Section 00130.
3. Other conditions precedent (if any): _____

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in the General Conditions, Section 00130.

Owner: _____

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

Copy: Engineer

END OF SECTION

SECTION 00 51 00.01 – NOTICE OF INTENT TO AWARD

Dated: _____

Project:

_____

Owner: Owner's Contract Number:
Project Number:

_____

This notice is hereby issued on behalf of the City of Warrenton to notify you the City intends to award the contract for construction of the above referenced project to the following Contractor:

_____

Contractor:

_____

Contractor's Address:

_____

_____

_____

_____

The City moved to authorize this intent to award during the City Commission meeting held on _____. The bid opening record is attached.

_____

Owner's Authorized Representative

Given by:

_____

Signature

_____

Title

_____

Date

Enclosure

SECTION 00 52 13 – CONTRACTOR AGREEMENT

1.00 - GENERAL

THIS AGREEMENT, made and entered into this ____ day of _____, 20__, by and between _____, hereinafter called "CONTRACTOR" and the City of Warrenton, a municipal corporation, hereinafter called "CITY."

WITNESSETH:

That the said CONTRACTOR and the said CITY, for the consideration hereinafter named agree as follows:

2.00 - DESCRIPTION OF WORK

The CONTRACTOR agrees to perform the work of:

RAW WATERLINE REPLACEMENT RP-2 PROJECT

and do all things required of it as per his Bid, all in accordance with the described Bid, a copy of which is hereto attached and made a part of this Contract.

3.00 - COMPLETION OF CONTRACT

The CONTRACTOR agrees that the Work under this Contract shall be completed by the following dates:

- Substantial Completion – 120 days from Notice to Proceed
- Final Completion – 150 days from Notice to Proceed

If said CONTRACTOR has not fully completed this Contract within the time set or any extension thereof, it shall pay liquidated damages in accordance with Section 00180.85 of the General Conditions.

4.00 - CONTRACT PRICE

The Contract Price for this project is _____. Payment will be made in accordance with ORS 279C.560 including progress payments at the end of each month. Retainage will be withheld in accordance with ORS 279C.550 - .565.

5.00 - CONTRACT DOCUMENTS

The CONTRACTOR and the CITY agree that the plans, specifications (including the ODOT/APWA 2015 Oregon Standard Specifications for Construction and Contract Documents defined in Section 00110.20 of the Contract Documents General Conditions and all modifications thereto) and bid are, by this reference, incorporated into this Contract and are fully a part of this contract.

6.00 - NONDISCRIMINATION

It is the policy of the City of Warrenton that no person shall be denied the benefits of or be subjected to discrimination in any City program, service, or activity on the grounds of age, disability, race, religion, color, national origin, sex, sexual orientation, gender identity and expression. The City of Warrenton also requires its contractors and grantees to comply with this policy.

7.00 - CONTRACTOR IS INDEPENDENT CONTRACTOR

A. CONTRACTOR acknowledges that for all purposes related to this Contract, CONTRACTOR is and shall be deemed to be an independent CONTRACTOR and not an employee of CITY, shall not be entitled to benefits of

any kind to which an employee of the CITY is entitled and shall be solely responsible for all payments and taxes required by law; and furthermore in the event that CONTRACTOR is found by a court of law or an administrative agency to be an employee of the CITY for any purpose, CITY shall be entitled to repayment of any amounts from CONTRACTOR under the terms of the Contract; to the full extent of any benefits or other remuneration CONTRACTOR receives (from CITY or third party) as result of said finding and to the full extent of any payments that CITY is required to make (to CONTRACTOR or to a third party) as a result of said finding.

B. The undersigned CONTRACTOR hereby represents that no employee of the CITY of Warrenton, or any partnership or corporation in which a CITY employee has an interest, has or will receive any remuneration of any description from the CONTRACTOR, either directly or indirectly, in connection with the letting or performance of this Contract, except as specifically declared in writing.

8.00 - SUBCONTRACTS - RELATIONS WITH SUBCONTRACTORS, ASSIGNMENTS AND DELEGATION

A. Assignment or Transfer Restricted. The CONTRACTOR shall not assign, sell, dispose of, or transfer rights nor delegate duties under the contract, either in whole or in part, without the CITY's prior written consent. Unless otherwise agreed by the CITY in writing, such consent shall not relieve the CONTRACTOR of any obligations under the contact. Any assignee or transferee shall be considered the agent of the CONTRACTOR and be bound to abide by all provisions of the contract. If the CITY consents in writing to an assignment, sale, disposal or transfer of the CONTRACTOR's rights or delegation of the CONTRACTOR's duties, the CONTRACTOR and its surety, if any, shall remain liable to the CITY for complete performance of the contract as if no such assignment, sale, disposal, transfer or delegation had occurred unless the CITY otherwise agrees in writing.

B. CONTRACTOR may not discriminate against a subcontractor in awarding a subcontract because the subcontractor is a minority, women or emerging small business enterprise certified under ORS 200.055 or a business enterprise that is owned or controlled by or that employs a disabled veteran, as defined in ORS 408.225. If CONTRACTOR violates this prohibition, the CITY will regard the violation as a breach of contract and may either terminate the contract or exercise any other remedy for breach of contract.

9.00 - NONWAIVER

The failure of the CITY to insist upon or enforce strict performance by CONTRACTOR of any of the terms of this Contract or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.

10.00 - LABORERS AND MATERIALMEN, CONTRIBUTIONS TO INDUSTRIAL ACCIDENT FUND, LIENS AND WITHHOLDING TAXES

CONTRACTOR shall make payment promptly, as due, to all persons supplying CONTRACTOR labor or material for the prosecution of the work provided for this contract.

CONTRACTOR shall pay all contributions or amounts due the Industrial Accident Fund from CONTRACTOR or any subcontractor incurred in the performance of the contract.

CONTRACTOR shall not permit any lien or claim to be filed or prosecuted against the CITY on account of any labor or material furnished.

CONTRACTOR shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

11.00 - CERTIFICATION OF COMPLIANCE WITH TAX LAWS

As required by ORS 305.385(6), CONTRACTOR certifies under penalty of perjury that the CONTRACTOR, to the best of CONTRACTOR's knowledge, is not in violation of any of the tax laws described in ORS 305.380(4).

12.00 - CITY BUSINESS LICENSE

Prior to starting work, CONTRACTOR shall pay the CITY business license tax and provide the Project Director with a copy of business license receipt. CONTRACTOR shall, likewise, require all subcontractors to pay the CITY business license tax and provide a copy of the receipt to the Project Director prior to commencement of work.

APPROVED AS TO FORM:

_____
City Attorney

CITY OF WARRENTON, a municipal of the State of Oregon

BY: _____
Mayor Date

ATTEST:

_____ _____
Contractor Date City Manager Date

SECTION 00 55 00 – NOTICE TO PROCEED

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:
	Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on_____.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, Contractor shall complete the Work under the following times:

- Substantial Completion on _____ (or ___ days after Notice to Proceed)
- Final Completion on _____ (or ___ days after Notice to Proceed)

Owner:

_____
Authorized Signature

By: _____

Title: _____

Date _____

Copy: Engineer

Contractor Acceptance of Notice to Proceed:

_____
Authorized Signature

By: _____

Title: _____

Date Issued: _____

SECTION 00 61 13.13 - PERFORMANCE BOND

AMOUNT $ _____

BOND NO. _____

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, _____, hereinafter called
(Name of Contractor)

the PRINCIPAL, as Principal, and _____,
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of _____ and authorized to transact a surety business in the State of Oregon, hereinafter called the SURETY, as Surety, are held and firmly bound unto the City of Warrenton, a Municipal Corporation of the State of Oregon, hereinafter called the OBLIGEE, in the

penal sum of _____ Dollars

($_____) for the payment of which sum well and truly to be made, the said PRINCIPAL and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

Whereas on the _____ day of _____, 20___ the PRINCIPAL entered into a certain contract with the OBLIGEE, a copy of which is hereto attached and made a part hereof for the construction of:

RAW WATERLINE REPLACEMENT RP-2 PROJECT
City of Warrenton, Oregon

NOW, THEREFORE, if the PRINCIPAL herein shall faithfully and truly observe and comply with the terms of the contract and shall well and truly perform all matters and things undertaken to be performed under said contract upon the terms proposed therein and shall promptly make payments to all persons supplying labor or material for any prosecution of the work provided for each contract and shall not permit any lien or claim to be filed or prosecute against the OBLIGEE on account of any labor or material furnished, and shall promptly pay all contributions or amounts due the State Accident Insurance Fund and all contributions or amounts due the State Un-employment Compensation Trust Fund incurred in the performance of said contract and shall promptly, as due, make payment to the person, co-partnership, association or corporation entitled thereto of the moneys and sums mentioned in Section 279 of the Oregon Revised Statutes, then this obligation is to be void, otherwise to remain in full force and effect.

This performance bond shall also guarantee the improvement against defects in materials or workmanship for a period of one (1) year from the date of written Substantial Completion acceptance of the subject project by the OBLIGEE.

The total amount of the SURETY's liability under this bond both to the OBLIGEE and to the persons furnishing labor or materials, provisions and goods and to any other person or persons, shall in no event exceed the penalty hereof.

Provided, however, that the conditions of the obligation shall not apply to any money loaned or advanced to the PRINCIPAL or to any subcontractor or other person in the performance of any such work, whether specifically provided for in the contract or not.

This bond is executed for the purpose of complying with Chapter 279 of Title 26, Oregon Revised Statutes, the provisions of which are hereby incorporated herein and made a part hereof.

IN WITNESS WHEREOF, this instrument is executed in three counterparts each one of which

shall be deemed an original, this the _____day of _____, 20___.

CONTRACTOR AS PRINCIPAL:	SURETY:
(Corp. Seal)	(Corp. Seal)
Company: _____	Company: _____
Signature: _____	Signature: _____
Name: _____	Name: _____
Title: _____	Title: _____

(Attach Power of Attorney)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety company executing BOND must be authorized to transact business in the State of Oregon.

SECTION 00 61 13.16 - PAYMENT BOND

AMOUNT $ _____

BOND NO. _____

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, _____, hereinafter called
(Name of Contractor)

the PRINCIPAL, as Principal, and _____,
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of _____ and authorized to transact a surety business in the State of Oregon, hereinafter called the SURETY, as Surety, are held and firmly bound unto the City of Warrenton, a Municipal Corporation of the State of Oregon, hereinafter called the OBLIGEE, and unto all persons, firms and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total

aggregate penal sum of _____ Dollars

($_____) for the payment of which sum well and truly to be made, the said PRINCIPAL and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

Whereas on the _____ day of_____, 20___ the PRINCIPAL entered into a certain contract with the OBLIGEE, a copy of which is hereto attached and made a part hereof for the construction of:

RAW WATERLINE REPLACMENT RP-2 PROJECT
City of Warrenton, Oregon

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for, or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modification thereof, including all amounts due for materials consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or material man lien holder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that 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 OBLIGEE, or the SURETY above named within one hundred twenty (120) 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 the materials were 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, OBLIGEE, 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 the 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 the 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.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 25 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract or the loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OBLIGEE and the PRINCIPAL shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in three counterparts each one of which shall be deemed an original, this the _____day of _____, 20___.

CONTRACTOR AS PRINCIPAL:	SURETY:
(Corp. Seal)	(Corp. Seal)
Company: _____	Company: _____
Signature: _____	Signature: _____
Name: _____	Name: _____
Title: _____	Title: _____
	(Attach Power of Attorney)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety company executing BOND must be authorized to transact business in the State of Oregon.

SECTION 00 63 63 – CHANGE ORDER FORM

Date of Issuance:	Effective Date:
Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:
Attachments:

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: $	Original Contract Times: Substantial Completion: Ready for Final Payment:
No Change from previously approved Change Orders No. xx to No. xx: $	No Change from previously approved Change Orders No. xx to No. xx: Substantial Completion: Ready for Final Payment:
Contract Price prior to this Change Order: $	Contract Times prior to this Change Order: Substantial Completion: Ready for Final Payment:
Increase of this Change Order: $	No Change of this Change Order: Substantial Completion: Ready for Final Payment:
Contract Price incorporating this Change Order: $	Contract Times with all approved Change Orders: Substantial Completion: Ready for Final Payment:

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title _____	Title: _____
Date: _____	Date _____	Date: _____

SECTION 00 72 00 – GENERAL CONDITIONS

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PART 00100 - GENERAL CONDITIONS

Section 00110 - Organization, Conventions, Abbreviations, and Definitions

Organization

00110.00 Organization of Specifications - The Specifications are comprised of the following:

- The “General Conditions for Construction for the City of Warrenton (Agency),” published by the Agency, which contain Part 00100 "General Conditions", which deal with the solicitation process and contractual relationships;
- The "2018 Oregon Standard Specifications for Construction," which contain Parts 00200 through 03000, published by the Oregon Department of Transportation which contain the detailed "Technical Specifications" involved in prosecution of the Work, organized by subject matter; and
- The Special Provisions.

In addition, throughout the Specifications:

- Each Part is divided into Sections and Subsections.
- Reference to a Section includes all applicable requirements of the Section.
- When referring to a Subsection, only the number of the Subsection is used; the word "Subsection" is implied.
- Where Section and Subsection numbers are not consecutive, the interval has been reserved for use in the Special Provisions or future expansion of the Standard Specifications.

Conventions

00110.05 Conventions Used Throughout the Specifications Include:

(a) Grammar – The “General Conditions for Construction for the City of Warrenton (Agency)”, part 00100 "General Conditions", is written in the indicative mood, in which the subject is expressed. The "2018 Oregon Standard Specifications for Construction", published by the Oregon Department of Transportation, which contain parts 00200 through 03000, the detailed "Technical Specifications", are generally written in the imperative mood, in which the subject is implied. Therefore, throughout Parts 00200 through 03000, and on the Plans:

- The subject, "the Contractor", is implied.
- "Shall" refers to action required of the Contractor, and is implied.
- "Will" refers to decisions or actions of the Agency and/or the Engineer.
- The following words, or words of equivalent meaning, refer to the actions of the Agency and/or the Engineer, unless otherwise stated: "allowed", "directed", "established", "permitted", "ordered", "designated", "prescribed", "required", "determined".

- The words "approved", "acceptable", "authorized", "satisfactory", "suitable", "considered", and "rejected", "denied", "disapproved", or words of equivalent meaning, mean by or to the Agency and/or the Engineer, subject in each case to Section 00150 of the General Conditions.
- The words "as shown", "shown", "as indicated", or "indicated" mean "as indicated on the Plans".
- Certain Subsections labeled "Payment" contain statements to the effect that "payment will be made at the Contract amounts for the following items" (followed by a list of items). In such cases the Agency shall pay for only those Pay Items listed in the Schedule of Items.

(b) Capitalization of Terms - Capitalized terms, other than titles, abbreviations, and grammatical usage, indicate that they have been given a defined meaning in the Standard Specifications. Refer to Section 00110.20 "Definitions". Defined terms will always be capitalized in Part 00100; in Parts 00200 through 03000, defined terms will generally not be capitalized, with the notable exception of "the Contractor", "the Agency", and "the Engineer".

(c) Punctuation - In this publication the "outside method" of punctuation is employed for placement of the comma and the period with respect to quotation marks. Only punctuation that is part of the quoted matter is placed within quotation marks.

(d) References to Laws, Acts, Regulations, Rules, Ordinances, Statutes, Orders, and Permits - References are made in the text of the Specifications to "laws", "acts", "rules", "statutes", "regulations", "ordinances", etc. (collectively referred to for purposes of this Subsection as "Law"), and to "orders" and "permits" (issued by a governmental authority, whether local, State, or federal, and collectively referred to for purposes of this Subsection as "Permits"). Reference is also made to "applicable laws and regulations". The following conventions apply in interpreting these terms, as used in the Specifications.

- Statutes and Rules - Oregon Revised Statutes (ORS) and Oregon Administrative Rules (OAR) referenced in the Specifications are accessible on line, including through the Oregon Legislative Counsel Committee web site and through the Oregon Secretary of State Archives Division web site.

- Law - In each case, unless otherwise expressly stated therein, the Law is to be understood to be the current version in effect. This also applies where a specific Law is referenced or cited, regardless of whether the text of the Law has been included in the Specifications or not, and regardless of whether the text of the Law has been summarized or paraphrased. In each case, the current version of the Law is applicable under any Contract. The reader is therefore cautioned to check the actual text of the Law to confirm that the text included in the Specifications has not been modified or superseded.

- Permits - Orders and permits issued by a government agency may be modified during the course of performing the Work under a Contract. Therefore, wherever the term "order" or "permit" is used in the Specifications, it is intended to refer to the then-current version. That version may be embodied in a modified, superseding order or permit, or it may consist of all terms and conditions of prior orders or permits that have not been superseded, as well as the additional terms added by amendment or supplement. In certain cases, the orders and/or permits are identified by name in the Specifications; in other cases the terms are used in the generic sense. The reader is cautioned to check the text(s) of each order and permit identified either by name or by generic reference.

- **Applicable Laws and Regulations** - Where the phrase "applicable laws and regulations" appears, it is to be understood as including all applicable laws, acts, regulations, administrative rules, ordinances, statutes, and orders and permits issued by a governmental or regulatory authority.

Abbreviations

00110.10 Abbreviations - Following are meanings of abbreviations used in the Standard Specifications, in the Special Provisions, on the Plans, and in other Contract Documents. Other abbreviations and meanings of abbreviations may be in the individual Sections of the Standard Specifications to which they apply, in the Special Provisions, and in OAR 731-005 and OAR 731-007.

AAR - Association of American Railroads
AASHTO - American Association of State Highway and Transportation Officials
ABC - Associated Builders and Contractors, Inc.
AC - Asphalt Concrete
ACI - American Concrete Institute
ACP - Asphalt Concrete Pavement
ACWS - Asphalt Concrete Wearing Surface
AGC - Associated General Contractors of America
AIA - American Institute of Architects
AISC - American Institute of Steel Construction
AISI - American Iron and Steel Institute
AITC - American Institute of Timber Construction
ANSI - American National Standards Institute
APA - Engineered Wood Association
APWA - American Public Works Association
AREMA - American Railway Engineering and Maintenance of Right-of-Way Association
ASCE - American Society of Civil Engineers
ASME - American Society of Mechanical Engineers
ASTM - American Society for Testing and Materials
ATPB - Asphalt Treated Permeable Base
AWG - American Wire Gauge
AWPA - American Wood Protection Association
AWS - American Welding Society
AWWA - American Water Works Association
CAgT - Certified Aggregate Technician
CAT-I - Certified Asphalt Technician I
CAT-II - Certified Asphalt Technician II
CBM - Certified Ballast Manufacturers
CCO - Contract Change Order
CCT - Concrete Control Technician

CDT - Certified Density Technician
CEBT - Certified Embankment and Base Technician
CMDT - Certified Mixture Design Technician
CPF - Composite Pay Factor
CRSI - Concrete Reinforcing Steel Institute
CFR - Code of Federal Regulations
CS - Commercial Standard, Commodity Standards Division, U.S. Department of Commerce
D1.1 - Structural Welding Code - Steel, American Welding Society, current edition
D1.5 - Bridge Welding Code, American Welding Society, current edition
DBE - Disadvantaged Business Enterprise
DEQ - Department of Environmental Quality, State of Oregon
DOGAMI - Department of Geology and Mineral Industries, State of Oregon
DSL - Department of State Lands, State of Oregon
EAC - Emulsified Asphalt Concrete
EPA - U.S. Environmental Protection Agency
ESCP - Erosion and Sediment Control Plan
FHWA - Federal Highway Administration, U.S. Department of Transportation
FSS - Federal Specifications and Standards, General Services Administration
GSA - General Services Administration
ICEA - Insulated Cable Engineers Association (formerly IPCEA)
IES - Illuminating Engineering Society
IMSA - International Municipal Signal Association
ISO - International Standards Organization
ITE - Institute of Transportation Engineers
JMF - Job Mix Formula
MFTP - Manual of Field Test Procedures (ODOT)
MIL - Military Specifications
MSC - Minor Structure Concrete
MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways, FHWA, U.S. Department of Transportation
NEC - National Electrical Code
NEMA - National Electrical Manufacturer's Association
NESC - National Electrical Safety Code
NIST - National Institute of Standards and Technology
NPDES - National Pollutant Discharge Elimination System
NPS - Nominal Pipe Size (dimensionless)
OAR - Oregon Administrative Rules
ODA - Oregon Department of Agriculture
ODOT - Oregon Department of Transportation
ORS - Oregon Revised Statutes
OR-OSHA - Oregon Occupational Safety and Health Division of the Department of Consumer and Business Services
OSHA - Occupational Safety and Health Administration, U.S. Department of Labor
PCA - Portland Cement Association
PCC - Portland Cement Concrete

PCI - Precast/Prestressed Concrete Institute
PCP - Pollution Control Plan
PF - Pay Factor of a constituent
PLS - Professional Land Surveyor
PMBB - Plant Mixed Bituminous Base
PTI - Post-Tensioning Institute
PUC - Public Utility Commission, State of Oregon
QA - Quality Assurance
QC - Quality Control
QCT - Quality Control Technician
QL - Quality Level
QPL - Qualified Products List
RAP - Reclaimed Asphalt Pavement
REA - Rural Electrification Administration, U.S. Department of Agriculture
RMA - Radio Manufacturers Association or Rubber Manufacturers Association
SAE - Society of Automotive Engineers
SI - International System of Units (Système Internationale)
SRCM - Soil and Rock Classification Manual (ODOT)
SSPC - Society for Protective Coatings
T - Tolerances, AASHTO Test Method
TM - Test Method (ODOT)
TV - Target Value
UBC - Uniform Building Code (as adopted by the State of Oregon)
UL - Underwriters Laboratory, Inc.
UPC - Uniform Plumbing Code (as adopted by the State of Oregon)
USC - United States Code
WAQTC - Western Alliance for Quality Transportation Construction
WCLIB - West Coast Lumber Inspection Bureau
WWPA - Western Wood Products Association

Definitions

00110.20 Definitions - Following are definitions of words and phrases used in the Standard Specifications, in the Special Provisions, on the Plans, and in other Contract Documents. Other definitions may be in the individual Sections of the Standard Specifications to which they apply, in the Special Provisions, and in OAR 731-005 and OAR 731-007.

Act of God or Nature - A natural phenomenon of such catastrophic proportions or intensity as would reasonably prevent performance.

Addendum - A written or graphic modification, issued before the opening of Bids, which revises, adds to, or deletes information in the Solicitation Documents or previously issued Addenda.

Additional Work - Increased quantities of any Pay Item for which a unit price has been established, or the increase of Work within the scope of the Contract.

Advertisement - The public announcement (Call for Bids) inviting Bids for Work to be performed or Materials to be furnished.

Agency - The City of Warrenton, a municipal corporation of the State of Oregon, which has entered into a Contract with the Contractor.

Agency-Controlled Lands - Lands owned by the Agency, or controlled by the Agency under lease or agreement, or under the jurisdiction and control of the Agency for the purposes of the Contract.

Aggregate - Rock of specified quality and gradation.

Attorney in Fact - An Entity appointed by another to act in its place, either for some particular purpose or for the transaction of business in general.

Award - Written notification to the Bidder that the Bidder has been awarded a Contract.

Base - A Course of specified material of specified thickness placed below the Pavement.

Bid - A competitive offer, binding on the Bidder and submitted in response to an invitation to bid.

Bid Bond - The Surety bond for Bid guarantee.

Bid Booklet - The bound paper version included in the Solicitation Documents that contain the information identified in 00120.10.

Bid Closing - The date and time after which Bids, Bid modifications, and Bid withdrawals will no longer be accepted.

Bid Documents - See under Solicitation Document.

Bid Opening - The date and time Bids are opened.

Bid Schedule – The lump sum Pay Item; or the list of Pay Items, their units of measurement, and estimated quantities. (When a Contract is awarded, the Bid Schedule becomes the Schedule of Items.)

Bid Section - The portion of the Bid Booklet containing all pages after the Bidder's checklist and before the appendix.

Bidder - An Entity that submits a Bid in response to an invitation to bid.

Bike Lane - A lane in the Traveled Way, designated by striping and Pavement markings for the preferential or exclusive use of bicyclists.

Borrow - Material lying outside of planned or required Roadbed excavation used to complete Project earthwork.

Boulders - Particles of rock that will not pass a 12 inch square opening.

Bridge - A single or multiple span Structure, including supports, that carries motorized and non-motorized vehicles, pedestrians, or utilities on a Roadway, walk, or track over a watercourse, highway, railroad, or other feature.

Buttress - A rock fill placed at the toe of a landslide or potential landslide in order to resist slide movement.

Calendar Day - Any day shown on the calendar, beginning and ending at midnight.

Call for Bids - The public announcement inviting Bids for Work to be performed or Materials to be provided.

Camber - A slight arch in a surface or Structure to compensate for loading.

Change Order - A written order issued by the Engineer to the Contractor modifying Work required by the Contract, or adding Work within the scope of the Contract, and, if applicable, establishing the basis of payment for the modified Work.

Class of Work - A designation referring to the type of Work in which Bidders must be pre-qualified.

Clay - Soil passing a No. 200 sieve that can be made to exhibit plasticity (putty-like properties) within a range of water contents.

Clear Zone - Roadside border area, starting at the edge of the Traveled Way, that is available for safe use by errant vehicles. Establishing a minimum width Clear Zone implies that rigid objects and certain other hazards within the Clear Zone should be relocated outside the Clear Zone, or shielded, or remodeled to make them break away on impact or be safely traversable.

Close Conformance - Where working tolerances are given on the Plans or in the Specifications, Close Conformance means compliance with those tolerances. Where working tolerances are not given, Close Conformance means compliance, in the Engineer's judgment, with reasonable and customary manufacturing and construction tolerances.

Coarse Aggregate - Crushed Rock or crushed Gravel retained on a 1/4 inch sieve, with allowable undersize.

Cobbles - Particles of Rock, rounded or not, that will pass a 12 inch square opening and be retained on a 3 inch sieve.

Commercial Grade Concrete - Concrete furnished according to Contractor proportioning, placed in minor Structures and finished as specified.

Construction Contracts Unit - Agency's office that administers construction contracts.

Contract - The written agreement between the Agency and the Contractor, including without limitation all Contract Documents, describing the Work to be completed and defining the rights and obligations of the Agency and the Contractor.

Contract Administration Engineer - The Agency representative presiding over Agency-level claims review under 00199.40.

Contract Amount - Lump sum Pay Item or the sum of the Pay Item amounts computed by multiplying the Pay Item quantities by the unit prices in the Schedule of Items.

Contract Documents - Solicitation Documents, Specifications, Plans, Contract booklet, Change Orders, Force Account Work orders, pay documents issued by the Agency, Materials certifications, Project Work schedules, final estimate, written orders and authorizations issued by the Agency, Material source development and reclamation plans, and permits, orders and authorizations obtained by the Contractor or Agency applicable to the Project, as well as all documents incorporated by reference therein.

Contract Time - The amount of time allowed to complete the Work under the Contract.

Contractor - The Entity awarded the Contract according to the solicitation.

Correction Period - Period from Second Notification to Final Acceptance as per Subsection 00170.85(b).

Course - A specified Surfacing Material placed in one or more Lifts to a specified thickness.

Coverage - One Pass by a piece of Equipment over an entire designated area.

Cross Section - The exact image formed by a plane cutting through an object, usually at right angles to a central axis, to determine area.

Day - A Calendar Day including weekdays, weekends, and holidays, unless otherwise specified.

Defective – An adjective which when modifying the word "Work" refers to work that: (1) is unsatisfactory, faulty or deficient; (2) does not conform to the Contract Documents; (3) does not meet the requirements of any inspection, test for approval referred to in the Contract Documents; or (4) has been damaged prior to Engineer's recommendation for final payment.

Durable Rock - Rock that has a slake durability index of at least 90% based on a two-cycle slake durability test, according to ASTM D 4644. In the absence of test results, the Engineer may evaluate the durability visually.

Emulsified Asphalt - Emulsified asphalt cement.

Emulsified Asphalt Concrete - A mixture of Emulsified Asphalt and graded Aggregate.

Engineer - The Engineer who represents the Agency and who is designated by the Agency to administer the Contract.

Entity - A natural person capable of being legally bound, sole proprietorship, limited liability company, corporation, partnership, limited liability partnership, limited partnership, profit or nonprofit unincorporated association, business trust, two or more persons having a joint or common economic interest, or any other person with legal capacity to contract, or a government or governmental subdivision.

Equipment - All machinery, tools, manufactured products, and fabricated items needed to complete the Contract or specified for incorporation into the Work.

Establishment Period - The time specified to assure satisfactory establishment and growth of planted Materials.

Existing Surfacing - Pavements, slabs, curbs, gutters, walks, driveways, and similar constructions of bricks, blocks, portland cement concrete, bituminous treated materials, and granular surfacing materials on existing Highways.

Extra Work - Work not included in the Contract, but deemed by the Engineer to be necessary to complete the Project.

Field Order – A written order issued by the Engineer which requires minor changes in the Work but which may not involve a change in the Contract Amount or the Contract Times.

Final Acceptance - Written confirmation by the Agency that the Project has been completed according to the Contract including all corrective work identified by the Agency during the Correction Period, with the exception of latent defects and Warranty obligations, if any, and has been accepted.

Final Inspection - The inspection conducted by the Engineer to determine that the Project has been completed according to the Contract.

Fine Aggregate - Crushed Rock, crushed Gravel, or Sand that passes a 1/4 inch sieve, with allowable oversize.

First Notification - Written Notice to Proceed provided by the Engineer.

Force Account Work - Items of Extra Work ordered by the Engineer that are to be paid according to Section 00197.

Granular Material - Graded and selected free-draining material composed of particles of Rock, Sand, and Gravel.

Gravel - Particles of Rock, rounded or not, that will pass a 3 inch sieve and be retained on a No. 4 sieve.

Highway - Every road, street, thoroughfare and place, including bridges, viaducts and other structures within the boundaries of the State, open, used or intended for use by vehicular traffic.

Incidental - A term identifying those acts, services, transactions, property, Equipment, labor, Materials, or other items for which the Agency will make no separate or additional payment.

Inspector - The representative of the Engineer authorized to inspect and report on Contract performance.

Leveling - Placing a variable-thickness Course of Materials to restore horizontal and vertical uniformity to existing Pavements, normally continuous throughout the Project.

Lift - The compacted thickness of material placed by Equipment in a single Pass.

Mandatory Source - A material source provided by the Agency from which the Contractor is required to obtain Materials. (see 00160.00(b) and 00160.40)

Materials - Any natural or manmade substance specified for use in the construction of the Project or for incorporation into the Work.

Median - The portion of a divided Highway separating traffic traveling in opposite directions.

Milestone – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

Multiple Course Construction - Two or more Courses, exclusive of Patching or Leveling, placed over the entire Roadway width.

Multi-Use Path - That portion of the Highway Right-of-Way or a separate Right-of-Way, physically separated from motor vehicle traffic and designated for use by pedestrians, bicyclists and other non-motorized users.

Neat Line - Theoretical lines specified or indicated on the Plans for measurement of quantities.

Nondurable Rock - Rock that has a slake durability index of less than 90% based on a two-cycle slake durability test, as tested by ASTM D 4644, or Rock that is observed to readily degrade by air, water, and mechanical influence.

Notice to Proceed - Written notice authorizing the Contractor to begin performance of the Work.

On-Site Work - Any Work taking place on the Project Site, including designated staging areas adjacent to the Project Site, except for installation of covered temporary signs according to Section 00225.

Organic Soil - A Soil with sufficient organic content to influence the Soil properties.

Panel - The width of specified Material being placed by Equipment in a single Pass.

Pass - One movement of a piece of Equipment over a particular location.

Patching - Placing a variable-thickness Course of Materials to correct sags, dips, and/or bumps to the existing grade and Cross Section, normally intermittent throughout the Project.

Pavement - Asphalt concrete or portland cement concrete placed for the use of motor vehicles, bicycles, or pedestrians on Roadways, Shoulders, Multi-Use Paths and parking areas.

Pay Item (Contract Item) - A specific unit of Work for which a price is provided in the Contract.

Payment Bond - The approved security furnished by the Contractor's Surety as a guaranty of the Contractor's performance of its obligation to pay promptly in full all sums due for Materials, Equipment, and labor furnished to complete the Work.

Peat - A Soil composed primarily of vegetative matter in various stages of decomposition, usually with an organic odor, dark brown to black color, and a spongy consistency.

Performance Bond - The approved security furnished by the Contractor's Surety as a guaranty of the Contractor's performance of the Contract.

Plans - Standard and Supplemental Drawings, and approved unstamped and reviewed stamped Working Drawings. (see 00150.10 and 00150.35)

Project - The sum of all Work to be performed under the Contract.

Project Manager - The Engineer's representative directly responsible for administration of a Contract.

Project Site - The geographical dimensions of the real property on which the Work is to be performed, including designated contiguous staging areas.

Prospective Source - A Material source provided by the Agency, from which the Contractor has the option of obtaining Materials. (see 00160.00(a) and 00160.40)

Publicly-Owned Equipment - Equipment acquired by a state, county, municipality or political subdivision primarily for use in its own operations.

Public Traffic - Vehicular or pedestrian movement, not associated with the Contract Work, on a public way.

Railroad - Publicly or privately owned rail carriers, including passenger, freight, and commuter rail carriers, their tenants, and licensees. Also, Utilities that jointly own or use such facilities.

Right-of-Way - Land, property, or property interest, usually in a strip, acquired for or devoted to transportation or other public works purposes.

Roadbed - Completed excavations and embankments for the Subgrade, including ditches, side slopes, and slope rounding, if any.

Roadside - The area between the outside edges of the Shoulders and the Right-of-Way boundaries. Unpaved median areas between inside Shoulders of divided Highways and infield areas of interchanges are included.

Roadway - That portion of a Highway improved, designed, or ordinarily used for vehicular travel, exclusive of the berm or Shoulder. If a Highway includes two or more separate Roadways, the term "Roadway" refers to any such Roadway separately, but not to all such Roadways collectively. (see Traveled Way)

Rock - Natural deposit of solid material composed of one or more minerals occurring in large masses or fragments.

Sand - Particles of Rock that will pass a No. 4 sieve and be retained on a No. 200 sieve.

Schedule of Items - The list of Pay Items, their units of measurement, estimated quantities, and prices.

Schedule of Values - The breakdown of the values of the component elements comprising a lump sum Pay Item.

Second Notification - Written acknowledgment by the Engineer of the Substantial Completion of the Work according to 00180.50(g).

Shoulder - The part of a Roadbed contiguous to the Traveled Way or Roadway, whether paved or unpaved, for accommodating stopped vehicles, for emergency use and for lateral support of Base and surface Courses.

Silt - Soil passing a No. 200 sieve that is nonplastic or exhibits very low plasticity.

Single Course Construction - A wearing Course only, not including patching or leveling Courses or partial width Base Course.

Slope - Vertical distance to horizontal distance, unless otherwise specified.

Soil - Accumulations of particles produced by the disintegration of Rock, which sometimes contains organic matter. Particles may vary in size from Clay to Boulders.

Solicitation Document - Documents which define the procurement of a public improvement Project, including, but not limited to, the Bid Booklet, Agency-provided Plans, Standard Specifications, Special Provisions, Addenda, and which includes all documents incorporated by reference. May also be called Bid Documents.

Special Provisions - The special directions, provisions, and requirements specific to a Project that supplement or modify the Standard Specifications. Permits and orders governing the Project that are issued directly to the Agency by a governmental or regulatory authority are considered to be part of the Special Provisions, to the extent and under the conditions stipulated in the Special Provisions.

Specifications - The Standard Specifications and Special Provisions, together with all provisions of other documents incorporated therein by reference.

Standard Drawings - The Agency-prepared detailed drawings for Work or methods of construction that normally do not change from project to project.

Standard Specifications – The "General Conditions for Construction for the City of Warrenton" published by the Agency, and the "2018 Oregon Standard Specifications for Construction", Parts 00200 through 03000, "Technical Specifications", published by the Oregon Department of Transportation as amended by the Agency. It provides directions, provisions, and requirements necessary for performing public improvement projects.

State - The State of Oregon.

Structures - Bridges, retaining walls, endwalls, cribbing, buildings, culverts, manholes, catch basins, drop inlets, sewers, service pipes, underdrains, foundation drains, and other similar features which may be encountered in the Work.

Subbase - A Course of specified material of specified thickness between the Subgrade and a Base.

Subcontractor - An Entity having a direct contract with the Contractor or another Subcontractor, to perform a portion of the Work.

Subgrade - The top surface of completed earthwork on which Subbase, Base, Surfacing, Pavement, or a Course of other Material is to be placed.

Substantial Completion – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended.

Substructure - Those parts of a Structure which support the Superstructure, including bents, piers, abutments, and integrally built wingwalls, up to the surfaces on which bearing devices rest. Substructure also includes portions above bearing surfaces when those portions are built integrally with a Substructure unit (e.g., backwalls of abutments). When Substructure and Superstructure elements are built integrally, the division between Substructure and Superstructure is considered to be at the bottom soffit of the longitudinal or transverse beam, whichever is lower. Culverts and rigid frames are considered to be entirely Substructure.

Superstructure - Those parts of a Structure above the Substructure, including bearing devices.

Supplemental Drawings - The Agency-prepared detailed drawings for Work or methods of construction that are Project specific, and are denoted by title in the Project title block.

Supplier - The Entity that furnishes goods to be incorporated into the Work.

Surety - The Entity that issues the bond.

Surfacing - The Course or Courses of material on the Traveled Way, auxiliary lanes, Shoulders, or parking areas for vehicle use.

Third Notification - Written acknowledgment by the Engineer, subject to Final Acceptance, that as of the date of the notification the Contractor has achieved Final Completion of the Project according to the Contract, including without limitation completion of all minor corrective work, Equipment and plant removal, site clean-up, and submittal of all certifications, bills, forms and documents required under the Contract.

Ton - One short ton of 2,000 pounds (Ton, ton, Tn, or T).

Topsoil - Soil ready for use in a planting bed.

Traffic Lane - That part of the Traveled Way marked for moving a single line of vehicles.

Traveled Way - That part of the Highway for moving vehicles, exclusive of berms and Shoulders.

Typical Section - That Cross Section established by the Plans which represents in general the lines to which the Contractor shall work in the performance of the Contract.

Unsuitable Material - Frozen material, or material that contains organic matter, muck, humus, peat, sticks, debris, chemicals, toxic matter, or other deleterious materials not normally suitable for use in earthwork.

Utility - A line, facility, or system for producing, transmitting, or distributing communications, power, electricity, heat, gas, oil, water, steam, waste, storm water not connected with highway drainage, or any other similar commodity which directly or indirectly serves the public. The term may also mean the utility company, district, or cooperative owning and operating such facilities, including any wholly-owned or controlled subsidiary.

Warranty Bond - The approved security furnished by the Contractor's, Subcontractor's, Manufacturer's, Installer's or Supplier's Surety as a guaranty of performance of their respective warranty obligations.

Wetlands - Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, vegetation typically adapted for life in saturated Soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Work - The furnishing of all Materials, Equipment, labor, and Incidentals necessary to successfully complete any individual Pay Item or the entire Contract, and the discharge of duties and obligations imposed by the Contract.

Work Change Directive – A written statement to Contractor issued on or after the Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Amount or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Amount or Contract Times.

Work Day - Every Calendar day excluding Saturdays, Sundays and legal holidays as listed in ORS187.010.

Worker - Any person performing work under the contract, including employees of the Contractor or subcontractor, and persons having full or partial ownership of the Contractor or subcontractor. (This definition is not intended to nor does it alter the definition or meaning of the term "worker" as used in any applicable laws or regulations, including but not limited to for purposes of paying prevailing wage rates.)

Working Drawings - Supplemental Plans, not furnished by the Agency, that the Contractor is required to submit to the Engineer. (see 00150.35)

Workplace Violence - Any act of physical, verbal or written aggression by an individual in or related to the work place and/or project sites. This includes, but is not limited to, verbal abuse, threats or intimidation and physical intimidation, assault or battery by a worker or former worker. Work place violence may also include destruction or abuse of property.

Section 00120 - Bidding Requirements and Procedures

00120.01 Receipt of Bids; Opening – See Special Provisions.

00120.02 Prequalification of Bidders – See Special Provisions.

00120.03 Request for Solicitation Documents – See Special Provisions.

00120.04 Pre-Bid Meeting – See Special Provisions.

00120.10 Bid Booklet - The Bid Booklet may include, but is not limited to:

- Call for Bids
- Bidder's Checklist
- Bid Section
- Appendix, which includes required time-sensitive forms, sample forms, and other informational pages

The Call for Bids and Bid Section may include, but is not limited to:

- Description and location of the proposed Project
- Time, date, and location for opening Bids
- Project completion time
- Class of Work
- Bid statement
- Certificate of non-collusion
- Certificate of Nondiscrimination
- Certificate of noninvolvement in any debarment or suspension (for Federal-Aid Projects)
- Certificate regarding lobbying activities (for Federal-Aid Projects)
- Certificate of residency (for State Projects)
- Certificate of compliance with Oregon tax laws
- Bid Schedule
- Identification of Bidder(s) and Sureties
- Bid signature page
- Bid Bond form
- First-tier Subcontractor Disclosure form

Other certificates or statements may be bound within the Bid Section. Plans, Specifications, and other documents referred to in the Bid Section will be considered part of the Bid.

00120.15 Examination of Work Site and Solicitation Documents; Consideration of Conditions to be Encountered - Before submitting a Bid, Bidders shall make a careful visual examination of the site of the proposed Work, the Bid Booklet, Plans, and Specifications. Bidders shall also review any subsurface investigation material referenced in 00120.25 that may be available and conduct additional investigation of any unusual condition apparent during the visual site examination. As soon as reasonably practicable after noting any such unusual condition, Bidder shall notify Agency, in writing, of any such unusual condition and the additional investigation undertaken by Bidder. Submission of a Bid will constitute confirmation that the Bidder has examined the Project Site and finds the Plans and Specifications to be sufficiently detailed and accurate to enable Bidder to properly perform the Work, and understands the conditions to be encountered in performing the Work and all requirements of the Contract.

The Bidder is responsible for loss or unanticipated costs suffered by the Bidder because of the Bidder's failure to fully examine the site and become fully informed about all conditions of the Work, or failure to request clarification of Plans and Specifications Bidder believes to be erroneous or incomplete.

Any clarification of Plans and Specifications needed by the Bidder shall be requested in writing by email through the Engineer. Unless the procurement period is shorter than one week, requests for changes or clarification shall be submitted at least seven days prior to the date of Bid Closing. The Agency will respond to each request at least 72 hours prior to the date of Bid Closing. If the Procurement period is less than seven days, requests shall be submitted within one day after the Procurement is issued and the Agency will issue its response to each such request at least 24 hours prior to Bid Closing. Failure to timely request clarification or changes shall be deemed acceptance of all of the terms and conditions of the Procurement. Oral explanations or interpretations given before receiving Bids for a Project will not be binding. To be binding, interpretation of the Plans and Specifications by the Agency must be made by written Addendum furnished to all Holders of Bidding Plans according to 00120.30. Notification of erroneous or incomplete Plans or Specifications shall also be submitted to the Engineer. Such notification shall also be made in sufficient time for the Agency to make any necessary modifications and issue Addenda to Bidders prior to Bid Closing.

00120.16 Material, Equipment, and Method Substitutions - When the Contract specifies certain Materials, Equipment, and/or methods, the Bidder shall include those Materials, Equipment, and/or methods in the Bid. Substitution after execution of Contract is specified in 00180.31(b), 00180.31(c), and 00180.31(d).

00120.17 Use of Agency-Owned Land for Staging or Storage Areas - The Contractor may use Agency-owned property for staging or storage areas, subject to the following limitations:

(a) Within Normal Right-of-Way Limits - If approved by the Engineer, the Contractor may use available property within the normal Right-of-Way limits for the purpose of constructing improvements under the Contract. Where the Agency owns, or has rights to, other adjacent properties in the Project area, "normal Right-of-Way" is limited to a line drawn across that property connecting the normal Right-of-Way limits on either side of the property.

(b) Outside Normal Right-of-Way Limits - The Contractor may not use Agency-owned property outside of normal Right-of-Way limits for the Project without the approval of the Engineer.

If a Bidder obtains approval before submitting a Bid, use of the property will be at no cost to the Contractor, or at a cost stated by the Engineer upon granting approval, as confirmed by Addendum.

If approval is not obtained before submitting a Bid, and the Contractor proposes to use Agency-owned property outside the normal Right-of-Way limits, then use of the property may be approved by the Engineer, but the Contractor will be assessed fair market value, as determined by the Engineer, for use of the property.

(c) Restrictions on Use - Contractors shall comply with all applicable laws, ordinances, and regulations pertaining to use of Agency-owned property, and shall:

- Not cause unreasonable impacts on traffic and other facility users.
- Clean up all hazardous materials deposited by, or resulting from, Contractor operations.
- Be responsible for all costs associated with use of the property.

00120.20 Interpretation of Quantities in Bid Schedule - Quantities appearing in the Bid Schedule are approximate and are provided only for comparison of Bids. The Agency does not warrant that the actual individual items, amount of Work, or quantities will correspond to those shown in the Bid Schedule. Payment to the Contractor will be made only for actual quantities of Work performed and accepted or Materials furnished and accepted, as required by the Contract. Quantities of Work to be performed and Materials to be furnished may each be increased, decreased, or omitted as provided in 00120.30 and 00140.30.

00120.25 Subsurface Investigations - If the Agency or its consultant has conducted subsurface or geologic investigations of the proposed Project Site or contiguous to the Project Site, the results of the investigations may be included in written reports. If reports have been prepared, such reports shall be included in the Solicitation Documents and shall be considered as part of the Contract Documents to the extent that the Contractor may rely upon the accuracy of the "technical data" contained in such reports. If the Agency has retained subsurface samples, they will also be available for inspection. Bidders and the Contractor may make arrangements for viewing the samples through the Engineer's office.

The availability of subsurface information from the Agency is solely for the convenience of the Bidder and shall not relieve the Bidder or the Contractor of any risk, duty to make examinations and investigations as required by 00120.15, or other responsibility under the Contract Documents. It is mutually agreed to by all parties that:

- The subsurface investigations made by the Agency are for the purpose of obtaining data for planning and design of the Project.
- The data for individual test boring logs apply only to that particular boring and is not intended to be conclusive as to the character of any material between or around test borings.
- If Bidders use this information in preparing a Bid, it is used at their own risk, and Bidders are responsible for all conclusions, deductions, and inferences drawn from this information.

- Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, consultants, or subcontractors with respect to any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

00120.30 Changes to Plans, Specifications, or Quantities before Opening of Bids - The Agency reserves the right to issue Addenda making changes or corrections to the Plans, Specifications, or quantities. Only holders of Solicitation Documents obtained from the Agency's office who have been identified by the Agency as Holders of Bidding Plans will be notified of these Addenda by mail, delivery service, electronic facsimile (FAX) or email sent to the Bidder's mail, street or email address or FAX number as it appears in the Agency's files.

The Agency may extend Bid closing if Agency determines prospective bidders need additional time to review and respond to addenda. Agency will not, except to the extent required by a countervailing public interest, issue Addenda less than 72 hours before Bid closing unless the Addendum also extends Bid closing.

The Agency will not be responsible for failure of Bidders to receive Addenda sent as described in the preceding paragraph. Bids shall incorporate all Addenda. Bids may be rejected if opened and found by the Agency to not be based on all Addenda issued before Bid Closing.

00120.40 Preparation of Bids:

(a) General:

(1) Bids - The Bidders shall not alter, in any manner, the documents within the Bid Section. Bidders shall complete the certifications and statements included in the Bid Section of the Bid Booklet according to the instructions. Signature of the Bidder's authorized representative thereon constitutes the Bidder's confirmation of an agreement to all certifications and statements contained in the Bid Booklet. Entries on the documents in the Bid Section shall be in black or blue ink or typed. Signatures and initials shall be in ink.

The Bidder shall properly complete and bind all the documents in the Bid Section, as specified in 00120.10, between the front and back covers of the Bid Booklet, except that the Bid Bond is not required if another permissible type of Bid guaranty is provided. (see 00120.40(d))

(b) Bid Schedule Entries:

(1) Bid Schedule Entries - Using figures, Bidders shall fill in all blank spaces in the Bid Schedule. For each item in the Bid Schedule, Bidders shall enter the unit price and the product of the unit price multiplied by the quantity given. The unit price shall be greater than zero, shall contain no more than two decimal places to the right of the decimal point, and shall be expressed in U.S. dollars and cents (for example, $150.25 or $0.37). Unit prices submitted which contain more than two decimal places, will be truncated by the Agency at the second decimal place to determine the product of the unit price and quantity. No rounding will be considered or paid. Bidders Bid shall also enter the total amount of the Bid obtained by adding amounts for all items in the paper Bid Schedule. Corrections or changes of item entries shall be in ink, with incorrect entry lined out and correct entry entered and initialed.

(c) Bidder's Address and Signature Pages - Bidders shall include in the Bid the address to which all communications concerning the Bid and Contract should be sent. The Bid must be signed by a duly authorized representative of the Bidder.

d) Bid Guaranty - All Bids shall be accompanied by a Bid guaranty in the amount of 5% of the total amount of the Bid.

(1) Bid Guaranty The Bid guaranty shall be either a Surety bond, irrevocable letter of credit issued by an insured institution as defined in ORS 706.008 or security in the form of a cashier's check or certified check made payable to the Agency. (see ORS 279C.365(4))

If a Surety bond is submitted, Bidders shall use the Agency's standard Bid Bond form included with the Bid Booklet. Bidders shall submit the bond with original signatures and the Surety's seal affixed. The Bid guaranty shall be submitted by mail, delivery service, or hand delivered to the offices and addresses, and at the times given in the Bid Booklet.

- Acceptable Surety companies are limited to those authorized to do business in the State of Oregon.

- Forfeiture of Bid guaranties is covered by 00130.60, and return of guaranties is covered by 00130.70.

(e) Disclosure of First-Tier Subcontractors - If a Bidder's Bid on a public improvement Project exceeds $100,000, the Bidder shall, within 2 working hours of the time Bids are due to be submitted, submit to the Agency, on a form provided by the Agency, a disclosure identifying any first-tier Subcontractors that will furnish labor or labor and Materials, and whose contract value is equal to or greater than:

- 5% of the total Project Bid, but at least $15,000; or
- $350,000, regardless of the percentage of the total Project Bid.

For each Subcontractor listed, Bidders shall state:

- The name of the Subcontractor;
- The dollar amount of the subcontract; and
- The category of Work that the Subcontractor would be performing.

If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering "NONE" or by filling in the appropriate check box. For each Subcontractor listed, Bidders shall provide all requested information. An incomplete form will be cause for rejection of the Bid.

The Subcontractor Disclosure Form may be submitted for a Bid either:

- By filling out the Subcontractor Disclosure Form included in the Bid Booklet and submitting it together with the Bid at the time and place designated for receipt of Bids;
- By removing it from the Bid Booklet, filling it out and submitting it separately to the Agency at the address given in the Bid Booklet; or

- The Subcontractor Disclosure Form shall be sealed in a separate envelope, addressed to Public Works Director, City of Warrenton, 225 S Main Ave, Warrenton, OR 97146, showing on the outside of the envelope the name of the Bidder and the Contract title preceded by the words "Subcontractor Disclosure Form". **Facsimile submissions of Subcontractor Disclosure Form will not be accepted.**

Subcontractor Disclosure Forms submitted by any method will be considered late if not received by the Agency within two 2 working hours of the time designated for receiving Bids.

THE AGENCY MUST REJECT A BID IF THE BIDDER FAILS TO SUBMIT THE DISCLOSURE FORM WITH THIS INFORMATION BY THE STATED DEADLINE (see OAR 137-049-0360).

00120.45 Submittal of Bids:

(a) **Bids** - Bids may be submitted by mail, parcel delivery service, or hand delivery to the Agency, and at the times given in the Bid Booklet. Bids may not be submitted by FAX or electronic means. Submit Bids in a sealed envelope addressed to Public Works Director, City of Warrenton, 225 S Main Ave, Warrenton, Oregon 97146. Date of opening and Project title must be plainly marked on the outside of the sealed envelope preceded by the words "Sealed Bid". If a delivery or courier service is used, the Bidder shall place the sealed envelope containing the paper Bid inside the delivery or courier service's envelope.

Bids submitted after the time set for receiving Bids will not be opened or considered. The Agency assumes no responsibility for the receipt and return of late Bids.

Preparation and submission of Bids is at the sole risk and expense of the Bidder and is not a cost of contract performance.

00120.60 Revision or Withdrawal of Bids:

(a) **Bids** - Information entered into the Bid Booklet by the Bidder may be changed after the Bid has been delivered to the Agency, provided that:

- Changes are prepared according to the instructions identified in the Bid Booklet; and
- Changes are received at the same offices, addresses, and times identified in the Bid Booklet for submitting Bids; and
- The changes are submitted in writing, signed by an individual authorized to sign the Bid.

A Bidder may withdraw its Bid after it has been delivered to the Agency, provided that:

- The written withdrawal request is submitted in person on the Bidder's letterhead; and
- The request is signed by an individual who is authorized to sign the Bid, and proof of authorization to sign the Bid accompanies the withdrawal request; and
- The request is received at the same offices, addresses, and prior to the time identified in the Bid Booklet for submitting Bids.

No Bid can be withdrawn after having been opened.

00120.65 Opening and Comparing Bids - Bids will be opened and the total price for each Bid will be read publicly at the time and place indicated in the Call for Bids. Bidders and other interested parties are invited to be present.

Bids for each Project will be compared on the basis of the total amount of each Bid. The total amount of the Bid will be the total sum computed from quantities listed in the Bid Schedule and unit prices entered by the Bidder.

In case of conflict between the unit price and the corresponding extended amount, the unit price shall govern, and the Agency may make arithmetic corrections on extension amounts.

00120.70 Rejection of Nonresponsive Bids - A Bid will be considered irregular and will be rejected if the irregularity is deemed by the Agency to render the Bid non-responsive. Examples of irregularities include without limitation:

- The Bid Section documents provided are not properly used or contain unauthorized alterations.
- The Bid is incomplete or incorrectly completed.
- The Bid contains improper additions, deletions, alternate Bids, or conditions.
- The Bid is submitted on documents not obtained directly from the Agency, or is submitted by a Bidder who has not been identified by the Agency as a Holder of Bidding Plans, as required by 00120.03.
- The Bid or Bid modifications are not signed by a person authorized to submit Bids or modify Bids, as required by 00120.40 and 00120.60.
- A member of a joint venture and the joint venture submit Bids for the same Project. Both Bids may be rejected.
- The Bid has entries not typed or in ink, or has signatures or initials not in ink.
- Each change or correction is not individually initialed.
- White-out tape or white-out liquid is used to correct item entries.
- The price per unit cannot be determined.
- The Bid guaranty is insufficient or improper.
- The original Bid Bond form is not used or is altered.
- The Oregon Construction Contractors Board registration number and expiration date are not shown on the Bid if required in the Solicitation Document. This requirement applies to Agency and State-funded Projects, with the exception of Aggregate production and landscape Projects. (not required on Federal-Aid Projects)
- A disclosure of qualified first-tier Subcontractors, if required under 00120.40(e), is not received within 2 working hours of the time Bids are due to be submitted, or the disclosure form is not complete.
- The Bidder has not complied with the DBE requirements of the solicitation.
- The Bid does not acknowledge all issued Addenda.
- The Bid contains entries that are not greater than zero.
- The Bid entries are not expressed in U.S. dollars and cents.

- The Agency determines that any Pay Item is significantly unbalanced to the potential detriment of the Agency.

In addition, the Agency may reject all Bids for good cause upon its finding that it is in the public interest to do so. The Agency may also waive minor informalities or irregularities.

00120.80 Reciprocal Preference for Oregon Resident Bidders - This Subsection applies only to Contracts for Projects financed without federal funds.

Bidders shall complete the certificate of residency provided by the Agency in the Bid Booklet. Failure to properly complete the form will be cause to reject the Bid.

As used in the certificate of residency and this Subsection, "Resident Bidder" means a Bidder who has:

- Paid unemployment taxes or income taxes in the State of Oregon during any of the 12 calendar months immediately preceding submission of the Bid;
- A business address in the State of Oregon; and
- Certified in the Bid that the Bidder qualifies as a Resident Bidder.

"Nonresident Bidder" means a Bidder who is not a Resident Bidder as defined above.

In determining the lowest Bid, the Agency will, for the purpose of awarding the Contract, add a percentage increase to the Bid of a Nonresident Bidder equal to the percentage, if any, of the preference given to that Bidder in the state in which the Bidder resides (ORS 279A.120). The percentage preference applied in each state will be published on or before January 1 of each year by the Oregon Department of Administrative Services. The Agency may rely on these percentages without incurring liability to any Bidder (ORS 279A.120).

This increase will only be applied to determine the lowest Bid, and will not cause an increase in payment to the Contractor after Award of the Contract.

00120.90 Disqualification of Bidders - The Bid(s) of a disqualified Bidder will be rejected. Any of the following reasons is sufficient to disqualify a Bidder:

- More than one Bid is submitted for the same Work by an Entity under the same or different name(s).
- Evidence of collusion among Bidders. Participants in collusion will be found not responsible, and may be subject to criminal prosecution.
- Any of the grounds for disqualification cited in ORS 279C.440.

A Bidder will be disqualified if the Bidder has:

- Not been prequalified as required by 00120.02;
- Been declared ineligible by the Commissioner of the Bureau of Labor and Industries under ORS 279C.860;

- Not been registered (licensed) by the Oregon Construction Contractors Board (CCB) or been licensed by the State Landscape Contractors Board before submitting a Bid (ORS 279C.365(1)(k), ORS 701.021, ORS 701.026, and ORS 671.530). The Bidder's registration number and expiration date shall be shown in the Bid form, if requested. Failure to furnish the registration number, if requested, will render the Bid non-responsive and subject to rejection. (not required on Federal-Aid projects); or
- Been determined by the CCB under ORS 701.227 not to be qualified to hold or participate in a public contract for a public improvement.

00120.91 Rejection of Bid on Grounds of Nonresponsibility of Bidder - The Bid of a Bidder who is found to be nonresponsible according to the criteria listed in 00130.10 or ORS 279C.375(3) will be rejected.

Section 00130 - Award and Execution of Contract

00130.00 Consideration of Bids - After opening and reading Bids, the Agency will check them for correct extensions of unit prices and totals. (see 00120.65) The total of extensions, corrected where necessary, will be used by the Agency for Award purposes. Discrepencies between words and figures will be resolved in favor of words. In selecting the lowest responsive Bid, the Agency reserves the right to take into consideration any or all alternatives called for in the Bid Form.

The Agency reserves the right to waive minor informalities and irregularities, and to reject any or all Bids for irregularities under 00120.70 or for good cause after finding that it is in the public interest to do so (ORS 279C.395). An example of good cause for rejection in the public interest is the Agency's determination that any of the unit Bid prices are materially unbalanced to the Agency's potential detriment. A materially unbalanced Bid is defined as, “a Bid which generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced Bid will result in the lowest ultimate cost to the Agency.

The Agency may correct obvious errors, when the correct information can be determined from the face of the document, if it finds that the best interest of the Agency and the public will be served thereby.

Bids will be considered and a Contract awarded, if at all, within 30 Calendar Days from the date of Bid Opening, unless an extension beyond that time is agreed to by both parties and acknowledged in writing by the Bidder.

00130.10 Award of Contract - After the Bids are opened and a determination is made that a Contract is to be awarded, the Contract will be awarded to the lowest responsible Bidder. For the purposes of this Section, "lowest responsible Bidder" means the responsible Bidder that submitted the lowest responsive Bid who is not on the list created by the Construction Contractors Board according to ORS 701, and who has:

- Substantially complied with all prescribed public bidding procedures and requirements.
- Available the appropriate financial, Materials, Equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise, necessary to indicate the capability of the prospective Bidder to meet all contractual responsibilities.
- A satisfactory record of performance. In evaluating a Bidder's record of performance, the Agency may consider, among other things, whether the Bidder completed previous contracts of a similar nature with a satisfactory record of performance. For purposes of evaluating a Bidder's performance on previous contracts of a similar nature, a satisfactory record of performance means that to the extent that the costs associated with and time available to perform a previous contract remained within the Bidder's control, the Bidder stayed within the time and budget allotted for the procurement and otherwise performed the contract in a satisfactory manner.
- A satisfactory record of integrity. In evaluating a Bidder's record of integrity, the Agency may consider, among other things, whether the Bidder has previous criminal convictions for offenses related to obtaining or attempting to obtain a contract or subcontract or in connection with the Bidder's performance of a contract or subcontract.
- Qualified legally to contract with the Agency.
- Supplied all necessary information in connection with the Agency’s inquiry concerning responsibility. If a prospective Bidder fails to promptly supply information requested by the Agency concerning

responsibility, the Agency shall base the determination of responsibility upon any available information, or may find the prospective Bidder not to be responsible.

- Not been disqualified by the public contracting agency under ORS 279C.440.

If the Bidder is found not to have a satisfactory record of performance or integrity, the Agency will document the record and the reasons for the unsatisfactory finding.

The Agency will provide the Notice of Intent to Award to the Bidders, and may provide Notice of Intent to Award on the Agency's web site.

The Award will not be final until the later of the following:

- Seven calendar days after the Notice of Intent to Award has been issued; or
- The Agency has provided a written response to each timely protest, denying the protest and affirming the Award.

If the Agency accepts a Bid and awards a Contract, the Agency will send the successful Bidder written notice of acceptance and Award.

Notice of Award and Contract booklets ready for execution will be sent within 60 Calendar Days of the opening of Bids or within the number of Calendar Days specified in the Special Provisions or a written mutual agreement.

00130.15 Right to Protest Award - Adversely affected or aggrieved Bidders, limited to the three apparent lowest Bidders and any other Bidder directly in line for Contract Award, may submit to the Agency a written protest of the Agency's intent to Award within seven Calendar days following the date of the Notice of Intent to Award. The protest shall specify the grounds upon which it is based.

An aggrieved Bidder may protest an award only if the Bidder alleges, in its written protest, that it should have received the award because:

(a) All lower Bids are non-responsive;

(b) The Agency failed to conduct the Bid process as described in the Bid Document;

(c) The Agency has abused its discretion in rejecting the protestor's Bid as non-responsive or non-responsible; or

(d) The Agency's evaluation of Bids or subsequent determination of award is otherwise in violation of ORS Chapters 279A and 279C or the Agency's public contracting rules.

The written protest must describe the facts that support the protest. The Agency may not consider late protests or protests that do not describe facts that would support a finding that the Bidder is aggrieved for one of the reasons in clauses (a) through (d) above.

00130.20 Cancellation of Award - Without liability to the Agency, the Agency may for good cause cancel Award at any time before the Contract is executed by all parties to the Contract, as provided by ORS 279C.395 for rejection of Bids, upon finding it is in the public interest to do so.

00130.30 Contract Booklet - The Contract booklet may include but is not limited to:

- Special Provisions
- Addenda
- Schedule of Items
- Contract (Agreement)
- Performance Bond
- Payment Bond
- Certification of workers' compensation coverage

00130.40 Contract Submittals - Before the Agency will execute the Contract, the successful Bidder shall furnish the following:

(a) Performance and Payment Bonds - When Awarded the Contract, the successful Bidder shall furnish a Performance Bond and a Payment Bond of a Surety authorized to do business in the State of Oregon.

The successful Bidder shall submit the standard bond forms, which are bound in the Contract booklet. Faxed or photocopied bond forms will not be accepted. The amount of each bond shall be equal to the Contract Amount. The Performance Bond and the Payment Bond must be signed by the Surety's authorized Attorney-in-Fact, and the Surety's seal must be affixed to each bond. A power of attorney for the Attorney-in-Fact shall be attached to the bonds in the Contract booklet, which must include bond numbers, and the Surety's original seal must be affixed to the power of attorney. Bonds shall not be canceled without the Agency's consent, nor will the Agency normally release them, prior to Contract completion. The amount of the Performance and Payment Bonds shall be increased to equal the new Contract Amount whenever the Contract Amount is increased for any reason.

(b) Certificates of Insurance - The successful Bidder shall furnish the Agency certificates of insurance applicable to the Project, according to 00170.70. The insurance coverages shall remain in force throughout the performance of the Contract and shall not be allowed to lapse without prior written approval of the Agency. Bidders shall refer to 00170.70 for minimum coverage limits and other requirements.

For specified Contracts, certified copies, and in some instances the original, of insurance policies may be required by the Special Provisions.

(c) Workers' Compensation - To certify compliance with the workers' compensation insurance coverage required by 00170.61(a) and 00170.70(d), the successful Bidder shall complete and sign the "Certification of Workers' Compensation Coverage" form bound in the Contract booklet.

(d) Registration Requirements:

(1) ORS 701.021, ORS 701.026, and ORS 671.530 require that Bidders be registered with the Oregon Construction Contractors Board or licensed by the State Landscape Contractors Board prior to submission of a Bid on a Project not involving federal funds. Registration with the Construction Contractors Board or licensing by the State Landscape Contractors Board is not a prerequisite to bidding on Federal-Aid Projects; however, the Agency will not execute a Contract until the Contractor is so registered or licensed.

(2) Bidders must be registered with the Corporation Division, Oregon Secretary of State, if bidding as a corporation, limited liability company, joint venture, or limited liability partnership, or if operating under an assumed business name and the legal name of each person carrying on the business is not included in the business name.

(3) A Contractor registered under ORS 701 may bid on a landscaping Project or perform a construction project that includes landscape contracting as a portion of the project if the landscape contracting is subcontracted to a licensed landscaping business as defined in ORS 671.520.

(4) A landscaping business may bid on a Project or perform a Contract that includes the phase of landscape contracting for which it is not licensed if it employs a landscape contractor, or subcontracts with another licensed landscaping business, licensed for that phase.

(e) Tax Identification Number - The successful Bidder shall furnish the Agency the Bidder's Federal Tax Identification Number.

00130.50 Execution of Contract and Bonds:

(a) By the Bidder - The successful Bidder shall deliver the required number of Contract booklets with the properly executed Contract, Performance Bond, Payment Bond, certification of workers' compensation coverage, and the required certificates of insurance, to the Agency within 14 Calendar Days after the date on which the Contract booklets are sent or otherwise conveyed to the Bidder under 00130.10. The Bidder shall return the originals of all documents received from the Agency and named in this Subsection, with original signatures. Certificates of insurance shall also be originals. Certificates of insurance for coverages that are permitted by the Agency under 00170.70(a) to be obtained by appropriate subcontractors shall be delivered by the Contractor to the Agency together with the Contractor's request under 00180.21 for approval of the subcontract with that subcontractor. No copies of these documents will be accepted by the Agency.

Proper execution requires that:

- If the Contractor is a partnership, limited liability partnership, joint venture, or limited liability company, an authorized representative of each Entity comprising it shall sign the Contract, Performance Bond, and Payment Bond, and an authorization to sign shall be attached.
- If the Contractor is a corporation, the President and the Secretary of that corporation shall sign the Contract, Performance Bond, and Payment Bond. However, if other corporate officers are authorized to execute contracts and bonds, the successful Bidder shall furnish with those documents a certified, true and correct copy of the corporate bylaws or minutes stating that authority. If only one officer is signing, then the bylaws or minutes must include the authority to

sign without the signature of others. The successful Bidder shall also include the title(s) or corporate office(s) held by the signer(s).

(b) By the Agency - Within 10 Working Days after the Agency has received and verified the properly executed documents specified in 00130.50(a), and received legal sufficiency approval from the Agency's attorney (if required), the Agency will execute the Contract. The Agency will then send a fully-executed original Contract booklet to the successful Bidder, who then officially becomes the Contractor.

00130.60 Failure to Execute Contract and Bonds - Failure of the successful Bidder to execute the Contract and provide the required certificates, certifications, and bonds may be cause for cancellation of the Award, and may be cause for forfeiture of the Bid guaranty under ORS 279C.385.

Award may then be made to the next lowest responsible Bidder, the Project may be re-advertised, or the Work may be performed otherwise as the Agency decides.

The forfeited Bid guaranty will become the Agency's property, not as a penalty but as liquidation of damages resulting from the Bidder's failure to execute the Contract and provide the certificates, certifications, and bonds as required by these Specifications.

00130.70 Release of Bid Guaranties - Bid guaranties will be released and checks returned 7 Calendar Days after Bids are opened, except for those of the three apparent lowest Bidders on each Project. The guaranties of the three apparent lowest Bidders will be released and checks returned to unsuccessful Bidders within 7 days of the Agency's execution of the Contract.

00130.75 City's Business License – Successful Bidder shall have current business license with the City of Warrenton prior to entering into an agreement. Before permitting a subcontractor to begin work, Contractor shall verify that subcontractor has a current City of Warrenton business license.

00130.80 Project Site Restriction - Until the Agency sends the Contractor written Notice to Proceed with the Work, and the Contractor has filed the public works bonds required in 00170.20, the Contractor shall not go onto the Project Site on which the Work is to be done, nor move Materials, Equipment, or workers onto that Project Site.

The Contractor will not automatically be entitled to extra compensation because the commencement of Work is delayed by failure of the Agency to send the Contract for execution. However, if more than 60 Calendar Days elapse between the date the Bid is opened and the date the Agency sends the Contract to be executed, the Agency will consider granting an adjustment of time for completion of the Work to offset any actual delay to Contract completion resulting directly from delay in commencement.

00130.90 Notice to Proceed - Notice to Proceed will be issued within 5 Calendar Days after the Contract is executed by the Agency.

Should the Agency fail to issue the Notice to Proceed within 5 Calendar Days of Contract execution, the Contractor may apply for an adjustment of Contract Time according to 00180.80(c).

Section 00140 - Scope of Work

00140.00 Purpose of Contract - The purpose of the Contract is to set forth the rights and obligations of the parties and the terms and conditions governing completion of the Work. The Contractor's obligations shall include without limitation the following:

- The Contractor shall furnish all Materials, Equipment, labor, transportation, and Incidentals required to complete the Work according to Plans, Specifications, and terms of the Contract.
- The Contractor shall perform the Work according to the lines, grades, Typical Sections, dimensions, and other details shown on the Plans, as modified by written order, or as directed by the Engineer.
- The Contractor shall perform all Work determined by the Engineer to be necessary to complete the Project.
- The Contractor shall contact the Engineer for any necessary clarification or interpretation of the Contract.

00140.10 Typical Sections - The Typical Sections are intended to apply in general. At other locations where the Typical Section is not appropriate, the Contractor shall perform construction to the identified alignment as directed by the Engineer.

00140.20 Thickness - The thickness of Courses of Materials shown on the Plans, given in the Specifications, or established by the Engineer is considered to be the compacted thickness. Minor variations are acceptable when within tolerances specified in the Specifications or Plans, or when approved by the Engineer.

00140.30 Agency-Required Changes in the Work - Changes to the Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of Project construction.

Without impairing the Contract, the Agency reserves the right to require changes it deems necessary or desirable within the scope, which in the Specifications means general scope, of the Project. These changes may modify, without limitation:

- Specifications and design
- Grade and alignment
- Cross Sections and thicknesses of Courses of Materials
- Method or manner of performance of Work
- Project Limits

or may result in:

- Increases and decreases in quantities
- Additional Work
- Elimination of any Contract item of Work
- Acceleration or delay in performance of Work

Upon receipt of a Change Order, the Contractor shall perform the Work as modified by the Change Order. If the Change Order increases the Contract Amount, the Contractor shall notify its Surety of the increase and direct the Surety to increase the amount of the performance and payment bonds to equal the new Contract Amount. The Contractor's performance of Work according to Change Orders shall neither invalidate the Contract nor release the Surety. Payment for changes in the Work will be made according to 00195.20. Contract Time adjustments, if any, will be made according to 00180.80. A Change Order signed by the Contractor is the agreement that the adjustment in the Contract Amount or Contract Time indicated is full compensation for all change order items including the impact of the change order on the balance of the Work to be accomplished.

00140.40 Differing Site Conditions - The following constitute differing Project Site conditions provided such conditions are discovered at the Project Site after commencement of the Work:

- Type 1 - Subsurface or latent physical conditions that could not have been discovered by careful examination of the Project Site, utilities and available records as described in 00120.15 and differ materially from those indicated in the Contract Documents; or
- Type 2 - Unknown physical conditions of unusual nature that differ materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract.

The party discovering such a condition shall promptly notify the other party, in writing, of the specific differing conditions before they are disturbed and before the affected Work is performed. The Contractor shall not continue Work in the affected area until the Engineer has inspected such condition according to 00195.30 to determine whether an adjustment to Contract Amount or Contract Time is required.

Payment adjustments due to differing Project Site conditions, if any, will be made according to 00195.30. Contract Time adjustments, if any, will be made according to 00180.80.

00140.50 Environmental Pollution Changes - ORS 279C.525 will apply to any increases in the scope of the Work required as a result of environmental or natural resources laws enacted or amended after the submission of Bids for the Contract. The Contractor shall comply with the applicable notice and other requirements of ORS 279C.525. The applicable rights and remedies of that statute will also apply.

In addition to ORS 279C.525, the Agency has compiled a list at 00170.01 of those federal, State, and local agencies, of which the Agency has knowledge, that have enacted ordinances, rules, or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that may affect the performance of Agency contracts.

00140.60 Extra Work - If directed by the Engineer's written order, the Contractor shall perform work not included in the Contract. The Contractor shall perform this work according to:

- Standard Specifications
- Standard Drawings
- Other Plans and Specifications issued by the Engineer

Payment for Extra Work will be made according to Section 00196. Contract Time adjustments, if any, will be made according to 00180.80.

00140.65 Disputed Work - The Contractor may dispute any part of a Change Order, written order, or an oral order from the Engineer by the procedures specified in Section 00199.

00140.70 Cost Reduction Proposals - The Contractor may submit written proposals to the Engineer that modify Plans, Specifications, or other Contract Documents for the sole purpose of reducing the total cost of construction. Unless otherwise agreed to in writing by the Agency, a proposal that is solely or primarily a proposal to reduce estimated quantities or delete Work, as determined by the Engineer, is not eligible for consideration as a cost reduction proposal and will instead be addressed under 00140.30, whether proposed or suggested by the Agency or the Contractor.

(a) Proposal Requirements - The Agency will not adopt a cost reduction proposal that impairs essential functions or characteristics of the Project including but not limited to service life, economy of operation, ease of maintenance, designed appearance, or design and safety standards.

To conserve time and funds, the Contractor may first submit a written request for a feasibility review by the Engineer. The request should contain a description of the proposal together with a rough estimate of anticipated dollar and time savings. The Engineer will, within a reasonable time, advise the Contractor in writing whether or not the proposal would be considered by the Agency, should the Contractor elect to submit a detailed cost reduction proposal.

A detailed cost reduction proposal shall include without limitation the following information:

- A description of existing Contract requirements for performing the Work and the proposed change;
- The Contract items of Work affected by the proposed change, including any quantity variation caused by the proposed change;
- Pay Items affected by the proposed change including any quantity variations;
- A detailed cost estimate for performing the Work under the existing Contract and under the proposed change. Cost estimates shall be made according to Section 00197. Costs of re-design, which are incurred after the Agency has accepted the proposal, will be included in the cost of proposed work; and
- A date by which the Engineer must accept the proposal in order to accept the proposed change without impacting the Contract Time or cost reduction amount.

(b) Continuing to Perform Work - The Contractor shall continue to perform the Work according to Contract requirements until the Engineer issues a Change Order incorporating the cost reduction proposal. If the Engineer fails to issue a Change Order by the date specified in the proposal, the proposal shall be deemed rejected.

(c) Consideration of Proposal - The Engineer is not obligated to consider any cost reduction proposal. The Agency will not be liable to the Contractor for failure to accept or act upon any cost reduction proposal submitted.

The Engineer will determine in its sole discretion whether to accept a cost reduction proposal as well as the estimated net savings in construction costs from the adoption of all or any part of the proposal. In determining the estimated net savings, the Engineer may disregard the Schedule of Items. The Engineer

will establish prices that represent a fair measure of the value of Work to be performed or to be deleted as a result of the cost reduction proposal.

(d) Sharing Investigation Costs - As a condition for considering a Contractor's cost reduction proposal, the Agency reserves the right to require the Contractor to share in the Agency's costs of investigating the proposal. If the Agency exercises this right, the Contractor shall provide written acceptance of the condition to the Engineer. Such acceptance will authorize the Agency to deduct its share of investigation costs from payments due or that may become due to the Contractor under the Contract.

(e) Acceptance of Proposal Requirements - If the Contractor's cost reduction proposal is accepted in whole or in part, acceptance will be made by a Change Order that will include without limitation the following:

- Statement that the Change Order is made according to 00140.70;
- Revised Contract Documents that reflect all modifications necessary to implement the approved cost reduction measures;
- Any conditions upon which the Agency's approval is subject;
- Estimated net savings in construction costs attributable to the approved cost reduction measures; and
- A payment provision according to which the Contractor will be paid 50% of the estimated net savings amount as full and adequate consideration for performance of the Work of the Change Order.

The Contractor's cost of preparing the cost reduction proposal and the Agency's costs of investigating the proposal, including any portion paid by the Contractor, will be excluded from determination of the estimated net savings in construction costs. Costs of re-design, which are incurred after the Agency has accepted the proposal, will be included in the cost of the Work attributable to cost reduction measures.

If the Agency accepts the cost reduction proposal, the Change Order that authorizes the cost reduction measures will also address any Contract Time adjustment.

(f) Right to General Use - Once submitted, the cost reduction proposal becomes the property of the Agency. The Agency reserves the right to adopt the cost reduction proposal for general use without additional compensation to the Contractor when it determines that a proposal is suitable for application to other contracts.

00140.80 Use of Publicly Owned Equipment - The Contractor is prohibited from using publicly-owned Equipment except in the case of emergency. In an emergency, the Contractor may rent publicly-owned Equipment provided that:

- The Engineer provides written approval that states that such rental is in the public interest; and
- Rental does not increase the Project cost.

00140.90 Final Trimming and Cleanup - Before Final Inspection as described in 00150.90, the Contractor shall neatly trim and finish the Project and remove all remaining unincorporated Materials and debris. Final trimming and cleanup shall include without limitation the following:

- The Contractor shall retrim and reshape earthwork, and shall repair deteriorated portions of the Project Site.
- Where the Work has impacted existing facilities or devices, the Contractor shall restore or replace those facilities to their pre-existing condition.
- The Contractor shall clean all drainage facilities and sanitary sewers of excess Materials or debris resulting from the Work.
- The Contractor shall clean up and leave in a neat, orderly condition, Rights-of-Way, Materials sites, and other property occupied in connection with performance of the Work.
- The Contractor shall remove temporary buildings, construction plants, forms, falsework and scaffolding, surplus and discarded Materials, and rubbish.
- The Contractor shall dispose of Materials and debris including without limitation forms, falsework, scaffolding, and rubbish resulting from clearing, grubbing, trimming, clean-up, removal, and other Work. These Materials and debris become the property of the Contractor. The Contractor shall dispose of these Materials and debris immediately.
- The Contractor shall restore and replant or resurface adjoining properties to match existing grades and existing surfaces.
- The Contractor shall install erosion and sediment control needed to stabilize the Project Site.

Unless the Contract specifically provides for payment for this item, the Agency will make no separate or additional payment for final trimming and cleanup.

00140.95 "AS-BUILT" Records – The Contractor shall maintain a current and accurate record of Work completed during the course of this Contract and submit to the Engineer updated copies of the project "As-Builts" on a weekly basis. These "As-Builts" drawings shall be kept by accurately marking a designated set of the Contract plans with the specified information as Work proceeds. Accurate, complete and current "As-Built" drawings are a specified requirement for full or partial payment of the Work completed. "As-Builts" shall be reviewed for completeness before recommendation of payment is granted. Incomplete or insufficient "As-Builts" will be returned to the Contractor and recommendation for progress payment denied. At project completion and as a condition of final payment, the Contractor shall deliver an acceptable complete and legible set of "As-Built" drawings to the Engineer.

The "As-Built" drawings shall show the information listed below. Where the term "locate" or "location" is used, it shall mean record of position with respect to both the construction vertical datum and either construction horizontal datum or a nearby permanent improvement.

- Record location of underground services and utilities as installed
- Record location of existing underground utilities and services that are to remain and that are encountered during the course of the Work
- Record changes in dimension, location, grade or detail to that shown on plans
- Record changes made by change order
- Record details not in original plans
- Provide fully completed shop drawings reflecting all revisions

Upon completion of the construction, the Contractor shall review and certify the construction set of “As-Built” drawings for completeness and accuracy of representation of any changes. Final payment will not be processed until “As-Built” drawings have been submitted and approved.

Section 00150 - Control of Work

00150.00 Authority of the Engineer - The Engineer has full authority over the Work and its suspension. (see Section 00180) The Contractor shall perform all Work to the complete satisfaction of the Engineer. The Engineer's determination shall be final on all matters, including but not limited to the following:

- Quality and acceptability of Materials and workmanship
- Measurement of unit price Work
- Timely and proper prosecution of the Work
- Interpretation of Contract Documents
- Payments due under the Contract

The Engineer's decision is final and, except as provided in 00180.80 for adjustments of Contract Time and Section 00199 for claims for additional compensation, may be challenged only through litigation.

Work performed under the Contract will not be considered complete until it has passed Final Inspection by the Engineer and has been accepted by the Agency.

Interim approvals issued by the Engineer, including but not limited to Third Notification, will not discharge the Contractor from responsibility for errors in prosecution of the Work, for improper fabrication, for failure to comply with Contract requirements, or for other deficiencies, the nature of which are within the Contractor's control.

00150.01 Project Manager's Authority and Duties - The Engineer may designate a Project Manager as its representative on the Project with authority to enforce the provisions of the Contract.

When the Engineer has designated a Project Manager, the Contractor should direct all requests for clarification or interpretation of the Contract, in writing, to the Project Manager. The Project Manager will respond within a reasonable time. Contract clarification or interpretation obtained from persons other than the Project Manager will not be binding on the Agency.

The Project Manager shall have the authority to appoint Inspectors and other personnel as required to assist in the administration of the Contract.

00150.02 Inspector's Authority and Duties - To the extent delegated under 00150.01, Inspectors are authorized to represent the Engineer and Project Manager to perform the following:

- Inspect Work performed and Materials furnished, including without limitation, the preparation, fabrication, or manufacture of Materials to be used;
- Orally reject defective Materials and to confirm such rejection in writing;
- By oral order, temporarily suspend the Work for improper prosecution pending the Engineer's decision; and
- Exercise additional delegated authority.

Inspectors are not authorized to:

- Accept Work or Materials.
- Alter or waive provisions of the Contract.
- Give instructions or advice inconsistent with the Contract Documents.

00150.10 Coordination of Contract Documents - The Contract Documents, including but not limited to Contract Change Orders, the Special Provisions, the Plans, and the Standard Specifications are intended to collectively describe all of the items of Work necessary to complete the Project. The Contract Documents are complementary; what is required by one is as binding as if required by all.

(a) Order of Precedence - The Engineer will resolve any discrepancies between these documents in the following order of precedence:

1. Permits from outside agencies;
2. Contract (Agreement)
3. Addenda;
4. Bid Schedule;
5. Special Provisions;
6. General Conditions;
7. Standard Specifications;
8. Geotechnical Data Reports;
9. Agency-prepared drawings specifically applicable to the Project and bearing the Project title;
10. Standard Drawings;
11. Reviewed and accepted, stamped Working Drawings;
12. Approved Unstamped Working Drawings.

Change Orders, Work Change Directives, Field Orders, and Engineer's written interpretation and clarifications, in precedence listed, will take precedence over all other Contract Document components referenced herein.

Notes on a drawing shall take precedence over drawing details. Dimensions shown on the drawings, or that can be computed, shall take precedence over scaled dimensions. The Drawings with the higher level of detail take precedence over less detailed Drawings.

(b) Immaterial Discrepancies - The Contract Documents specify details for the construction and completion of the Work. If Contract Documents describe portions of the Work in sufficient detail but are silent in some minor respect, the Contractor may proceed utilizing the current best industry practices.

(c) Material Discrepancies - If the Contractor identifies a discrepancy, error, or omission in the Contract Documents that cannot be resolved by the approach specified in (b) above, the Contractor shall immediately request clarification from the Engineer.

00150.15 Construction Stakes, Lines, and Grades:

(a) Agency Responsibilities - The Engineer will provide the location of the existing benchmarks and horizontal control locations used to design the project and prepare the Plans.

(b) Contractor Responsibilities - The Contractor shall:

- Accurately measure detailed dimensions, elevations, and slopes from the Engineer's benchmarks and horizontal control locations;
- Provide all labor, materials and equipment to properly stake out the project so that it can be constructed in accordance with the Contract Documents. Any changes made shall be recorded and the changed vertical and horizontal locations incorporated into the “as-built” drawings.
- Inform the Engineer of any property corners monuments and/or survey markers that are not shown on the Plans and are found during construction activities prior to disturbing the monuments. Allow the Agency 2 Work days for referencing all found markers before they are removed. Monuments that are noted on the Plans to be protected and are disturbed by the Contractor's activities shall be replaced by the Contractor’s surveyor at the Contractor's expense in accordance with ORS Chapter 209.

00150.20 Inspection:

(a) Inspection by the Engineer - The Engineer may test Materials furnished and inspect Work performed by the Contractor to ensure Contract compliance. The Contractor shall notify the Engineer 48 hours (two full Work Days) in advance for inspection of each portion of the Work.

Contractor shall not begin placing successive Courses or portions of Work until preceding Courses or portions of the Work have been inspected.

If the Contractor performs Work without the Engineer's inspection or uses Materials that the Engineer has not approved, the Engineer may order affected portions of the Work removed at the Contractor's expense.

At the Engineer's direction, any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore these portions of Work to the standard required by the Contract. If the Engineer rejects Work due to Materials or workmanship, or if the Contractor performed such Work without providing sufficient advance request for inspection to the Engineer, the Contractor shall bear all costs of uncovering and restoring the Work. If the Engineer accepts the uncovered Work, and the Contractor performed the Work only after providing the Engineer with sufficient advance notice, the costs of uncovering and restoring the Work will be paid for by the Agency according to 00195.20.

(b) Inspection Facilities - The Contractor shall furnish walkways, railings, ladders, shoring, tunnels, platforms, and other facilities necessary to permit the Engineer to have safe access to the Work to be inspected. The Contractor shall require producers and fabricators to provide safe inspection access as requested by the Engineer.

(c) Sampling - When directed by the Agency, the Contractor shall furnish the Engineer with samples of Materials that the Engineer will test. All of the Contractor's costs related to this required sampling are Incidental.

(d) Inspection by Third Parties - Where third parties have the right to inspect the Work, the Contractor shall coordinate with the Engineer and shall provide safe inspection access.

(e) Contractor's Duty to Make Corrections - The Contractor shall perform all Work according to the Contract Documents. The Contractor shall correct Work that does not comply with the Contract Documents at its own expense. Inspection of the Work by the Engineer does not relieve the Contractor of responsibility for improper prosecution of the Work.

00150.25 Acceptability of Materials and Work - The Contractor shall furnish Materials and shall perform Work in Close Conformance to the Contract Documents. If the Engineer determines that the Materials furnished or the Work performed are not in Close Conformance with the Contract Documents, the Engineer may:

- Reject the Materials or Work and order the Contractor, at the Contractor's expense, to remove, replace, or otherwise correct any non-conformity; or
- Accept the Materials or Work as suitable for the intended purpose, adjust the amount paid for applicable Pay Items to account for diminished cost to the Contractor or diminished value to the Agency, document the adjustment, and provide written documentation to the Contractor regarding the basis of the adjustment.

The Engineer's decisions concerning acceptability of Materials or Work will be final.

00150.30 Delivery of Notices - Written notices to the Contractor by the Engineer or the Agency will be delivered:

- In person;
- by electronically confirmed facsimile transmission;
- By U.S. Postal Service first class mail or priority mail (which at the sender's option may include certified or registered mail return receipt requested), to the current office address as shown in the records of the Agency; or
- By overnight delivery service of a private industry courier, to the current office address as shown in the records of the Agency.

Notices shall be considered as having been received by the Contractor:

- At the time of actual receipt when delivered in person or by facsimile transmission;

- At the time of actual receipt or 7 Calendar Days after the postmarked date when deposited for delivery by first class or priority mail, whichever is earlier; or
- At the time of actual receipt or 3 Calendar Days after deposit with a private industry courier for overnight delivery service, whichever is earlier.

Written notices to the Engineer or the Agency by the Contractor shall be delivered to the Agency address shown in the Special Provisions, unless a different address is agreed to by the Engineer, and shall be delivered:

- In person;
- By U.S. Postal Service first class mail or priority mail (which at the sender's option may include certified or registered mail return receipt requested); or
- By overnight delivery service of a private industry courier.

Notices will be considered as having been received by the Agency:

- At the time of actual receipt when delivered in person or by facsimile transmission;
- At the time of actual receipt or 7 Calendar Days after the postmarked date when deposited for delivery by first class or priority mail, whichever is earlier; or
- At the time of actual receipt or 3 Calendar Days after deposit with a private industry courier for overnight delivery service, whichever is earlier.

00150.35 Submittals:

(a) Description - Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous Workrelated submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the Contract Documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract Documents.

(b) Contractor's Responsibilities

(1) The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where his submittal may affect the work of another contractor or the Agency. The Contractor shall coordinate submittals among its subcontractors and suppliers including those submittals complying with unit responsibility requirements specified in applicable technical sections.

(2) The Contractor shall coordinate submittals with the Work so that Work will not be delayed. It shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with Work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor with the indication "No Exceptions Taken" or "Make Corrections Noted."

(3) The Contractor shall certify on each submittal document that it has reviewed the submittal, verified field conditions, and complied with the contract documents.

(4) The Contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer or with the Agency with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the Work.

(c) Shop Drawings and Product Submittals

(1) Wherever called for in the Contract Documents or where required by the Engineer, the Contractor shall furnish to the Engineer for review, five (5) copies plus one reproducible copy or electronic file, of each Shop Drawing or Product submittal. Shop Drawings may include detail design calculations, shop-prepared drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. If a list, graph, catalog sheet, data sheet, etc. includes more than one item, clearly mark which item is the subject of the submittal. Shop Drawings shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of Oregon, unless otherwise indicated. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of Oregon, unless otherwise indicated.

(2) Shop Drawing and Product submittals shall be accompanied by the Engineer's standard submittal transmittal form, a reproducible copy of which is available from the Engineer. A submittal without the form or where applicable items on the form are not completed will be returned for resubmittal.

(3) Organization

- A single submittal transmittal form shall be used for each technical specification section or item or class of material or equipment for which a submittal is required. A single submittal covering multiple sections will not be acceptable, unless the primary specification references other sections for components. Example: if a pump section references other sections for the motor, shop-applied protective coating, anchor bolts, local control panel, and variable frequency drive, a single submittal would be acceptable. A single submittal covering vertical turbine pumps and horizontal split case pumps would not be acceptable.

- On the transmittal form, index the components of the submittal and insert tabs in the submittal to match the components. Relate the submittal components to specification paragraph and subparagraph, Drawing number, detail number, schedule title, room number, or building name, as applicable.

- Unless indicated otherwise, terminology and equipment names and numbers used in submittals shall match those used in the Contract Documents.

(4) Format

- Minimum sheet size shall be 8.5 inches by 11 inches. Maximum sheet size shall be 22 inches by 34 inches. Every page in a submittal shall be numbered in sequence. Each copy of a submittal shall be collated and stapled or bound, as appropriate. The Engineer will not collate sheets or copies.

- Where product data from a manufacturer is submitted, clearly mark which model is proposed, with complete pertinent data capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Sufficient level of detail shall be presented for assessment of compliance with the Contract Documents.

- Each submittal shall be assigned a unique number. Submittals shall be numbered sequentially, and the submittal numbers shall be clearly noted on the transmittal. Original submittals shall be assigned a numeric submittal number (e.g., 25). If submittal “25” requires a resubmittal, the first resubmittal will bear the designation "25.A" and the second resubmittal will bear the designation "25.B" and so on.

- If there is a follow-up submittal related to a previously submitted class of material or type of equipment (e.g., follow-up submittal to submittal “25”), it shall be assigned the number “25.1”. If submittal “25.1” requires a resubmittal, the first resubmittal will bear the designation "25.1.A" and the second resubmittal will bear the designation "25.1.B" and so on.

(5) Disorganized submittals that do not meet the requirements of the Contract Documents will be returned without review.

(6) Except as may otherwise be indicated, the Engineer will return prints of each submittal to the Contractor with comments noted thereon, within 21 Days following receipt by the Engineer. It is considered reasonable that the Contractor will make a complete and acceptable submittal to the Engineer by the first resubmittal on an item. The Owner reserves the right to withhold monies due to the Contractor to cover additional costs of the Engineer's review beyond the first resubmittal. The Engineer's maximum review period for each submittal or resubmittal will be 21 Days.

(7) If a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN," formal revision and resubmission will not be required.

(8) If a submittal is returned marked "MAKE CORRECTIONS NOTED," Contractor shall make the corrections on the submittal, but formal revision and resubmission will not be required, except where specifically required by Engineer as indicated on the submittal review form.

(9) If a submittal is returned marked "AMEND-RESUBMIT," the Contractor shall revise it and shall resubmit the required number of copies to the Engineer for review. Resubmittal of portions of multi-page or multi-drawing submittals will not be allowed. For example, if a Shop Drawing submittal consisting of 10 drawings contains one drawing noted as "AMEND - RESUBMIT," the submittal as a whole is deemed "AMEND - RESUBMIT," and 10 drawings are required to be resubmitted.

(10) If a submittal is returned marked "REJECTED-RESUBMIT," it shall mean either that the proposed material or product does not satisfy the specification, the submittal is so incomplete that it cannot be reviewed, or is a substitution request not submitted in accordance with the General Conditions. In the first 2 cases, the Contractor shall prepare a new submittal and shall submit the required number of copies to the Engineer for review. In the latter case, the Contractor shall submit the substitution request according to the General Conditions.

(11) Resubmittal of rejected portions of a previous submittal will not be allowed. Every change from a submittal to a resubmittal or from a resubmittal to a subsequent resubmittal shall be identified and flagged on the resubmittal.

(12) Fabrication of an item may commence only after the Engineer has reviewed the pertinent submittals and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED". Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as changes to the Contract requirements.

(13) Submittals shall be carefully reviewed by an authorized representative of the Contractor prior to submission to the Engineer. Each submittal shall be dated and signed by the Contractor as being correct and in strict conformance with the Contract Documents. In the case of Shop Drawings, each sheet shall be so dated and signed. Any deviations from the Contract Documents shall be noted by the Contractor on the transmittal form and such deviation shall be subject to approval in writing by the Engineer and Agency. The Engineer will only review submittals that have been so verified by the Contractor. Non-verified submittals will be returned to the Contractor without action taken by the Engineer, and any delays caused thereby shall be the total responsibility of the Contractor.

(14) Corrections or comments made on the Contractor's Shop Drawings during review do not relieve the Contractor from compliance with Contract Drawings and Specifications. Review is for conformance to the design concept and general compliance with the Contract Documents only. The Contractor is responsible for confirming and correlating quantities and dimensions, fabrication processes and techniques, coordinating Work with the trades, and satisfactory and safe performance of the Work.

(d) Quality Control (QC) Submittals

(1) Quality control submittals are defined as those required by the Specifications to present documentary evidence to the Engineer that the Contractor has satisfied certain requirements of the Contract Documents.

(2) Unless otherwise indicated, QC submittals shall be submitted:

- Before delivery and unloading, for the following types of submittals:
  - Manufacturers' installation instructions
  - Manufacturers' and Installers' experience qualifications
  - Ready mix concrete delivery tickets
  - Design calculations
  - Affidavits and manufacturers' certification of compliance with indicated product requirements
  - Laboratory analysis results
  - Factory test reports

- For the following types of submittals, the manufacturer's field representative shall submit a draft certification prior to leaving the Project site and a final certification within 7 days of the event documented:
  - Manufacturers' field representative certification of proper installation

- Within 30 Days of the event documented for the following types of submittals:
  - Field measurement
  - Field test reports
  - Receipt of permit
  - Receipt of regulatory approval

(3) The Engineer will record the date that a QC submittal was received and review it for compliance with submittal requirements, but the review procedures above for Shop Drawings and samples will not apply.

(e) Deferred Submittals to Agency

(1) For the purposes of this section, Deferred Submittals are defined as those portions of the Project that are Contractor-designed and must be submitted to the Agency's building official for approval and to meet Building Permit plan review requirements.

(2) The Engineer will schedule a pre-submittal conference with the Contractor and Agency's building official to discuss proposed Deferred Submittal items, requirements, and review schedule.

(3) The Contractor shall list the Deferred Submittals on the title or cover sheet of the Drawings for submission to the Agency and shall state the design criteria/assumptions of the Deferred Submittal items on the plans. Deferred Submittals shall include details for connection of materials to the structure and calculations showing that the specified structural requirements are met.

(4) The Contractor shall submit Deferred Submittals to the Engineer for review for general conformance to the design of the structure. Neither the Agency nor the Engineer is responsible for coordination of Deferred Submittal components with Contract Documents. Review does not lessen nor shift burden or responsibility from Contractor or assigned subcontractor/supplier to the Agency or Engineer. The Engineer, upon confirming the Deferred Submittals are in general conformance with the design, shall forward the Deferred Submittals to the building official. Contractor is responsible, with no exceptions, to ensure that building official's Deferred Submittal review will not adversely affect Project's construction schedule. The Deferred Submittal items shall not be installed by the Contractor until the design and Deferred Submittals have been approved by the building official.

(f) Effect of Review of Contractor's Submittals

(1) Review of Contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or the Agency, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. An indication of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Agency or Engineer has no objection to the Contractor, upon its own responsibility, using the plan or method of Work proposed, or providing the materials or equipment proposed.

00150.37 Equipment Lists and Other Submittals - The Contractor shall submit Equipment lists, and other required submittals for approval by the Engineer. With each submittal, the Contractor shall clearly identify the applicable specification sub-section and the product make, model, size and proposed options.

00150.40 Cooperation and Superintendence by the Contractor:

The Contractor is responsible for full management of all aspects of the Work, including superintendence of all Work by Subcontractors, Suppliers, and other providers. The Contractor shall appoint a single Superintendent and may also appoint alternate Superintendents as necessary to control the Work. The form of appointment of the alternate shall state, in writing, the alternate's name, duration of appointment in the absence of the Superintendent, and scope of authority. The Contractor shall:

- Provide for the cooperation and superintendence on the Project by:
  - Furnishing the Engineer all data necessary to determine the actual cost of all or any part of the Work, added Work, or changed Work.

    - Allowing the Engineer reasonable access to the Contractor's books and records at all times. To the extent permitted by public records laws, the Engineer will make reasonable efforts to honor the Contractor's request for protection of confidential information.
    - Keeping one complete set of Contract Documents on the Project Site at all times, available for use by all the Contractor's own organization, and by the Engineer if necessary.
- Appoint a single Superintendent and any alternate Superintendent who shall meet the following qualifications:
    - Appointees shall be competent to manage all aspects of the Work.
    - Appointees shall be from the Contractor's own organization.
    - Appointees shall have performed similar duties on at least one previous project of the size, scope and complexity as the current Contract.
    - Appointees shall be experienced in the types of Work being performed.
    - Appointees shall be capable of reading and thoroughly understanding the Contract Documents.
- The appointed single Superintendent, or any alternate Superintendent shall:
    - Be present for all On-Site Work, regardless of the amount to be performed by the Contractor, Subcontractors, Suppliers, or other providers, unless the Engineer provides prior approval of the Superintendent's or alternate Superintendent's absence.
    - Be equipped with a two way radio or cell phone capable of communicating throughout the project during all the hours of Work on the Project Site and be available for communication with the Engineer.
    - Have full authority and responsibility to promptly execute orders or directions of the Engineer.
    - Have full authority and responsibility to promptly supply the Materials, Equipment, labor, and Incidentals required for performance of the Work.
    - Coordinate and control all Work performed under the Contract, including without limitation the Work performed by Subcontractors, Suppliers, and Owner Operators.
    - Diligently pursue progress of the Work according to the schedule requirements of Section 00180.
    - Cooperate in good faith with the Engineer, Inspectors, and other contractors in performance of the Work.
    - Provide all assistance reasonably required by the Engineer to obtain information regarding the nature, quantity, and quality of any part of the Work.
    - Provide access, facilities and assistance to the Engineer in establishing such lines, grades and points as the Engineer requires.
    - Carefully protect and preserve the Engineer's benchmarks and horizontal control locations.

Any Superintendent or alternate Superintendent who repeatedly fails to follow the Engineer's written or oral orders, directions, instructions, or determinations, shall be subject to removal from the project.

If the Contractor fails or neglects to provide a Superintendent, or an alternate Superintendent, and no prior approval has been granted, the Engineer has the authority to suspend the Work according to 00180.70. Any continued Work by the Contractor, Subcontractors, Suppliers, or other providers may be subject to rejection and removal. The Contractor's repeated failure or neglect to provide the superintendence required by these provisions constitutes a material breach of the Contract, and the Engineer may impose any remedies available under the Contract, including but not limited to Contract termination.

00150.50 Cooperation with Utilities:

(a) General - Unless otherwise specified in the Special Provisions or on the Plans, existing Utilities requiring adjustment may be adjusted by the Utility before, during, or after Project construction. "Adjustment of Utilities" shall mean the alteration, improvement, connection, disconnection, relocation, or removal of existing Utility lines, facilities, or systems in temporary or permanent manner.

(b) Contractor's Responsibilities - The Contractor shall:

- Follow applicable rules adopted by the Oregon Utility Notification Center;
- Contact Utility owners after the Contract is awarded to verify all Utilities' involvement on the Project Site;
- Coordinate Project construction with the Utilities' planned adjustments, take all precautions necessary to prevent disruption of Utility service, and perform its Work in the manner that results in the least inconvenience to the Utility owners;
- Include all Utility adjustment work, whether to be performed by the Contractor or the Utilities, on the Contractor's Project Work schedule submitted under 00180.41;
- Protect from damage or disturbance any Utility that remains within the area in which Work is being performed;
- Not disturb an existing Utility if it requires an unanticipated adjustment, but shall protect it from damage or disturbance and promptly notify the Engineer; and
- Report to the Engineer any Utility owner who fails to cooperate or fails to follow the planned Utility adjustment.

Subject to the Engineer's approval, the Contractor may propose adjustments to the Utilities by asking the Utility owners to move, remove, or alter their facilities in ways other than as shown on the Plans or in the Special Provisions. The Contractor shall conduct all negotiations, make all arrangements, and assume all costs that arise from such changes.

(c) Notification - If the Project is located within the area served by the Oregon Utility Notification Center, the Contractor shall notify owners of Utilities prior to the performance of Work in the vicinity of their facilities. The Utilities notification system telephone number is 1-800-332-2344.

The Contractor shall comply with the rules of the Oregon Utility Notification Center, OAR 952-001-0010 through OAR 952-001-0090, and ORS 757.993. The Contractor may contact the Oregon Utility Notification Center at 503-232-1987 about these rules.

00150.53 Utilities and Existing Improvements:

(a) General – Information shown on the plans as to the location of existing water courses and utilities has been compiled from available sources and may not be accurate. The Contractor shall determine the location and nature of affected water courses, utilities and underground improvements prior to commencing Work.

The Contractor shall provide for the flow of water courses and essential utilities that may be interrupted during the progress of the Work and shall restore such water courses or utilities after completion of the Work.

The plans will not normally show the new location of utilities that have been adjusted immediately prior to the project or will be adjusted as part of the project Work.

Except where the plans indicate, utilities have been field located during design or certain utility locations shall be exposed as part of the Work. The Contractor shall be responsible for exploratory excavations as it deems necessary to determine the exact locations and depths of utilities which may interfere with Work. All such exploratory excavations shall be performed as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's progress. When such exploratory excavations show the utility location as shown on the plans to be in error, the Contractor shall so notify the Engineer.

The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. Unless otherwise provided herein, all potholing and exploratory work shall be incidental to the Work and no separate payment shall be made therefore.

The Contractor shall coordinate project construction with the adjustment of utilities, take all necessary precautions to prevent disturbing the utilities, and perform work so that utility owners and users are caused a minimum of inconvenience.

The Contractor shall protect underground utilities and other improvements which may be impaired during construction operations, regardless of whether or the not the utilities are indicated on the plans. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

To ease or streamline the work, the Contractor may desire to adjust the utilities by asking the utility owners to move, remove, or alter their equipment in ways other than those shown on the plans or in the Contract Documents. The Contractor shall conduct the negotiations, make the arrangements, and pay all costs that arise from such changes.

(b) Utilities to be Moved – In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder shall be notified by the Contractor to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the utility company and the Engineer a sufficient time in advance for the necessary measures to be taken to prevent the interruption of service.

(c) Utilities to be Removed – Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the Contractor shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in manner satisfactory to the Engineer and the owner of the facility. In all cases of such temporary removal or relocation, restoration to the former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement

as nearly as possible to its former locations and to as good or better condition than found prior to removal.

(d) Underground Utilities and Improvements Indicated – Existing utility lines and underground improvements that are indicated or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines and underground improvements that are encountered during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the Contractor, unless otherwise repaired by the owner of damaged utility. If the owner of the damage facility performs its own repairs, the Contractor shall reimburse said owner for the costs of repair.

(e) Underground Utilities and Improvements Not Indicated – In the event that the Contractor damages existing utility lines or underground improvements that are not indicated in the plans or marked in the field, or are not indicated or marked with reasonable accuracy, or the locations of which are not made known to the Contractor prior to excavation, the Contractor shall immediately provide a verbal report of such damage to the Engineer, and provide a written report thereof promptly thereafter. The Contractor shall immediately notify the owner of the damaged utility. If directed by the Engineer, repairs shall be made by the Contractor under the provisions for changes and extra work contained in the General Conditions.

This subsection applies only to main line utilities. For service lines, see Subsection 00150.53(f).

For purposes of this section, "reasonable accuracy" is defined as within 4 feet horizontally from actual location. No representation shall be made concerning the accuracy of vertical elevations of existing utilities, even if indicated in the plans, and no additional payment will be made for damage to utilities encountered at depths differing from those indicated.

(f) Underground Services Indicated or Not – If service lines are encountered, whether shown, marked or not, the Contractor shall take precautions to carefully work around them and repair them if they are damaged by the Contractor, at no additional cost to the Agency.

(g) Approval of Repairs – All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other Work.

(h) Owner's Right of Access – The right reserved to the Owner and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-f-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.

00150.55 Cooperation with Other Contractors - The Agency reserves the right to perform other work on or near the Project Site, including without limitation any Materials site, with forces other than those of the Contractor.

If such work takes place on or near the Project Site, the Contractor shall have the following obligations:

- The Contractor shall coordinate Work with other contractors or forces.

- The Contractor shall cooperate in good faith with all other contractors or forces.

- The Contractor shall perform the Work specified in the Contract in a way that will minimize interference and delay for all forces involved.

- The Contractor shall place and dispose of the Materials being used so as not to interfere with the operations of other forces.

- The Contractor shall join the Work with that of other forces in a manner acceptable to the Engineer or the Agency, and shall perform it in the accepted sequence with the work of the other force.

The Engineer will resolve any disagreements under this Subsection that may arise among the Contractor and other work forces, or between the Contractor and the Agency. The Engineer's decision in these matters is final, as provided in 00150.00.

When the schedules for Work of the Contractor and the work of other forces overlap, each contractor involved shall submit a current, realistic progress schedule to the Engineer. Before the Engineer accepts the schedule, each party shall have the opportunity to review all schedules. After this review and any necessary consultations, the Engineer will determine acceptable schedules.

The Contractor waives any right it may have to make claims against the Agency for any damages or claims that may arise because of inconvenience, delay, or loss due solely to the presence of other contractors working on or near the Project Site.

If the Contract gives notice of work to be performed by other forces that may affect the Contractor's Work under the Contract, the Contractor shall include any costs associated with coordination of the Work in the appropriate Pay Item or as a portion of a Pay Item.

In an emergency, the contractor most immediately able to respond may repair a facility or Utility of another contractor in order to prevent further damage to the facility, Utility, or other Structure as a result of the emergency.

00150.60 Construction Equipment Restrictions:

(a) Load and Speed Restrictions for Construction Vehicles and Equipment - The Contractor shall comply with legal weight and speed restrictions when moving Materials or Equipment beyond the limits of the Project Site.

The Contractor shall control vehicle and Equipment loads and speeds within the Project Site according to the following restrictions, unless the Special Provisions provide otherwise:

- The Contractor shall restrict loads and speeds as necessary to avoid displacement or loss of Materials on Subgrades and Aggregate Bases.

- The Contractor shall restrict weights to legal loads, and shall travel at speeds of no more than 45 mph or the posted construction speed, whichever is less, on treated Bases, Pavement, or wearing Courses.
- The Contractor shall not cross Bridges or other Structures with Equipment or vehicles exceeding the legal load limit without prior written permission of the Engineer. The Contractor shall make any such request in writing, describing the loading details and the arrangement, movement, and position of the Equipment on the Structure. The Contractor shall comply with any restrictions or conditions included in the Engineer's written permission.

(b) Protection of Buried Items - The Contractor shall use temporary fill or other methods to avoid overload of pipes, box culverts, and other items that are covered, or to be covered, by fill or backfill.

(c) Responsibility for Damages - The Contractor shall assume responsibility for damages caused by excessive Equipment speed or loads while performing the Work, both inside and outside the Project Site. The Engineer's permission to cross Bridges and other Structures, according to 00150.60(a) will not relieve the Contractor from responsibility for load-caused damages.

00150.70 Detrimental Operations - The Contractor shall avoid operations whose methods, conditions, or timing may injure people or damage property or the Work. Damage may include without limitation, staining surfaces with mud or asphalt. (also see 00150.60, 00150.75, and Section 00170)

When any such damage occurs, the Engineer will determine if it is to be corrected by repair, replacement, or compensatory payment by the Contractor. If compensatory payment is required, the Engineer will determine the amount. Compensatory payment may be deducted from monies due or to become due to the Contractor under the Contract.

00150.75 Protection and Maintenance of Work During Construction - The Contractor shall protect and maintain the Work during construction and until Third Notification has been issued, unless otherwise provided in the Contract. For the purposes of this Subsection, "maintenance" shall include measures to prevent deterioration of Roadway and Structures at the Project Site, and to keep them in good condition at all times during the prosecution of the Work. The Contractor shall continuously allocate sufficient Equipment and workers to achieve such maintenance.

If the Contract requires the placement of a Course upon a previously constructed Course or Subgrade, the Contractor shall maintain the previous Course or Subgrade during all construction operations.

The Contractor shall include costs of protecting and maintaining the Work during construction in the unit prices bid for the various Pay Items. The Contractor will not be paid an additional amount for this Work, unless otherwise specified.

The Engineer will timely notify the Contractor of Contractor's noncompliance with this Subsection. If the Contractor fails to remedy unsatisfactory protection or maintenance within 24 hours after receipt of such

notice, the Engineer may proceed to remedy the deficiency, and deduct the entire cost from monies due or to become due the Contractor under the Contract.

00150.80 Removal of Unacceptable and Unauthorized Work - The Contractor shall correct or remove unacceptable Work and remove unauthorized work, as directed by the Engineer in writing. The Contractor shall replace such work with Work and Materials conforming to the requirements of the Contract.

For the purposes of this Subsection, "unauthorized work" shall include without limitation the following:

- Work that extends beyond lines shown on the Plans or otherwise established by the Engineer;
- Work that is contrary to the Engineer's instructions; and
- Work that is conducted without the Engineer's written authorization.

The Agency will not pay the Contractor for unacceptable Work or unauthorized work. The Engineer may issue a written order for the correction or removal of such work at the Contractor's expense.

If, when ordered by the Engineer, the Contractor fails to correct or remove unacceptable Work or unauthorized work, the Engineer may have the correction, or removal and replacement, done by others and deduct the entire cost from monies due or to become due the Contractor under the Contract.

00150.90 Final Inspection:

(a) On-site Construction Work - The Engineer will inspect the Project at a time close to the completion of On-Site Work for Contractor's compliance with the Contract Documents.

When all On-Site Work on the Project is completed, including but not limited to Change Order Work and Extra Work, the Engineer will issue Second Notification as specified in 00180.50(g).

Within 15 Calendar Days after the Engineer receives the Contractor's written notification that all punch list items, final trimming and cleanup according to 00140.90 have been completed, the Engineer will review the Project and notify the Contractor that all Work is complete, or will give the Contractor written instruction regarding incomplete or unsatisfactory Work.

(b) All Contract Work - The Engineer will issue the Third Notification when the Contractor has satisfactorily accomplished all of the following:

- The Contractor has completed all On-Site Work required under the Contract, including the punch list items from (a) above;
- The Contractor has removed all Equipment; and
- The Contractor has submitted all required certifications, bills, forms, warranties and other documents.
- The Contractor has submitted complete and acceptable "As-Built" drawings as specified in 00140.95.

00150.91 Post-Construction Review - The Contractor or the Engineer may request a Post-Construction Review meeting, to be held at a time prior to issuance of Third Notification but not earlier than 15 Days following the date of Second Notification. The meeting may be held if agreed to by both parties. The party making the request will conduct the meeting, and will announce the time and place of the meeting at least 15 Days prior to the meeting date. The purpose of this meeting is to examine the Project for possible process improvements that may benefit future projects.

00150.95 Final Acceptance - After the Engineer completes Final Inspection of all Correction Period work and deems it satisfactorily completed, the Agency will acknowledge Final Acceptance. The Agency will notify the Contractor in writing of the date of Final Acceptance within 7 Calendar Days after Final Acceptance, or as soon thereafter as is practicable.

00150.96 Maintenance Warranties and Guarantees - Prior to Third Notification, the Contractor shall transfer to the Agency all unexpired manufacturer's, installer's or supplier's warranties and guarantees for Materials and Equipment installed on the Project. Such warranties and guarantees shall recite that they are enforceable by the Agency.

00150.97 Responsibility for Materials and Workmanship:

(a) The Contractor shall perform the Work according to the terms, conditions, and requirements of the Contract.

(b) Whether before or after the Agency's acceptance of the Work, the Contractor shall be responsible for:

- Correcting or repairing any defects in, or damage to, the Work which results from the use of improper or defective materials or workmanship; or
- Replacing, in its entirety, the Work affected by the use of improper or defective materials or workmanship to the extent provided by law; and
- Correcting or repairing any Work, Materials, Structures, Existing Surfacings, Pavement, Utilities, or sites, including without limitation Wetlands, damaged or disturbed in that correction, repair, or replacement. (see 00170.80 to 00170.85)

Section 00160 - Source of Materials

00160.00 Definitions - The following definitions apply to Section 00160:

(a) Prospective Source - Agency-furnished Materials source, use of which by the Contractor is optional. The Agency makes no guarantee or representation, by implication or otherwise, of the land use status, quantity, quality, or acceptability of Materials available from it, except as may be stated in the Special Provisions.

(b) Mandatory Source - Agency-furnished Materials source, use of which by the Contractor is required.

00160.01 Notification of Source of Supply and Materials:

(a) All Materials - The Contractor shall notify the Engineer in writing of all proposed Materials sources of supply, including without limitation any steel or other fabricators within the following time frames:

- At least 15 Calendar Days before using or fabricating Materials, if source is within the State; or
- At least 45 Calendar Days before using or fabricating Materials, if source is outside the State

(b) Prospective Source Materials - When given an option to use Prospective Sources of Materials to be incorporated into the Work, the Contractor shall notify the Engineer in writing of the option selected within 15 Calendar Days from date of Notice to Proceed. Otherwise, such Materials sources may become unavailable.

(c) Approval Required - Before allowing production or delivery of Materials to begin from any source, the Contractor must obtain the Engineer's approval. Approval to use any source does not imply that Materials from that source will be accepted. If approved sources do not provide Materials that meet Specifications, the Materials will be rejected. The Contractor will then be responsible for locating other sources and obtaining the Engineer's approval.

00160.05 Qualified Products List (QPL) - The QPL is a listing of manufactured products available on the market (shelf items) that ODOT has evaluated and found suitable for a specified use in construction. The QPL is published twice a year and is available from ODOT's Construction Section; 800 Airport Road SE; Salem, OR 97301-4798; phone 503-986-3000. It may also be viewed on ODOT's web site.

The current version of the QPL at the time of Bid Closing is the version in effect for the Project. The Engineer may approve for use a conditionally qualified product, or a product qualified for inclusion in a later edition of the QPL, if the Engineer finds the product acceptable for use on the Project.

Use of listed products shall be restricted to the category of use for which they are listed. The Contractor shall install all products as recommended by the manufacturer. The Contractor shall replace qualified products not conforming to Specifications or not properly handled or installed at the Contractor's expense.

00160.10 Ordering, Producing, and Furnishing Materials - The Contractor shall not place orders for or produce full quantities of Materials anticipated to be required to complete the Work until the Work has advanced to a stage that allows the quantities to be determined with reasonable accuracy.

(a) Contractor's Duties - In purchasing, producing, or delivering Materials, the Contractor shall take into account the following:

- Kind of work involved;
- Amount of work involved;
- Time required to obtain Materials; and
- Other relevant factors.

(b) Quantity of Materials - Materials quantities shown on the Plans, or indicated by quantities and Pay Items, are subject to change or elimination. The Contractor is responsible for payment for excess Materials delivered to the Project Site or storage sites. Unless otherwise specified in the Contract, the Agency will not be responsible for:

- Materials the Contractor may deliver or produce in excess of Contract requirements;
- Extra expense the Contractor may incur because Materials were not ordered or produced earlier; or
- The Contractor's expenses related to Materials ordered by the Contractor that are not subsequently approved for use.

Excess Materials, ordered or produced by the Contractor, without approval of the Engineer, may be purchased by the Agency at the sole discretion of the Agency. (see 00195.80)

00160.20 Preferences for Materials:

(a) Buy America - If federal highway funds are involved on the Project, the Contractor shall limit the quantity of foreign Materials incorporated into the Work as follows. Section 635.410 of Title 23, Code of Federal Regulations, and the Intermodal Surface Transportation Efficiency Act require that all iron or steel manufacturing processes, including without limitation the casting of ingots, for iron or steel Materials permanently incorporated into the Project shall occur in the United States, unless the cost of foreign-origin iron or steel Materials does not exceed one-tenth of one percent (0.1%) of the Contract Amount or $2,500, whichever is greater. The Contractor shall not incorporate foreign-origin iron or steel Materials in excess of this amount into the Project. All foreign-origin iron or steel Materials incorporated in the Project in excess of the amount indicated above shall be removed and replaced with domestic iron or steel Materials at the Contractor's expense. For purposes of this Specification, the cost of foreign-origin iron or steel Materials shall be the value of the iron or steel products as of the date they are delivered to the Project Site.

Manufacturing processes include without limitation the application of coatings to finished iron or steel products or components. Coatings include epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the steel or iron product or component.

The Contractor shall provide the Engineer with a Certificate of Materials Origin, on a form furnished by the Engineer, before incorporating any iron or steel products into the Project. Unless a Certificate of Materials Origin has been provided to the Engineer, the Materials shall be considered of foreign origin.

The Contractor shall retain manufacturers' certificates verifying the origin of all domestic iron or steel Materials for 3 years after the date of final payment for the Project, and shall furnish copies to the Engineer upon request.

(b) Buy Oregon - According to ORS 279A.120, the Contractor shall give preference to goods or services produced in Oregon if price, fitness, availability, and quality are equal. This provision does not apply to Contracts financed wholly or in part by federal funds.

(c) Recycled Materials - According to ORS 279A.010, ORS 279A.125, ORS 279A.145, ORS 279A.150, and ORS 279A.155, and subject to the approval of the Engineer, the Contractor shall use recycled products to the maximum extent economically feasible.

00160.30 Agency-Furnished Materials - Unless otherwise specified in the Special Provisions, Materials listed as Agency-furnished will be available to the Contractor free of charge.

The Contractor shall be responsible for all Materials furnished by the Agency and shall pay all demurrage and storage charges. The Contractor shall replace at its expense Agency-furnished Materials lost or damaged due to any cause.

The locations at which Agency-furnished Materials are available will be specified in the Special Provisions. If the locations are not listed in the Special Provisions, the Agency-furnished Materials will be furnished to the Contractor at the Project Site. In either case, all costs of handling, hauling, unloading, and placing Agency-furnished Material shall be considered included in the price paid for the Pay Item involving such Material.

All Agency-furnished Materials not incorporated into the Work remains the property of the Agency. The Contractor shall deliver such Materials as directed by the Engineer.

00160.50 Agency-Controlled Land; Limitations and Requirements:

(a) General - The Contractor shall have no property rights in, or right of occupancy on, Agency-Controlled Land. Nor shall the Contractor have the right to sell, use, remove, or otherwise dispose of any material from Agency-Controlled Land, areas, or property, except as specified in the Special Provisions or by the written authorization of the Engineer.

Unless authorized in the Contract, the Contractor shall not disturb any material within Rights-of-Way without written authorization from the Engineer.

Unless otherwise specified in the Contract, the ownership of all materials originating on Agency-Controlled Lands will at all times vest in, and remain within the control of, the Agency.

(b) Waste, Excess, and By-Product Materials - All waste, excess, and by-product materials, collectively referred to in this Subsection as "By-Products", from the manufacture or production of Materials from Agency-Controlled Lands shall remain Agency property. Unless otherwise ordered by the Engineer in writing, By-Products shall be placed as required in the Special Provisions:

- In stockpiles at designated locations;
- At locations and in shapes that are readily accessible; and
- In such a manner as to avoid fouling areas containing useable materials, or interfering with future plant setups to use materials from the property.

The Agency will not compensate the Contractor for handling and stockpiling By-Products according to the Special Provisions requirements. If by written order the Engineer directs the Contractor to stockpile or place designated By-Products at alternate sites, the By-Products designated shall be loaded, hauled, and placed as directed, and this work will be paid for according to 00195.20.

00160.60 Contractor-Furnished Materials and Sources:

(a) General - The Contractor shall furnish, at its own expense, all products and Materials required for the Project from sources of its own choosing, unless such sources have been specified in the Special Provisions or Plans as Prospective or Mandatory Sources.

(b) Acquisition of Sources - The Contractor shall acquire, at its own expense, the rights of access to, and the use of, all sources the Contractor chooses which are not Agency-controlled and made available by the Agency to the Contractor.

(c) Additional Requirements - Except for continuously-operated commercial sources, Work shall not begin, nor will any Materials be accepted by the Engineer, until the Contractor has:

(1) Given to the Engineer a copy of permits from, or proof that permits are not required from:

- The Department of Geology and Mineral Industries, as required under ORS 517.790;
- The Department of State Lands, as required under ORS 196.815 (when removing material from the bed or banks of any waters or from any Wetland); and
- Local governmental authorities having jurisdiction over land use at the source location.

(2) Furnished to the Engineer written approval of the property owner, if other than the Contractor, for the Contractor's proposed plans of operation in, and reclamation of, the source. The Contractor shall include in the document containing the property owner's written approval a summary of the requirements of the permits described above, which shall be subject to the Engineer's approval.

00160.70 Requirements for Plant Operations - Before operating mixing plants, Rock crushers, or other Equipment, the Contractor shall provide the Engineer copies of all applicable discharge permits for noise, air contaminants, and water pollutants from DEQ or applicable local jurisdictions, or a letter from DEQ or the local jurisdiction stating that no permits are required for the use of the Equipment and sites.

00160.80 Requirements for Sources of Borrow and Aggregate - The Contractor shall conduct operations according to all applicable federal, State, and local laws (including without limitation ORS 517 and OAR 632-030) when developing, using, and reclaiming all sources of Borrow material and Aggregate. The Contractor shall provide erosion control at Borrow sources that are not within the Project Site. The Contractor shall not operate in Wetlands except as allowed by permit. The Contractor shall comply with all requirements for pollution and sediment control, including without limitation the National Pollutant Discharge Elimination System where applicable.

Except for continuously-operated commercial sources, the Contractor shall also conform to the following:

(a) If a natural growth of trees or shrubs is present, preserve a border of such to conceal land scars.

(b) Excavate Borrow sources and Aggregate sources, except for those in streams and rivers, to provide:

- Reasonably uniform depths and widths;
- Natural drainage so no water stands or collects in excavated areas, when practicable;
- Slopes trimmed to blend with the adjacent terrain upon completion of operations;
- Slopes covered with native soil, or acceptable plant rejects to support plant growth, if required by Specifications, Plans, or permits; and
- A vegetative cover that blends with the adjacent natural growth.

(c) Excavate in quarries so that:

- Faces will not be steeper than vertical (no overhang);
- Vertical faces conform to Oregon OSHA standards, Division 3, and as shown on an approved development plan;
- Floors or benches are excavated to a uniform Slope free of depressions and will drain and not interfere with the downland owner's property; and
- Upon completion, the quarry is left appearing neat and compatible with surrounding terrain.

(d) Obliterate haul roads specifically built for access to sources, and restore the areas disturbed by these roads as nearly as practicable to the conditions that existed before the roads were built, unless otherwise directed by the landowner or regulatory body.

Section 00165 - Quality of Materials

Description

00165.00 General - The Contractor shall incorporate into the Work only Materials conforming to the Specifications and approved by the Engineer. The Contractor shall incorporate into the Work only manufactured products made of new materials unless otherwise specified in the Contract. The Agency may require additional testing or retesting to determine whether the Materials or manufactured products meet Specifications.

Materials or manufactured products not meeting the Specifications at the time they are to be used are unacceptable and must be removed immediately from the Project Site, unless otherwise directed by the Engineer.

00165.01 Rejected Materials - The Engineer may reject any Materials that appear to be defective (00150.25) or that contain asbestos. The Contractor shall not incorporate any rejected Materials into the Work. Rejected Materials whose defects have been corrected may not be incorporated into the Work until the Engineer has approved their use. The Engineer may order the removal and replacement by the Contractor, at Contractor's expense, of any defective Materials. (refer also to 00150.20)

00165.02 Materials Conformance and Quality Compliance Documents - For purposes of this Section, "Materials Conformance Documents" means the Contractor's quality-control, the Agency's verification, and the independent assurance test results, and the identity of the testing facility, as specified in the ODOT Manual of Field Test Procedures (MFTP), unless otherwise specified in the Contract.

For purposes of this Section, "Quality Compliance Documents" means those documents specified in ODOT's Nonfield-Tested Materials Acceptance Guide, unless otherwise specified in the Contract.

00165.03 Testing by Agency - When testing Materials, the Agency will conduct the tests in its central laboratory, field laboratories, or other laboratories designated by the Engineer, even though certain AASHTO, ASTM, and other Materials specifications may require testing at the place of manufacture. Results of the Agency's tests will be made available to the Contractor.

00165.04 Costs of Testing - When the Contract requires that the Agency performs the testing, the testing will be at the Agency's expense. The Agency will pay the cost of Contractor-requested source-review tests on unprocessed Aggregates from no more than two sources for each Project, and on no more than three unprocessed samples from each source. Additional source-review tests performed at the Contractor's request shall be at the Contractor's expense.

Unless otherwise provided in the Contract, all testing required to be performed by the Contractor will be at the Contractor's expense.

Provisions and Requirements

00165.10 Materials Acceptance Guides - Unless otherwise specified elsewhere in the Contract, Materials will be accepted according to the following guides:

(a) Field-Tested Materials - Field-tested Materials will be accepted according to the ODOT Manual of Field Test Procedures (MFTP). The MFTP is published once per year and is available from the ODOT – Construction Section, 800 Airport Road SE; Salem, OR 97301-4798; phone 503-986-3000. The MFTP is also available on the ODOT Construction Section web site.

(b) Nonfield-Tested Materials - Nonfield-tested Materials will be accepted according to the ODOT Nonfield Tested Materials Acceptance Guide (NTMAG), unless otherwise specified in the Contract. The NTMAG is available on the ODOT Construction Section web site.

00165.20 Materials Specifications and Test Method References - References to Materials specifications and test methods of ODOT, WAQTC, AASHTO, ASTM, other governmental agencies, or other recognized organizations mean those officially adopted and in current use by the agency or organization on the date of Bid Opening.

If there are conflicting references, or if no reference is made to Materials specifications or test method, Materials must meet the Materials specifications or test methods required by the first applicable of the following agencies and organizations:

- Field-Tested Materials:
  - Special Provisions;
  - MFTP as modified by the Local Public Agency Quality Assurance Program; and
  - Standard Specifications.

- Nonfield Tested Materials:
  - ODOT;
  - WAQTC;
  - AASHTO;
  - ASTM;
  - Other recognized national organizations, such as ANSI, AWPA, IMSA, and UL; and
  - Industry standards in the location where the Work is being performed.

If there are conflicting references in the Contract or the Quality Assurance program, to required sampling and testing frequencies, the Contractor shall sample and test the Materials according to the first applicable of the following:

- Special Provisions;
- MFTP as modified by the Local Public Agency Quality Assurance Program; and
- Standard Specifications.

00165.30 Field-Tested Materials:

(a) Contractor's Duties - The Contractor shall:

- Furnish Materials of the quality specified in the Contract;
- Provide and administer a quality control program as described in the Quality Assurance Manual portion of the MFTP. Upon request, the Contractor shall provide to the Engineer the names, telephone numbers, and copies of certifications for all personnel performing field testing; and
- Perform other testing as required by the Contract.

(b) Types of Tests - The types of tests and testing methods generally required by the Agency are described in the MFTP.

(c) Acceptance of Field-Tested Materials The Contractor's test results for field-tested Materials will be verified by the Agency according to the Quality Assurance program outlined in the MFTP. Materials will be analyzed as determined by the Engineer for acceptance before the Engineer will accept them for incorporation into the Work. Incorporated Materials that do not meet Specifications will be evaluated according to 00165.01 and 00150.25.

If the Agency's verification testing reveals that the Contractor's data is incorrect, the Agency may require additional testing to determine whether the Materials meet Specifications. The Contractor shall perform additional quality control testing or provide split samples to the Agency for additional testing as directed. If the Materials do not meet Specifications, the Contractor shall reimburse the Agency for the cost of the additional testing, which may be deducted from monies due or to become due the Contractor under the Contract. Incorporated Materials that do not meet Specifications will be evaluated according to 00165.01 and 00150.25. If the Materials meet Specifications the Agency will pay the cost for the additional testing.

00165.35 Nonfield-Tested Materials - The Contractor shall furnish Materials meeting Specifications, along with all Materials Conformance and Quality Compliance Documents.

(a) Test Results Certificate - The Certificate shall:

- Be from the manufacturer verifying that the Material furnished has been sampled and tested and the test results meet the Specifications.
- Include, or be accompanied by, a copy of the specified test results (ODOT, AASHTO, ASTM, UL or other).
- Identify the testing agency and the representative responsible for the test results.
- Permit positive determination that Material delivered to the Project is the same Material covered by the test results.
- Be delivered to the Engineer with the shipment of the material.

(b) Quality Compliance Certificate - The Certificate from the manufacturer shall:

- Verify that the Material meets the Specifications, and identify by number the specified test methods used, (ODOT, AASHTO, ASTM, UL, or other)

- Permit positive determination that Material delivered to the Project is the same Material covered by the certificate,
- Be delivered to the Engineer with the shipment of the Material, or be an identification plate or mark, decal, sticker, label, or tag attached to the container or Material,

(c) Equipment List and Drawings - These consist of lists of proposed Equipment and Materials, such as:

- Shop drawings
- Material lists
- Equipment lists
- Catalog description sheets
- Manufacturer's brochures

Submit these lists to the Engineer for review of conformance with the Specifications.

(d) Certificate of Origin of Steel Materials - When specified, complete this document (ODOT Form 734-2126) as required by 00160.20 for Federal-aid projects.

Materials will be subject to acceptance testing if the Engineer so elects. The Engineer may reject damaged or non-Specification Materials regardless of the Materials Conformance Documents furnished.

00165.50 Acceptance Sampling and Testing -The Contractor shall sample and test Materials for acceptance, as required by the Contract. Materials will be analyzed as determined by the Engineer for acceptance before the Engineer will accept them for incorporation into the Work. When the Engineer determines the Materials or Work does not conform to the Specifications the Engineer may accept the Materials or Work with pay adjustments or reject the Materials or Work per 00150.25.

00165.70 Use of Materials without Acceptable Materials Conformance Documents:

(a) General - The Contractor shall not incorporate Materials into the Project prior to submittal of Materials Conformance Documents acceptable to the Engineer. The Engineer may waive this requirement temporarily if Materials are necessary for immediate traffic safety.

(b) Materials Incorporated for Immediate Traffic Safety - If Materials are incorporated into the Project for immediate traffic safety before acceptable Materials Conformance Documents are available, no payment will be made for the value of the Materials, or the costs of incorporating them, until Materials Conformance Documents have been submitted to and approved by the Engineer, or the Materials are otherwise found through testing to comply with Specifications.

(c) Contractor's Request for Testing Assistance - If acceptable Materials Conformance Documents are not available, the Contractor may either have the necessary tests performed at a private laboratory or request in writing that the Engineer:

- Determine if the Agency or its agents can sample and test;
- Estimate the cost to the Contractor for the testing service; and

- Estimate the time required to obtain the test results.

The Engineer will provide this information to the Contractor in writing. If the Contractor requests the Engineer, in writing, to proceed, the Engineer will arrange for the sampling and testing, at the Contractor's expense. If these tests determine the Material complies with the Specifications, the Materials may be incorporated into the Project, or for Materials previously incorporated according to (b) above, payment will be authorized.

00165.75 Storage and Handling of Materials - The Contractor shall store and handle Materials so as to preserve their quality and fitness for incorporation into the Work. The Contractor shall restore all storage sites to their original condition according to 00140.90, or to comply with any applicable permits, orders, or agreements, at the Contractor's expense.

Stored Materials:

- Shall be readily accessible for inspection;
- May be stored on approved parts of the Right-of-Way; and
- May be stored on private property if written permission of the owner or lessor is obtained.

Section 00170 - Legal Relations and Responsibilities

Description

00170.00 General - The Contractor shall comply with all laws, ordinances, codes, regulations and rules, (collectively referred to as "Laws" in this Section), that relate to the Work or to those engaged in the Work. Where the provisions of the Contract are inconsistent or in conflict, the Contractor shall comply with the more stringent standard.

The Contractor shall indemnify, defend, and hold harmless the Agency and its representatives from liability arising from or related to the violation of Laws by those engaged in any phase of the Work. This provision does not apply to Work performed by Agency employees.

In any litigation, the entire text of any order or permit issued by a governmental or regulatory authority, as well as any documents referenced or incorporated therein by reference, shall be admissible for the purpose of Contract interpretation.

The Contract shall not be construed against either party regardless of which party drafted it. Other than as modified by the Contract, the applicable rules of contract construction and evidence shall apply. This Contract shall be governed by and construed according to the laws of the State of Oregon without regard to principles of conflict of laws.

Any dispute between the Agency and the Contractor that arises from or relates to this Contract and that is not resolved under the provisions of Section 00199 shall be brought and conducted solely and exclusively within the Circuit Court for the State of Oregon in the county where the Agency's main office is located; provided, however, if a dispute must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this Subsection be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR BY EXECUTION OF THE CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION.

Provisions and Requirements

00170.01 Other Agencies Affecting Agency Contracts - Representatives of regulatory bodies or units of government whose Laws may apply to the Work shall have access to the Work according to 00150.20(d). These may include but are not limited to those in the following (a), (b), (c), and (d).

(a) Federal Agencies:

Agriculture, Department of
- Forest Service
- Natural Resource Conservation Service

Army, Department of the
- Corps of Engineers

Commerce, Department of

National Marine Fisheries Service

Defense, Department of

Energy, Department of

Environmental Protection Agency (EPA)

Federal Energy Regulatory Commission

Geology Survey

Health and Human Services, Department of

Homeland Security, Department of
U.S. Coast Guard (USCG)

Housing and Urban Development, Department of

Interior, Department of
Heritage, Conservation, and Recreation Service
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Mines
Bureau of Reclamation
Geological Survey
Minerals Management Service
Office of Surface Mining, Reclamation, and Enforcement

Minerals Management Service

Solar Energy and Energy Conservation Bank

U.S. Fish and Wildlife Service

Labor, Department of
Mine Safety and Health Administration
Occupational Safety and Health Administration (OSHA)

Transportation, Department of
Federal Highway Administration

Water Resources Council

(b) State of Oregon Agencies:

Administrative Services, Department of

Agriculture, Department of
Natural Resources Division
Soil and Water Conservation District

Columbia River Gorge Commission

Consumer and Business Services, Department of
Insurance Division
Oregon Occupational Safety and Health Division (OR-OSHA)

Energy, Office of

Environmental Quality, Department of (DEQ)

Fish and Wildlife, Department of
Forestry, Department of
Geology and Mineral Industries, Department of
Human Resources, Department of
Labor and Industries, Bureau of
Land Conservation and Development Department
Parks and Recreation, Department of
State Lands, Department of
Water Resources Department

(c) Local Agencies:

City Commissions
County Courts
County Commissioners, Boards of
Design Commissions
Historical Preservation Commissions
Lane Regional Air Pollution Authority (LRAPA)
Planning Commissions
Port Districts
Special Districts

(d) Oregon Federally Recognized Tribal Governments:

Burns Paiute Tribe
Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz
Confederated Tribes of Umatilla Indian Reservation
Confederated Tribes of Warm Springs
Coquille Tribe
Cow Creek Band of Umpqua Indians
Klamath Tribe

00170.02 Permits, Licenses, and Taxes - As required to accomplish the Work, the Contractor shall do the following:

- Obtain all necessary permits and licenses, except for those noted in 00170.03;
- Pay all applicable charges, fees and taxes, except for those noted in 00170.03;

- Give all notices required by applicable Laws, or under the terms of the Contract;
- Comply with ORS 274.530 relating to lease of stream beds by Oregon Division of State Lands;
- License, in the State of Oregon, all vehicles subject to licensing;
- Comply with ORS 477.625 and ORS 527.670 relating to clearing and fire hazards on forest lands; and
- Comply with all orders and permits issued by a governmental authority, whether local, State, or federal.

00170.03 Furnishing Right-of-Way, Easements and Permits - Unless required to be obtained in the name of the Contractor, the Agency will obtain and pay for the following when they are required by the applicable Laws or by Plans or Specifications:

- All necessary Rights-of-Way and Easements;
- Permits required for crossing or encroaching upon navigable streams;
- Permits required for removing materials from or depositing materials in waterways;
- Permits required for operating in Agency-controlled source of Materials or disposal area;
- System development fees charged by local units of government;
- Building construction permits, not including specialty work such as heating, ventilation, air conditioning, or electrical;
- Cost of referencing and replacing endangered survey monuments; and
- Environmental permits, including erosion control permits.

If, after the Bid Closing date, the Agency obtains any Permits, Rights of Way or Easements which require changes to the Work and thereby causes an increase or decrease in the cost of, or the time required for the performance of the Work, the Contractor shall submit information sufficient for the Engineer to determine the extent of the effects on the cost and/or schedule. If the Engineer agrees the cost and/or schedule will be affected by such changes, such effects will be handled in accordance with the General Conditions. The Engineer will provide the Contractor with a copy of any such Permits, Rights-of-Way or easements.

00170.04 Patents, Copyrights, and Trademarks - Prior to use of designs, devices, materials, or processes protected by patent, copyright, or trademark, the Contractor shall obtain from the Entity entitled to enforce the patent, copyright, or trademark all necessary evidence of legal right.

The Contractor shall indemnify, defend and hold harmless the Agency and all third parties and political subdivisions having a possessory or ownership interest or regulatory authority over the Project or Project Site from claims of patent, copyright or trademark infringement, and from costs, expenses and damages the Contractor or Agency may be obligated to pay as a result of such infringement during or after completing the Work.

00170.05 Assignment of Antitrust Rights - The Contractor irrevocably assigns to the Agency any claim for relief or cause of action the Contractor acquires during the term of the Contract, or which may accrue thereafter, by reason of any violation of:

- Title 15 (Commerce and Trade), United States Code;
- ORS 646.725; and
- ORS 646.730.

In connection with this assignment, it is an express obligation of the Contractor to take no action that would in any way impair or diminish the value of the rights assigned to the Agency according to the provisions of this Subsection. Further, it is the express obligation of the Contractor to take all action necessary to preserve the rights assigned. It is an express obligation of the Contractor to advise the Agency's legal counsel:

- In advance, of its intention to commence any action involving such claims for relief or causes of action;
- Immediately upon becoming aware of the fact that an action involving such claims for relief or causes of action has been commenced by some other person or persons;
- The date on which it notified the obligor(s) of any such claims for relief or causes of action of the fact of the Contractor's assignment to the Agency according to the provisions of this Subsection; and
- Immediately upon the discovery of any such antitrust claim for relief or cause of action.

In the event any payment is made to the Contractor under any such claims for relief, the Contractor shall promptly pay the full sum over to the Agency. In the event the Contractor fails to make such payment, the Agency may deduct the amount from monies due or to become due the Contractor under the Contract.

00170.06 Taxes - The Contract unit or lump sum prices shall include full compensation for any payroll taxes which may be incurred under State and Federal Unemployment and Social Security Acts, and all Sales Taxes on materials furnished by Contractor. The Contractor shall promptly pay such taxes to the proper agency, and shall indemnify and save harmless the Agency from any liability which may or could arise therefrom.

00170.07 Record Requirements - For purposes of this Subsection the term "Contractor" includes the Contractor, all subcontractors, Material Suppliers, and providers of rented operated Equipment (except non-DBE truck drivers), at all tiers, for all subcontracts with first-tier Subcontractors, all subcontracts between the first-tier Subcontractors and their subcontractors and any other lower tier subcontracts, and "Related Entities" as that term is defined in OAR 731-005-0780. The Material Suppliers included in this definition are those for Aggregates, Asphalt Cement Concrete, Portland Cement Concrete and the supply and fabrication of structural steel items or Material Suppliers that provide quotes.

(a) Records Required - The Contractor shall maintain all records, whether created before or after execution of the Contract, or during Contract performance, or after Contract completion, to clearly document:

- The Contractor's performance of the Contract or a subcontract;

- The Contractor's ability to continue performance of the Contract or a subcontract; and
- All claims arising from or relating to performance under the Contract or a subcontract.

These records shall include all records, including fiscal records, regardless of when created for the Contractor's business. The records for the Contractor's business include without limitation the:

- Bidding estimates and records, worksheets, tabulations or similar documents.
- Job cost detail reports, including monthly totals.
- Payroll records (including without limitation the ledger or register, and tax forms) and all documents which establish the periods, individuals involved, the hours for the individuals, and the rates for the individuals.
- Records that identify the Equipment used by the Contractor and subcontractors in the performance of the Contract or subcontracts, including without limitation, Equipment lists, rental contracts and any records used in setting rental rates.
- Invoices from vendors, rental agencies, and subcontractors.
- Material quotes, invoices, purchase orders and requisitions.
- Contracts with subcontractors and contracts with Material Suppliers, Suppliers and providers of rented equipment.
- Contracts or documents of other arrangements with any Related Entity as defined in OAR 731-005-0780.
- General ledger.
- Trial Balance.
- Financial statements (including without limitation the balance sheet, income statement, statement of cash flows, and financial statement notes).
- Income tax returns.
- All worksheets used to prepare bids or claims, or to establish the cost components for the Pay Items, including without limitation, the labor, benefits and insurance, Materials, Equipment, and subcontractors.

The following are examples, but not an exhaustive list, of records that would be included, if generated by the Contractor. If the Contractor generates such records, or equivalent records, they are included among the records subject to 00170.07.

- Daily time sheets and supervisor's daily reports.
- Collective bargaining agreements.
- Earnings records.
- Journal entries and supporting schedules.
- Insurance, welfare, and benefits records.
- Material cost distribution worksheet.
- Subcontractors' and lower tier subcontractors' payment certificates.
- Payroll and vendor's cancelled checks.

- Cash disbursements journal.
- All documents related to each and every claim together with all documents that support the amount of damages as to each claim.
- Additional financial statements (including without limitation the balance sheet, income statement, statement of cash flows, and financial notes) preceding the execution of the Contract and following final payment of the Contract.
- Depreciation records on all business Equipment maintained by the business involved, its accountant, or other Entity. (If a source other than depreciation records is used to develop cost for the Contractor's internal purposes in establishing the actual cost of owning and operating Equipment, all such other source documents.)

The Contractor shall maintain all fiscal records in material compliance with generally accepted accounting principles, or other accounting principles that are accepted accounting principles and practices for the subject industry and adequate for the nature of the Contractor's business, and in such a manner that providing a complete copy is neither unreasonably time consuming nor unreasonably burdensome for the Contractor or the Agency. Failure to maintain the records in this manner shall not be an excuse for not providing the records.

The Contractor shall include in its subcontracts, purchase orders, and all other written agreements, a provision requiring all subcontractors, Material Suppliers and providers of rented operated Equipment, (except non-DBE truck drivers), at all tiers to comply with 00170.07. The Contractor shall also require all subcontractors, Material Suppliers, and providers of rented operated Equipment, (except non-DBE truck drivers), at all tiers and Related Entities to include in their contracts, purchase orders, and all other written agreements, a provision requiring all lower tier subcontractors, Material Suppliers and providers of rented operated Equipment (except non-DBE truck drivers) to comply with 00170.07. The Material Suppliers to which this applies are those for Aggregates, Asphalt Cement Concrete, Portland Cement Concrete and the supply and fabrication of structural steel items or Material Suppliers that provide Material quotes and Related Entities as defined in OAR 731-005-0780.

(b) Access to Records - The Contractor shall provide the Engineer access to or a copy of all Contractor records upon request. A Project Manager's authority to request or access records is subject to OAR 731-005-0780(9). During the record retention period the Engineer, employees of the Agency, representatives of the Agency, or representatives of regulatory bodies or units of government may:

- Inspect, examine and copy or be provided a copy of all Contractor records;
- Audit the records, a Contract or the performance of a Contract;
- Inspect, examine and audit the records when, in the Agency's sole discretion, the records may be helpful in the resolution of any claim, litigation, administrative proceeding or controversy arising out of or related to a Contract.

Reasons for access to audit, inspect, examine and copy records include without limitation, general auditing, reviewing claims, checking for collusive bidding, reviewing or checking payment of required wages, performance and contract compliance, workplace safety compliance, evaluating related Entities, environmental compliance, and qualifications for performance of the Contract, including the ability to perform and the integrity of the Contractor.

Where such records are stored in a computer or in other digital media, the Engineer may request, and the Contractor shall provide, a copy of the data files and such other information or access to software to allow the Engineer review of the records.

Nothing in 00170.07 is intended to operate as a waiver of the confidentiality of any communications privileged under the Oregon Evidence Code. Nothing in 00170.07 limits the records or documents that can be obtained by legal process.

(c) Record Retention Period - The Contractor shall maintain the records and keep the records accessible and available at reasonable times and places for at least 3 years from the date of final payment under the Contract, or until the conclusion of all audits, litigation, administrative proceedings, disputes and claims arising out of or related to the Contract, whichever date is later.

(d) Public Records Requests - If records provided under this section contain any information that may be considered exempt from disclosure as a trade secret under either ORS 192.501(2) or ORS 646.461(4), or under other grounds specified in Oregon Public Records Law, ORS 192.410 through ORS 192.505, the Contractor shall clearly designate on or with the records the portions which the Contractor claims are exempt from disclosure, along with a justification and citation to the authority relied upon. Entire records or documents should not be designated as a trade secret or otherwise exempt from disclosure. Only specific information within a record or document should be so designated.

To the extent allowed by the Oregon Public Records Law or other applicable law related to the disclosure of public records, Agency will not disclose records or portions of records the Contractor has designated as trade secrets to a third party, who is not a representative of the Agency, to the extent the records are exempt from disclosure as trade secrets under the Oregon Public Records Law or other applicable law, except to the extent Agency is ordered to disclose in accordance with the Oregon Public Records Law or by a court of competent jurisdiction. Application of the Oregon Public Records Law or other applicable law shall determine whether any record, document or information is actually exempt from disclosure.

In addition, in response to a public records request, the Agency will not produce or disclose records so identified as exempt by the Contractor to any person other than representatives of the Agency, and others with authorized access under 00170.07(b), without providing the Contractor a copy of the public records request, unless:

The Contractor consents to such disclosure; or

Agency is prohibited by applicable law or court order from providing a copy of the public records request to the Contractor.

00170.10 Required Payments by Contractors - The Contractor shall comply with ORS 279C.505 and ORS 279C.515 during the term of the Contract.

(a) Prompt Payment by Contractor for Labor and Materials - As required by ORS 279C.505, the Contractor shall:

- Make payment promptly, as due, to all Entities supplying labor or Materials under the Contract;
- Pay all contributions or amounts due the Industrial Accident Fund, whether from the Contractor or a subcontractor, incurred in the performance of the Contract;
- Not permit any lien or claim to be filed against the State or any political subdivision thereof, on account of any labor or Material furnished in performance of the Contract; and
- Pay to the Department of Revenue all sums withheld from employees according to ORS 316.167.

(b) Prompt Payment by Contractor to First-Tier Subcontractor(s) - According to ORS 279C.580(3)(a), after the Contractor has determined and certified to the Agency that one or more of its Subcontractors has satisfactorily performed subcontracted Work, the Contractor may request payment from the Agency for the Work, and shall pay the Subcontractor(s) within 10 Calendar Days out of such amounts as the Agency has paid to the Contractor for the subcontracted Work.

(c) Interest on Unpaid Amount - If the Contractor or a first-tier Subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract within 30 Days after the Contractor's receipt of payment, the Contractor or first-tier Subcontractor shall owe the Entity the amount due plus interest charges that begin at the end of the 10 day period within which payment is due under ORS 279C.580(3) and that end upon final payment, unless payment is subject to a good-faith dispute as defined in ORS 279C.580(5)(b). The rate of interest on the amount due shall be in accordance with ORS 279C.515(2). The amount of interest shall not be waived.

(d) Agency's Payment of the Contractor's Prompt Payment Obligations - If the Contractor fails, neglects or refuses to make prompt payment of any invoice or other demand for payment for labor or services furnished to the Contractor or a Subcontractor by any Entity in connection with the Contract as such payment becomes due, the Agency may pay the Entity furnishing the labor or services and charge the amount of the payment against monies due or to become due the Contractor under the Contract.

The payment of a claim by the Agency in the manner authorized in this Subsection shall not relieve the Contractor or the Contractor's Surety from obligations with respect to any such claims.

(e) Right to Complain to the Construction Contractors Board - If the Contractor or a subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract, the Entity may file a complaint with the Construction Contractors Board, unless payment is subject to a good-faith dispute as defined in ORS 279C.580(5)(b).

(f) Notice of Claim Against Bond - An Entity (which by definition includes a natural person) claiming not to have been paid in full for labor or Materials supplied for the prosecution of the Work may have a right of action on the Contractor's Payment Bond as provided in ORS 279C.600 and ORS 279C.605.

The Commissioner of the Bureau of Labor and Industries (BOLI) may have a right of action on the Contractor's and Subcontractors' public works bonds and Payment Bonds for workers who have not been paid in full, as provided in ORS 279C.600 and ORS 279C.605.

00170.20 Public Works Bond - Before starting Work, the Contractor and subcontractors shall each file with the Construction Contractors Board, and maintain in full force and effect, a separate public works bond, in the amount of $30,000 unless otherwise exempt, as required by ORS 279C.830(3) and ORS 279C.836. The Contractor shall verify subcontractors have filed a public works bond before the subcontractor begins Work.

00170.32 Protection of Navigable Waters - The Contractor shall comply with all applicable Laws, including without limitation the Federal River and Harbor Act of March 3, 1899 and its amendments.

The Contractor shall not interfere with waterway navigation or impair navigable depths or clearances, except as U.S. Coast Guard or Corps of Engineer permits allow.

00170.60 Safety, Health, and Sanitation Provisions - The Contractor shall comply with all Laws concerning safety, health, and sanitation standards. The Contractor shall not require workers to perform Work under conditions that are hazardous, dangerous, or unsanitary.

Workers exposed to traffic shall wear upper body garments or safety vests that are highly visible and meet the requirements of 00225.25.

Workers exposed to falling or flying objects or electrical shock shall wear hard hats.

Upon their presentation of proper credentials, the Contractor shall allow inspectors of the U.S. Occupational Safety and Health Administration (OSHA) and the Oregon Occupational Safety and Health Division (OR-OSHA) to inspect the Work and Project Site without delay and without an inspection warrant.

According to ORS 468A.715 and ORS 468A.720, the Contractor or a Subcontractor who performs Project Work involving asbestos abatement shall possess a valid DEQ asbestos abatement license.

00170.61 Industrial Accident Protection:

(a) Workers' Compensation - The Contractor shall provide workers' compensation coverage for on-the-job injuries as required by 00170.70(d).

(b) Longshoremen's and Harbor Workers' Compensation - If Work to be performed is over or adjacent to navigable waters, the Longshoremen's and Harbor Workers' Compensation Act, (Chapter 18, Title 33 of the USC) may apply, and the Contractor shall be responsible for complying with its provisions (which may include the provision of additional workers' compensation benefits to employees).

00170.62 Labor Nondiscrimination - The Contractor shall comply with all Laws concerning equal employment opportunity, including without limitation those prohibiting discrimination because of race, religion, color, sex, disability, or national origin.

00170.63 Payment for Medical Care - According to ORS 279C.530, the Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the Contractor, of all sums that the Contractor agrees to pay for the services and all moneys and sums that the Contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services.

00170.65 Minimum Wage and Overtime Rates for Public Works Projects:

(a) General - The Contractor is responsible for investigating local labor conditions. The Agency does not imply that labor can be obtained at the minimum hourly wage rates specified in State or federal wage rate publications, and no increase in the Contract Amount will be made if wage rates paid are more than those listed.

(b) State Prevailing Wage Requirements - The Contractor shall comply with the prevailing wage provisions of ORS 279C.800 through ORS 279C.870.

(1) Minimum Wage Rates - The Bureau of Labor and Industries (BOLI) determines and publishes the existing State prevailing wage rates in the publication "Prevailing Wage Rates for Public Works Contracts in Oregon". The Contractor shall pay workers not less than the specified minimum hourly wage rate according to ORS 279C.838 and ORS 279C.840 and shall include this requirement in all subcontracts.

See the Project Wage Rates page included with the Special Provisions for additional information about which wage rates apply to the project and how to access the applicable wage rates.

(2) Payroll and Certified Statements - As required in ORS 279C.845, the Contractor and every subcontractor shall submit written certified statements to the Engineer on the form prescribed by the Commissioner of BOLI in OAR 839-025-0010 certifying compliance with wage payment requirements and accurately setting out the Contractor's or subcontractor's weekly payroll records for each worker employed upon the project.

The Contractor and subcontractors shall preserve the certified statements for a period of 6 years from the date of completion of the Contract.

(3) Additional Retainage:

a. Agency - As required in ORS 279C.845(7) the Agency will retain 25% of any amount earned by the Contractor on the project until the Contractor has filed the certified statements required in ORS 279C.845 and in FHWA Form 1273, if applicable. The Agency will pay to the Contractor the amount retained within 14 Days after the Contractor files the required certified statements, regardless of whether a subcontractor has failed to file certified statements.

b. Contractor - As required in ORS 279C.845(8) the Contractor shall retain 25% of any amount earned by a first tier subcontractor on the project until the first tier subcontractor has filed with the

Agency the certified statements required in ORS 279C.845 and in FHWA Form 1273, if applicable. Before paying any amount retained, the Contractor shall verify that the first tier subcontractor has filed the certified statement. Within 14 Days after the first tier subcontractor files the required certified statement the Contractor shall pay the first tier subcontractor any amount retained.

(4) Owner/Operator Data - For a project funded by the FHWA, the Contractor shall furnish data to the Engineer for each owner/operator providing trucking services. Furnish the data before the time the services are performed and include without limitation for each owner/operator:

- Drivers name;
- Copy of driver's license;
- Vehicle identification number;
- Copy of vehicle registration;
- Motor vehicle license plate number;
- Motor Carrier Plate Number;
- Copy of ODOT Motor Carrier 1A Permit; and Name of owner/operator from the side of the truck.

(c) State Overtime Requirements - As a condition of the Contract, the Contractor shall comply with the pertinent provisions of ORS 279C.540.

(1) Maximum Hours of Labor and Overtime Pay - According to ORS 279C.540, no person shall be employed to perform Work under this Contract for more than 10 hours in any 1 Day, or 40 hours in any 1 week, except in cases of necessity, emergency, or where public policy absolutely requires it. In such instances, the Contractor shall pay the employee at least time and a half pay:

- For all overtime in excess of 8 hours a day or 40 hours in any 1 week when the work week is 5 consecutive days, Monday through Friday; or
- For all overtime in excess of 10 hours a day or 40 hours in any 1 week when the work week is 4 consecutive days, Monday through Friday; and
- For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

For additional information on requirements for overtime and establishing a work schedule see OAR 839-025-0050 and OAR 839-025-0034.

(2) Notice of Hours of Labor - The Contractor shall give written notice to employees of the number of hours per day and days per week the employees may be required to work. Provide the notice either at the time of hire or before commencement of work on this Contract, or by posting a notice in a location frequented by employees.

(3) Exception - The maximum hours of labor and overtime requirements under ORS 279C.540 will not apply to the Contractor's Work under this Contract if the Contractor is a party to a collective bargaining agreement in effect with any labor organization. For a collective bargaining agreement to be in effect it shall be enforceable within the geographic area of the project, and its terms shall extend to workers who are working on the project (see OAR 839-025-0054).

(d) State Time Limitation on Claim for Overtime - According to ORS 279C.545, any worker employed by the Contractor is foreclosed from the right to collect any overtime provided in ORS 279C.540 unless a claim for payment is filed with the Contractor within 90 Days from the completion of the contract, provided the Contractor posted and maintained a circular as specified in this provision. Accordingly, the Contractor shall:

(1) Cause a circular, clearly printed in boldfaced 12-point type containing a copy of ORS 279C.545, to be posted in a prominent place alongside the door of the timekeeper's office or in a similar place which is readily available and freely visible to any or all workers employed to perform Work; and

(2) Maintain such circular continuously posted from the inception to the completion of the Contract on which workers are or have been employed.

(e) Additional Requirements When Federal Funds are Involved - When federal funds are involved, the following requirements shall apply in addition to the requirements of 00170.65(a) through 00170.65(d). The Contractor shall include these provisions in all subcontracts as well as ensure that all Subcontractors include these provisions in their lower tier subcontracts.

(1) FHWA Requirements - For Federal-Aid projects, the Contractor shall comply with the provisions of FHWA Form 1273, "Required Contract Provisions Federal-Aid Construction Contracts".

(2) Minimum Wage Rates - The Contractor shall pay each worker in each trade or occupation employed to perform any work under the contract not less than the existing State (BOLI) prevailing wage rate or the applicable federal prevailing wage rate required under the Davis-Bacon Act (40 U.S.C. 3141 et seq.), whichever is higher. The Contractor shall include this provision in all subcontracts.

See the Project Wage Rates page included with the Special Provisions for additional information about which wage rates apply to the project and how to access the applicable wage rates.

(3) Payroll and Certified Statements - In addition to providing the payroll information and certified statements required under ORS 279C.845 (see 00170.65(b-2)), the Contractor and every subcontractor shall submit written certified statements that also meet the requirements in Section IV of FHWA Form 1273 except the Contractor and every subcontractor shall preserve the certified statements for a period of 6 years from the date of completion of the Contract.

(4) Overtime - With regard to overtime pay, the Contractor shall comply with the overtime provision affording the greatest compensation required under FHWA Form 1273 and ORS 279C.540.

00170.70 Insurance:

(a) Insurance Coverages - Prior to starting work hereunder, CONTRACTOR, at CONTRACTOR'S cost, shall secure and continue to carry during the term of this contract, with an insurance company acceptable to CITY, the following insurance, written on an occurrence basis, in amounts not less than the limitations on liability for local public bodies provided in ORS 30.272 and ORS 30.273:

Commercial General Liability - CONTRACTOR shall obtain, at CONTRACTOR'S expense and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage. Coverage shall include CONTRACTORs, SUBCONTRACTORs and anyone directly or indirectly employed by either.

Pollution Liability - If indicated by Special Provisions, Pollution Liability Insurance covering the Contractor's liability, or the liability of an appropriate subcontractor, if the coverage is obtained by the subcontractor, for bodily injury and property damage, and environmental damage resulting from sudden and accidental pollution, gradual pollution, and related clean-up costs incurred by the Contractor, or by the subcontractor if the coverage is obtained by the subcontractor, while performing Work required by the Contract. If the coverage is obtained by the Contractor, the coverage may be written in combination with the Commercial General Liability Insurance with separate limits for Pollution Liability and Commercial General Liability. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions. The annual aggregate limit shall not be less than the dollar amount indicated in the Special Provisions. The policy shall be endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

Asbestos Liability - If indicated by Special Provisions, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide an Asbestos Liability endorsement to the pollution liability coverage. If an endorsement cannot be obtained, The Contractor or subcontractor shall provide separate Asbestos Liability Insurance at the same combined single limit per occurrence and annual aggregate limit as the Pollution Liability Insurance with the policy endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

Lead Liability - If indicated by Special Provisions, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide a Lead Liability endorsement to the pollution liability coverage. If an endorsement cannot be obtained, the Contractor or subcontractor shall provide separate Lead Liability Insurance at the same combined single limit per occurrence and annual aggregate limit as the Pollution Liability Insurance with the separate policy endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

Commercial Automobile Liability - CONTRACTOR shall obtain, at CONTRACTOR'S expense and keep in effect during the term of the resulting contract, Commercial Business Automobile Liability Insurance covering all owned, non-owned, or hired vehicles. This coverage may be written in combination with the Commercial General Liability Insurance (with separate limits).

Commercial Automobile Liability with Pollution Coverage - If indicated by Special Provisions, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide Commercial Automobile Liability Insurance with Pollution coverage covering the Contractor's liability, or the liability of an appropriate subcontractor, if the coverage is obtained by the subcontractor, for bodily injury and property damage, and environmental damage arising out of the use of all owned, non-owned, or hired vehicles while performing Work under the Contract. If the coverage is obtained by the Contractor, the coverage may be written in combination with the Commercial General Liability Insurance with separate limits for Commercial Automobile Liability with Pollution Coverage and Commercial General Liability. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions or the amount required by the U.S. Department of Transportation, whichever is greater. If this coverage is written in combination with the Commercial

General Liability, the policy shall be endorsed to state that the Commercial General Liability annual aggregate limit shall apply separately to the Contract.

Commercial Automobile Liability with Pollution Coverage is required for this Project because the Project includes pollution related Work. If the Contractor will be performing pollution related Work, this coverage covering the Contractor must be provided. If an appropriate subcontractor, but not the Contractor, will perform the pollution related Work, Commercial Automobile Liability with Pollution Coverage covering the subcontractor, but not the Contractor, must be provided, however, the Contractor shall provide Commercial Automobile Liability insurance coverage covering the Contractor as provided in the Commercial Automobile Liability bullet above. If both the Contractor and an appropriate subcontractor will be performing pollution related Work, Commercial Automobile Liability with Pollution Coverage covering both the Contractor and the subcontractor shall be provided, and the Contractor may provide the coverage covering both the Contractor and the subcontractor, or the Contractor and the subcontractor may provide their own, separate Commercial Automobile Liability with Pollution coverages.

(b) Tail Coverage - If any of the required liability insurance coverages of 00170.70(a) are on a "claims made" basis, "tail" coverage will be required at the completion of the Contract for a duration of 24 months, or the maximum time period reasonably available in the marketplace. The Contractor shall furnish certification of "tail" coverage as described, or continuous "claims made" liability coverage for 24 months following Contract completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of the Contract. If Continuous "claims made" coverage is used, the Contractor shall keep the coverage in effect for a duration of not less than 24 months from the end of the Contract. This will be a condition to the Engineer's issuance of a Third Notification.

(c) Additional Insured - The liability insurance coverage shall include CITY and its officers and employees as Additional Insured but only with respect to CONTRACTOR'S activities to be performed under this Contract. Coverage will be primary and non-contributory with any other insurance and self-insurance. Prior to starting work under this Contract, CONTRACTOR shall furnish a certificate to CITY from each insurance company providing insurance showing that the CITY is an additional insured, the required coverage is in force, stating policy numbers, dates of expiration and limits of liability, and further stating that such coverage is primary and not contributory.

(d) Professional Liability Insurance - Professional Liability Insurance. The CONTRACTOR shall have in force a policy of Professional Liability Insurance. The CONTRACTOR shall keep such policy in force and current during the term of this contract.

(e) Workers' Compensation - All employers, including the Contractor and its Subcontractors, if any, that employ subject workers who are performing Work or providing labor or Materials under the Contract in the State shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. The Contractor shall ensure that each of its Subcontractors complies with these requirements.

The Contractor shall certify in the Contract that the Contractor is registered by the Oregon Workers' Compensation Division either as a carrier-insured employer, a self-insured employer, an exempt employer, or is an independent contractor who will perform the Work without the assistance of others.

The Contractor shall ensure that its insurance carrier files a guaranty contract with the Oregon Workers' Compensation Division before performing any Work.

(f) Notice of Cancellation or Change - There will be no cancellation, material change, potential exhaustion of aggregate limits or non-renewal of insurance coverage(s) without thirty (30) days written notice from CONTRACTOR or its insurer(s) to CITY. Any failure to comply with the reporting provisions of this clause will constitute a material breach of this Contract and will be grounds for immediate termination of this Agreement.

(g) Certificate(s) of Insurance - As evidence of the insurance coverages required by this Contract, the Contractor shall furnish Certificate(s) of Insurance to the Agency at the time(s) provided in 00130.50(a). As evidence of insurance coverages required by this Contract but permitted by the Agency under 00170.70(a) to be obtained by an appropriate subcontractor, the Contractor shall furnish Certificate(s) of Insurance to the Agency for such coverages together with the Contractor's request under 00180.21 for approval of the subcontract with that subcontractor. The Certificate(s) will specify all of the parties who are Additional Insureds. The Contractor shall obtain, or ensure that the appropriate subcontractors obtain, insurance coverages required under this Contract from insurance companies or entities acceptable to the Agency and authorized to issue insurance in the State. The Contractor, or the appropriate subcontractor, but not the Agency, shall be responsible for paying all deductibles, self-insured retentions and/or self-insurance included under these provisions.

(h) Builders' Risk - If indicated by Special Provision, the Contractor shall obtain, at its expense, and keep in effect during the term of the Contract, Builders' Risk insurance on an all risks of direct physical loss basis, including, without limitation, earthquake and flood damage, for an amount equal to at least the value indicated in the Special Provisions. Any deductible shall not exceed $50,000 for each loss, except that the earthquake and flood deductible shall not exceed 5% of each loss or $50,000, whichever is greater. The policy shall include the Agency as loss payee.

00170.71 Independent Contractor Status - The service or services to be rendered under this Contract are those of an independent contractor. The Contractor is not an officer, employee, or agent of the Agency as those terms are used in ORS 30.265.

00170.72 Indemnity/Hold Harmless - To the fullest extent permitted by law, and except to the extent otherwise void under ORS 30.140, the Contractor shall indemnify, defend (with counsel approved by the Agency) and hold harmless the Agency, Agency's Authorized Representative, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies, and when federal transportation funding is involved the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers and members and employees (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to the following:

- Any damage, injury, loss, expense, inconvenience or delay described in this Subsection.

- Any accident or occurrence which happens or is alleged to have happened in or about the Project Site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects.
- Any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract.
- The negligent acts or omissions of the Contractor, a subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.
- Any lien filed upon the project or bond claim in connection with the Work.

Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subsection.

In claims against any person or entity indemnified under this Subsection by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Subsection shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

00170.74 Employee Drug Testing Program - As required by ORS 279C.505(2), the Contractor shall have in place, and maintain during the period of the Contract, an employee drug-testing program. The Agency retains the right to audit and/or monitor the program. On request by the Engineer, the Contractor shall furnish a copy of the employee drug-testing program.

00170.78 Conflict of Interest - The Contractor shall not give or offer any gift, loan, or other thing of value to any member of the Agency's governing body or employee of the Agency in connection with the award or performance of any Contract.

The Contractor shall not rent, lease, or purchase Materials, supplies, or Equipment, with or through any Agency employee or member of the Agency's governing body.

No ex-employee of the Agency who has worked for the Agency on any phase of the Project within the prior 2 years may be employed by the Contractor to perform Work on the Project.

00170.79 Third Party Beneficiary - There are no third-party beneficiaries of the Contract, unless federal transportation funding is involved then the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers and members and employees, are third-party beneficiaries of the Contract.

00170.80 Responsibility for Damage to Work:

(a) Responsibility for Damage in General - The Contractor shall perform Work, and furnish Materials and Equipment for incorporation into the Work, at the Contractor's own risk, until the entire Project has been completed and accepted by the Agency. The Contractor shall repair all damages to Work performed, Materials supplied, and Equipment incorporated into the Work, except as otherwise provided in this Section.

(b) Repair of Damage to Work - Until Final Acceptance, the Contractor shall promptly rebuild, repair, restore, and make good damages to all portions of the permanent or temporary Work. The Contractor shall perform all repairs of damage to Work at no additional cost to the Agency, except for repairs necessitated by damage caused by:

- Acts of God or Nature, as defined in Section 00110; or
- Actions of governmental authorities.

(c) Vandalism and Theft - Vandalism includes damage to or destruction of Work or portions of Work that remain on the Project Site resulting from vandalism, criminal mischief, arson, or other criminal or illegal behavior.

Theft includes the loss of Work or portions of Work that are lost or stolen or otherwise unaccounted for from the Project Site or from Materials or fabrication locations. The Contractor shall remain solely responsible for all losses caused by theft, including without limitation theft that occurs in conjunction with vandalism.

The Contractor shall provide protection of the Work from vandalism and theft until Third Notification.

00170.82 Responsibility for Damage to Property and Facilities:

(a) In General - As used in this Subsection, the term "Contractor" shall include the Contractor's agents, Subcontractors, and all workers performing Work under the Contract; and the term "damage" shall include without limitation soiling or staining surfaces by tracking or splashing mud, asphalt, and other materials, as well as damage of a more serious nature.

The Contractor shall be solely responsible for damages arising from:

- The Contractor's operations;
- The Contractor's negligence, gross negligence, or intentional wrongful acts; and
- The Contractor's failure to comply with any Contract provision.

The Agency may withhold funds due the Contractor or the Contractor's Surety until all lawsuits, actions, and claims for injuries or damages are resolved, and satisfactory evidence of resolution is furnished to the Agency.

(b) Protection and Restoration of Agency Property and Facilities - The following requirements apply to highways, highway Structures and other improvements that are existing, under construction, or completed. The Contractor shall:

- Provide adequate protection to avoid damaging Agency property and facilities;
- Be responsible for damage to Agency property and facilities caused by or resulting from the Contractor's operations; and
- Clean up and restore such damage by repair, rebuilding, replacement, or compensation, as determined by the Engineer.

(c) Protection and Restoration of Non-Agency Property and Facilities - The Contractor shall determine the location of properties and facilities that could be damaged by the Contractor's operations, and shall protect them from damage. The Contractor shall protect monuments and property marks until the Engineer has referenced their location and authorized their removal. The Contractor shall restore property or facilities damaged by its operations to the condition that existed before the damage, at no additional compensation.

The Contractor shall provide temporary facilities when needed, e.g., to maintain normal service or as directed by the Engineer, until the required repair, rebuilding, or replacement is accomplished.

The Contractor shall protect specific service signs, e.g., business logos, and tourist-oriented directional signs (TODS) from damage, whether the signs are to remain in place or be placed on temporary supports. The Contractor shall repair or replace damaged signs at no cost to the Agency. Liquidated damages will be assessed against the Contractor in the amount of $200 per day for each sign out of service for more than 5 Calendar Days because of the Contractor's operations.

00170.85 Responsibility for Defective Work - The Contractor shall make good any defective Work, Materials or Equipment incorporated into the Work, according to the provisions of Section 00150.

(a) Latent Defects - The Contractor shall remain liable for all latent defects resulting from causes other than fraud or gross mistakes that amount to fraud until the expiration of all applicable statutes of limitation and ultimate repose, the Performance Bond, Warranty Bond, or Correction Period, whichever expires last. The Contractor shall remain liable for all latent defects resulting from fraud or gross mistakes that amount to fraud regardless of when those latent defects may be discovered, and regardless of whether such discovery occurs outside any applicable statutes of limitation or ultimate repose or any applicable Performance Bond, Warranty Bond, or Correction Period.

(b) Correction Period Warranty for Agency Projects: - The Contractor shall warrant all Work and workmanship, including Changed Work, Additional Work, Incidental Work, On-Site Work, and Extra Work, and Materials and Equipment incorporated in the Work, for one year from the date of Second Notification (Correction Period), except that manufacturers' warranties and extended warranties according to 00170.85(c) shall not be abridged. The Correction Period warranty described herein shall include extension of the Performance Bond for a period of one year from the date of Second Notification.

The Contractor shall be responsible for meeting the technical and performance Specifications required, making good the Work, and for all repairs of damage to the Work and other improvements, natural and

artificial structures, systems, equipment, and vegetation caused by, or resulting in whole or in part from occurrences beginning during the Correction Period and are the result of defects in Materials, Equipment, and workmanship. The Contractor shall be responsible for all costs associated with completing the repair of the defects and for associated Work including but not limited to permitting, mobilization, traffic control, erosion control, surface restoration, site cleanup and remediation caused by, or resulting in whole or in part from, defects in Materials, Equipment, or workmanship, and other Work determined by the Engineer to be necessary to complete the repair of the defects.

Within 10 Calendar Days of the Agency's written notice of defects, the Contractor, or the Contractor's Surety, shall vigorously and continuously correct and repair the defects and all related damage. If the Contractor or the Contractor's Surety fails to correct and repair the defects, the Agency may have the correction and repair done by others. The Contractor or Contractor's Surety shall promptly reimburse the Agency for all expenses incurred to correct and repair the defects.

In the event of an emergency, where delay could result in serious loss or damage, the Agency may make emergency corrections and repairs, without written notice. The Contractor or Contractor's Surety shall promptly reimburse the Agency for all expenses incurred to correct and repair the defects.

Corrections, repairs, replacements or changes shall be warranted for an additional one year period beginning on the date of the Agency's acceptance of the corrections, repairs, replacements or changes.

Without limiting the general applicability of other survival clauses under the Contract, this warranty provision shall survive expiration or termination of the Contract.

(c) Manufacturer, Installer or Supplier Warranties and Guarantees:

(1) Manufacturer, Installer or Supplier Warranties - For those Specification Sections referencing this 00170.85(c-1) Subsection, the Contractor shall furnish Warranties from the Manufacturer, Installer or Supplier and signed by an authorized Representative.

The warranty period will be specified in the applicable Specification Section for which it applies.

The warranty period will begin on the date the Engineer issues Second Notification unless otherwise specified in the Contract.

Corrections, repairs, replacements or changes shall be warranted for an additional Warranty period beginning on the date of the Agency's acceptance of the corrections, repairs, replacements or changes.

When the Agency makes written notification to the Manufacturer of failure of an item covered by this warranty, the warranty period will stop for the effected item or the portion of the effected item that failed, as applicable, until the required repairs or replacements are made and accepted. All repaired or replaced items shall meet current specifications, unless otherwise specified in the Contract, and will be warranted for the remaining warranty period.

Warranty work shall be performed when weather permits. If, in the opinion of the Engineer, temporary repairs are necessary, the temporary repairs will be made by the Agency or an independent

contractor at the Manufacturer's expense. The Manufacturer shall replace all temporary repairs at no additional cost to the Agency.

The Manufacturer shall provide all required traffic control during repair or replacement of failed items at no additional cost to the Agency.

(2) Trade Practice Guarantees - For those Items installed on the Project that have customary trade practice guarantees, the Contractor shall furnish the guarantees to the Engineer at the completion of the Contract.

00170.89 Protection of Utility, Fire-control, and Railroad Property and Services; Repair; Roadway Restoration:

(a) Protection of Utility, Fire-Control, and Railroad Property and Services; Coordination - The Contractor shall avoid damaging the properties of Utilities, Railroads, railways, and fire-control authorities during performance of the Work. The Contractor shall cooperate with and facilitate the relocation or repair of all Utilities and Utility services, as required under 00150.50, and of Railroad and fire-control property and railways.

The Contractor shall conduct no activities of any kind around fire hydrants until the local fire-control authority has approved provisions for continued service.

The Contractor shall immediately notify any Utility, Railroad, or fire-control authority whose facilities have been damaged.

If an Entity has a valid permit from the proper authority to construct, reconstruct, or repair Utility, Railroad, or fire-control service in the Roadway, the Contractor shall allow the permit holder to perform the work.

(b) Restoration of Roadway after Repair Work - The Contractor shall restore the Roadway to a condition at least equal to that which existed before the repair work addressed under this Subsection was performed, as directed by the Engineer. All restoration work required as a result of Contractor’s failure to protect Utilities, Railroads, railways and fire-control facilities shall be at the Contractor’s expense. Restoration which constitutes Extra Work will be paid as Extra Work.

00170.92 Fencing, Protecting Stock, and Safeguarding Excavations - The Contractor shall be responsible for loss, injury, or damage that results from its failure to restrain stock and persons.

(a) At the Contractor's Expense - The Contractor shall restrain stock to lands on which they are confined using temporary fences or other adequate means. The Contractor shall provide adequate temporary fences or other protection around excavations to prevent animals and unauthorized persons from entering.

The Contractor shall repair, at Contractor's expense and to the Engineer's satisfaction, fences damaged by the Contractor's operations and the operations of the Contractor's agents, employees and Subcontractors.

(b) At the Agency's Expense - The Contractor shall construct fences, or move and reconstruct fences, as shown on the Contract Documents or as directed by the Engineer. The Contractor shall tear down and remove fencing within the Right-of-Way when no longer needed, as part of the removal Work described in and paid for according to Section 00310.

00170.93 Trespass - The Contractor shall be responsible for its own, its agents' and employees', and its Subcontractors' trespass or encroachment upon, or damage to, property during performance of the Contract.

00170.94 Use of Explosives - The Contractor shall comply with all Laws pertaining to the use of explosives. The Contractor shall notify anyone having facilities near the Contractor's operations of Contractor's intended use or storage of explosives. The Contractor shall be responsible for all damage resulting from its own, its agents' and employees', and its Subcontractors' use of explosives. (see 00330.41(e) and Section 00335)

00170.95 Unlawful Discrimination Policy - Agency – It is the policy of the City of Warrenton that no person shall be denied the benefits of or be subjected to discrimination in any City program, service, or activity on the grounds of age, disability, race, religion, color, national origin, sex, sexual orientation, gender identity and expression. The City of Warrenton also requires its contractors and grantees to comply with this policy.

Section 00180 - Prosecution and Progress

00180.00 Scope - This Section consists of requirements for assignment of the Contract, subcontracting, time for performance, Contract responsibility, suspensions, terminations, and related provisions.

00180.05 Assignment/Delegation of Contract - Unless the Agency gives prior written consent, the Contractor shall not assign, delegate, sell, or transfer to any Entity, or otherwise dispose of any Contract rights or obligations, including without limitation:

- The power to execute or perform the Contract; or
- Any of its right, title or interest in the Contract.

Any attempted assignment, delegation, or disposition without prior Agency consent shall be void.

Such Agency consent will not normally be given except for the assignment of funds due under the Contract, as provided in 00180.06.

If written Agency consent is given to assign, delegate, or otherwise dispose of any Contract rights or obligations, it shall not relieve the Contractor or its Surety of any part of their responsibility under the Contract.

00180.06 Assignment of Funds Due under the Contract - Assignment of funds due or to become due under the Contract to the Contractor will not be permitted unless:

- The assignment request is made on the form acceptable to the Agency;
- The Contractor secures the written consent of the Contractor's Surety to the assignment; and
- The Engineer approves the assignment.

00180.10 Responsibility for Contract - The Contractor shall direct and coordinate the operations of its employees, Subcontractors and agents performing Work, and see that the Engineer's orders are carried out promptly. The Contractor's failure to direct, supervise and control its employees, Subcontractors and agents performing Work will result in one or more of the following actions, or other actions as the Engineer deems appropriate:

- Suspension of the Work;
- Withholding of Contract payments, as necessary to protect the Agency;
- Ordering removal of individuals from the Project Site; or
- Termination of the Contract.

Action by the Agency under this provision will not prejudice any other remedy it may have.

00180.15 Agency's Right to Do Work at Contractor's Expense - Except as otherwise provided in 00150.75 and 00220.60, if the Contractor neglects to prosecute the Work properly or fails to perform any provision of the Contract, the Agency may, after 2 Calendar Days' written notice, correct the deficiencies at the Contractor's expense. In situations where the Engineer reasonably believes there is danger to life or property, the Agency may immediately and without notice correct the deficiencies at the Contractor's expense.

Action by the Agency under this provision will not prejudice any other remedy it may have.

00180.20 Subcontracting Limitations:

(a) General - The Contractor's own organization shall perform Work amounting to at least the percentage of the original Contract Amount as indicated in the Special Provisions. The value of subcontracted Work is the full compensation to be paid to the Subcontractor(s) for all pay items in the Subcontract(s).

(b) Own Organization - The term "own organization", as used in Section 00180, includes only employees of the Contractor, Equipment owned or rented by the Contractor, Incidental rental of operated Equipment, and Materials and Equipment to be incorporated into the Work purchased or produced by the Contractor.

(c) Rental of Operated Equipment - For projects funded by FWHA, the Agency will not allow a Disadvantaged Business Enterprise (DBE) firm to provide services without a subcontract covering all Work to be performed by the DBE firm. For non-DBE firms, the use of Equipment rented with operators will be allowed without a subcontract only when the following requirements are met:

(1) Written Request - The Contractor has submitted to the Engineer a written request describing the service to be provided, its estimated cost, and the estimated duration. The Engineer must approve the request before the service is provided.

(2) Limitations - The use of Equipment rented with operators is limited to the following services:

- Truck hauling of Materials (If the trucking is by an owner/operator, in addition to the requirements of 00170.65(e), each truck shall have the name of the owner/operator clearly displayed on the side of the truck); or
- Performing minor, Incidental, short-duration work under the direct supervision of the Contractor or Subcontractor, with Equipment not customarily owned, leased, or operated by a Contractor, or with Equipment that is temporarily unavailable to the Contractor.

(3) Submittals - The Contractor shall provide the Engineer with a copy of the rental agreement or purchase order covering the service to be provided. For owner/operator trucking, attach copies of the data required under 00170.65(e). The Contractor shall make certain that the provider of approved services submits payrolls required under Section 00170 and complies with applicable Contract provisions, including without limitation 00170.07. The service provider will not be considered a Subcontractor under the Contract, but will be considered an agent of the Contractor in the performance of Work.

(4) Revocation of Approval - The Engineer may revoke approval for the services provided through rented, operated Equipment at any time the Engineer determines that the work is outside that authorized under 00180.20(c-2). Unless the Contractor promptly submits to the Engineer a subcontract agreement for consent under 00180.21, the service provider shall be immediately removed from the Project Site.

00180.21 Subcontracting:

(a) Substitution of Disclosed Subcontractors - The Contractor may only substitute a previously disclosed first-tier Subcontractor according to the provisions of ORS 279C.585. The Contractor shall provide the Engineer with a written notification that identifies the name of the proposed new Subcontractor and the reason for the substitution. Authorized reasons for substitution are limited to the following circumstances (see ORS 279C.585(1) through ORS 279C.585(10)):

- The disclosed Subcontractor fails or refuses to execute a written contract that is reasonably based either upon the Project Plans and Specifications, or the terms of the Subcontractor's written Bid, after having had a reasonable opportunity to do so;
- The disclosed Subcontractor becomes bankrupt or insolvent;
- The disclosed Subcontractor fails or refuses to perform the contract;
- The disclosed Subcontractor fails or refuses to meet the bond requirements of the prime Contractor that had been identified prior to the Bid submittal;
- The Contractor demonstrates to the Agency that the Subcontractor was disclosed as the result of an inadvertent clerical error;
- The disclosed Subcontractor does not hold a license from the Construction Contractors Board and is required to be licensed by the board;
- The Contractor determines that the Work performed by the disclosed Subcontractor is not in substantial compliance with the Plans and Specifications, or that the Subcontractor is substantially delaying or disrupting the progress of the Work;
- The disclosed Subcontractor is ineligible to work on a public improvement according to the applicable statutory provisions;
- The substitution is for "good cause" as defined by State Construction Contractors Board rule; or
- The substitution is reasonably based on the Contract alternates chosen by the Agency.

(b) Terms of Subcontracts - Subcontracts shall provide that work performed under the subcontract shall be conducted and performed according to the terms of the Contract. Compliance with 00170.07 is required. All subcontracts, including Contractor's with the first-tier Subcontractors and those of the first-tier Subcontractors with their subcontractors, and any other lower tier subcontracts shall contain a clause or condition that if the Contractor or a subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract, the Entity may file a complaint with the Construction Contractors Board, unless payment is subject to a good-faith dispute as defined in ORS 279C.580. Additionally, according to the provisions of ORS 279C.580, subcontracts shall include:

(1) A payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under the subcontract within 10 Calendar Days out of amounts the Agency pays to the Contractor under the Contract.

(2) A clause that requires the Contractor to provide the first-tier Subcontractor with a standard form that the first-tier Subcontractor may use as an application for payment or as another method by which the Subcontractor may claim a payment due from the Contractor.

(3) A clause that requires the Contractor, except as otherwise provided in this subsection, to use the same form and regular administrative procedures for processing payments during the entire term of the subcontract. The Contractor may change the form or the regular administrative procedures the Contractor uses for processing payments if the Contractor:

- Notifies the Subcontractor in writing at least 45 Calendar days before the date on which the Contractor makes the change; and
- Includes with the written notice a copy of the new or changed form or a description of the new or changed procedure.

(4) An interest penalty clause that obligates the Contractor, if the Contractor does not pay the first-tier Subcontractor within 30 Calendar Days after receiving payment from the Agency, to pay the first-tier Subcontractor an interest penalty on amounts due in each payment the Contractor does not make in accordance with the payment clause included in the subcontract under 00180.21(d-1). The Contractor or first-tier Subcontractor is not obligated to pay an interest penalty if the only reason that the Contractor or first-tier Subcontractor did not make payment when payment was due is that the Contractor or first-tier Subcontractor did not receive payment from the Agency or the Contractor when payment was due. The interest penalty applies to the period that begins on the day after the required payment date and ends on the date on which the amount due is paid; and shall be computed at the rate specified in 00170.10(c).

(5) A clause that requires the Contractor's first-tier Subcontractor to include a payment clause and an interest penalty clause that conform to the standards of ORS 279C.580 (see 00180.21(d-1) and 00180.21(d-4)) in each of the first-tier Subcontractor's subcontracts and to require each of the first-tier Subcontractor's subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or Material supplier.

These payment clauses shall require the Contractor to return all retainage withheld from the Subcontractor, whether held by the Contractor or the Agency, as specified in 00195.50(d).

As required by ORS 279C.800 through ORS 279C.870, subcontracts shall include:

- A provision requiring the subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work on the Project, unless exempt.
- A provision requiring that the workers shall be paid not less than the specified minimum hourly rate of wage.

(c) Contractor's Responsibilities - The Contractor shall remain solely responsible for administration of the subcontract, including but not limited to:

- Performance of subcontracted Work;
- Progress of subcontracted Work;
- Payments for accepted subcontracted Work; and
- Disputes and claims for additional compensation regarding subcontracted Work.

It shall be the direct responsibility of the Contractor to ensure that each and every subcontractor will not only be issued a complete and current set of Plans and Specifications, but also that these Plans and Specifications are on the project site and in use by the subcontractor when it is performing its portion of the project.

Subcontracted Work shall not create a contract between the Agency and the Subcontractor, will not convey to the Subcontractor any rights against the Agency, and will not relieve the Contractor or the Contractor's Surety of any of their responsibilities under the Contract.

(f) Failure to Comply - Failure to comply with 00180.21 will be cause for the Engineer to take action reasonably necessary to obtain compliance. This action may include, but is not limited to:

- Suspension of the Work;
- Withholding of Contract payments as necessary to protect the Agency; and
- Termination of the Contract.

00180.22 Payments to Subcontractors and Agents of the Contractor - To the extent practicable, the Contractor shall pay in the same units and on the same basis of measurement as listed in the Schedule of Items for subcontracted Work or other Work not done by the Contractor's own organization. In making payment to Subcontractors and to its other agents performing Work and furnishing Materials and Equipment to be incorporated into the Work, the Contractor shall assume all losses resulting from overpayment.

If requested in writing by a first-tier Subcontractor, the Contractor shall send to the Subcontractor, within 10 Calendar Days of receiving the request, a copy of that portion of any invoice or request for payment submitted to the Agency, or pay document provided by the Agency to the Contractor, specifically related to any labor, Equipment, or Materials supplied by the first-tier Subcontractor.

00180.30 Materials, Equipment, and Work Force - The Contractor shall furnish suitable and sufficient Materials, Equipment, and personnel to properly prosecute and complete the Work. The Contractor shall use only Equipment of adequate size and condition to meet the requirements of the Work and Specifications, and to produce a satisfactory quality of Work. Upon receipt of the Engineer's written order, the Contractor shall immediately remove, and not use again on the Project without the Engineer's prior written approval, Equipment that, in the Engineer's opinion, fails to meet Specifications or produce a satisfactory product or result.

The work force shall be trained and experienced for the Work to be performed. Upon receipt of the Engineer's written order, the Contractor shall immediately remove from the Project Site, and shall not employ again on the Project without the Engineer's prior written approval, any supervisor or employee of

the Contractor or any subcontractor who, in the Engineer's opinion, does not perform satisfactory Work or whose conduct interferes with the progress of the Work.

If the Contractor fails to remove Equipment or persons as ordered, or fails to furnish suitable and sufficient Materials, Equipment and personnel for the proper prosecution of the Work, the Engineer may suspend the Work by written notice until such orders are complied with and such deficiencies are corrected, or the Engineer may terminate the Contract under the provisions of 00180.90(a).

00180.31 Required Materials, Equipment, and Methods - The Engineer's decisions under this Section are final.

(a) General - When the Equipment and methods to be used are not specified in the Contract, any Equipment or methods that accomplish the Work as required by the Contract will be permitted.

When the Contract specifies certain Equipment or methods, the Contractor shall use the Equipment or methods specified unless otherwise authorized by the Engineer in writing.

(b) Substitution of Materials and Equipment to be Incorporated into the Work - After execution of the Contract, the Engineer may approve substitution of Materials and Equipment to be incorporated into the Work as follows:

(1) Reasons for Substitution - The Engineer will consider substitution only if:

- In the judgement of the Engineer, the proposed Materials or Equipment are equal to or superior to the specified items in construction, efficiency and utility; or
- Due to reasons beyond the control of the Contractor, the specified Materials or Equipment cannot be delivered to the Project in sufficient time to complete the Work in proper sequence.

(2) Submittal of Request - The Contractor shall submit requests for substitution to the Engineer, including manufacturers' brochures and other information needed to verify equality of the proposed item(s).

(c) Substitution of Equipment Specified to Perform Work - The Agency encourages development of new or improved Equipment and innovative use of Equipment. When the Specifications require Equipment of a particular size or type to be used to perform certain portions of the Work, the Contractor may submit a request to the Engineer to use Equipment of a different size or type. The request will not be considered as a cost reduction proposal under 00140.70. The request shall:

- Be in writing and include a full description of the Equipment proposed and its intended use;
- Include the reasons for requesting the substitution; and
- Include evidence, obtained at the Contractor's expense and satisfactory to the Engineer, that the proposed Equipment is capable of functioning as well as or better than the specified Equipment.

The Engineer will consider the Contractor's request and will provide a written response to the Contractor, either permitting or denying use of the proposed Equipment.

Permission may be granted on a trial basis to test the quality of Work actually produced, subject to the following:

- There will be no cost to the Agency, either in Contract Amount or in Contract Time;
- The permission may be withdrawn by the Engineer at any time if, in the Engineer's opinion, the Equipment is not performing in all respects equivalent to the Equipment specified in the Contract;
- If permission is withdrawn, the Contractor shall perform the remaining Work with the originally-specified Equipment; and
- The Contractor shall remove and replace nonspecification Work resulting from the use of the Contractor's proposed Equipment, or otherwise correct it as the Engineer directs, at no additional compensation.

(d) Substitution of Methods - The Agency encourages development of new, improved, and innovative construction methods. When the Plans or Specifications require a certain construction method for a portion of the Work, the Contractor may submit a request for a change by following the provisions of 00140.70, "Cost Reduction Proposals".

00180.32 Alternative Materials, Equipment, and Methods - Whenever the Contract authorizes certain alternative Materials, Equipment, or methods of construction for the Contractor's use to perform portions of the Work, and leaves the selection to the Contractor, the Agency does not guarantee that all listed alternative Materials, Equipment, or methods of construction can be used successfully throughout all or any part of the Work.

The Contractor shall employ only those alternatives that can be used to satisfactorily perform the Work. No additional compensation will be paid for corrective work necessitated by the Contractor's use of an inappropriate alternative.

00180.40 Limitation of Operations:

(a) In General - The Contractor shall comply with all Contract provisions and shall:

- Conduct the Work at all times so as to cause the least interference with traffic, and
- Not begin Work that may allow damage to Work already started.

(b) On-Site Work - The Contractor shall not begin On-Site Work until the Contractor has:

- Received Notice to Proceed;

- Filed with the Construction Contractors Board the public works bond as required in 00170.20;
- An approved Project Work schedule;
- An approved Traffic Control Plan;
- An approved Spill Prevention Control and Countermeasure Plan, if required;
- An approved Pollution Control Plan;
- An approved Erosion and Sediment Control Plan;
- Met with the Engineer at the required preconstruction conference; and

Assembled all Materials, Equipment, and labor on the Project Site, or has reasonably assured that they will arrive on the Project Site, so the Work can proceed according to the Project Work schedule.

00180.41 Project Work Schedules - The Contractor shall submit a Project Work schedule meeting the requirements of this Subsection to the Engineer. The Project Work schedule is intended to identify the sequencing of activities and time required for prosecution of the Work. The schedule is used to plan, coordinate, and control the progress of construction. Therefore, the Project Work schedule shall provide for orderly, timely, and efficient prosecution of the Work, and shall contain sufficient detail to enable both the Contractor and the Engineer to plan, coordinate, analyze, document, and control their respective Contract responsibilities.

The Contractor shall submit a schedule or plan for each activity that is behind schedule showing, in sufficient detail, the proposed corrective action to complete Contract Work within the Contract Time. Sufficient detail shall include all required double shifts, overtime work, or combination of both.

Contractor's activity related to developing, furnishing, monitoring, and updating these required schedules is Incidental.

The Contractor shall submit a supplemental "look ahead" Project Work schedule to the Engineer prior to or at each Progress Meeting. The "look ahead" Project Work schedule is supplemental to the Type A, B, or C schedule specified below. The supplemental "look ahead" Project Work schedule shall:

- Identify the sequencing of activities and time required for prosecution of the Work.
- Provide for orderly, timely, and efficient prosecution of the Work.
- Contain sufficient detail to enable both the Contractor and the Engineer to plan, coordinate, analyze, document, and control their respective Contract responsibilities.

The supplemental "look ahead" Project Work schedule shall be written in common terminology and show the planned Work activities broken down into logical, separate activities by area, stage, and size and include the following information:

- The resources the Contractor, subcontractors, or services will use.
- The locations of each activity that will be done including the limits of the work by mile posts, stations, or other indicators.
- The time frames of each activity by Calendar Days, shifts, and hours.
- All anticipated shoulder, lane, and road closures.

At a minimum, the Contractor shall prepare a bar chart that:

- Shows at least 3 weeks of activity including the week the bar chart is issued.
- Uses a largest time scale unit of 1 Calendar Day. Smaller time scale units may be used if needed.
- Is appropriate to the activities.
- Identifies each Calendar Day by month and day.

Include the Contract name, Contract number, Contractor's name, and date of issue on each page of the bar chart.

The Contractor shall submit the supplemental "look ahead" Project Work schedule starting at First Notification and continuing each week until Second Notification has been issued and all punch list items and final trimming and clean-up has been completed. The Contractor shall meet with the Engineer each week to review the supplemental "look ahead" Project Work schedule. If the Engineer or the Contractor determines that the current supplemental "look ahead" Project Work schedule requires changes or additions, either notations can be made on the current schedule or the Engineer may require the submittal of a revised supplemental "look ahead" Project Work schedule. Review of the current and subsequent supplemental "look ahead" Project Work schedules does not relieve the Contractor of responsibility for timely and efficient execution of the Contract.

One of the following Type "A", "B", or "C" schedules will be required under the Contract. The type of schedule will be identified in the Special Provisions.

(a) Type "A" Schedule - When a Type "A" schedule is required, the Contractor shall do the following:

(1) Schedule -At the preconstruction conference, the Contractor shall provide to the Engineer four copies of a Project Work schedule, including a time-scaled bar chart and narrative, showing:

- Expected beginning and completion dates of each activity, including all staging; and
- Elements of the Traffic Control Plan as required under 00225.05.

The schedule shall show detailed Work activities as follows:

- Construction activities;
- The time needed for completion of the utility relocation work;
- Submittal and approval of Materials samples and shop drawings;
- Fabrication, installation, and testing of special Materials and Equipment; and
- Duration of Work, including completion times of all stages and their sub phases.

For each activity, the Project Work schedule shall list the following information:

- A description in common terminology;
- The quantity of Work, where appropriate, in common units of measure;
- The activity duration in Calendar Days; and
- Scheduled start, completion, and time frame shown graphically using a time-scaled bar chart.

The schedule shall show the Work broken down into logical, separate activities by area, stage, or size. The duration of each activity shall be verifiable by manpower and Equipment allocation, in common units of measure, or by delivery dates.

The bar chart shall be prepared as follows:

- The length of bar shall represent the number of workdays scheduled.
- The time scale shall be appropriate for the duration of the Contract.
- The time scale shall be in Calendar Days.
- The smallest unit shown shall be 1 Calendar Day.
- The first day and midpoint of each month shall be identified by date.
- Distinct symbols shall be used to denote multiple shift, holiday, and weekend Work.

Each page of the bar chart shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the bar chart shall be drawn on a reasonable size of paper up to a maximum of 36 inch by 36 inch, using multiple sheets when needed.

Within 7 Calendar Days after the preconstruction conference, the Engineer and the Contractor shall meet to review the Project Work schedule as submitted. The Engineer will review the schedule for compliance with all Contract Time limitations and other restraints. Review of this and subsequent schedules by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract. Within 10 Calendar Days of this meeting, the Contractor shall resubmit to the Engineer four copies of the Project Work schedule, including required revisions.

(2) Review by the Engineer - The Project Work schedule may need revision as the Work progresses. Therefore, the Contractor shall periodically review the Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the Project Work schedule.

The Contractor shall compile an updated Project Work schedule incorporating any changes to the Project completion time(s). The bar chart shall reflect the updated information. The Contractor shall submit four copies of the updated Project Work schedule to the Engineer within 7 Calendar Days after the meeting. The report shall include without limitation the following:

- Sufficient narrative to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule; and
- Proposed corrective actions.

(b) Type "B" Schedule - When a Type "B Schedule is required, the Contractor shall do the following:

(1) Initial Schedule - 5 Calendar Days prior to the preconstruction conference, the Contractor shall provide to the Engineer four copies of a time-scaled bar chart Project Work schedule showing:

- Expected beginning and completion date of each activity, including all staging; and
- Elements of the Traffic Control Plan as required under 00225.05.

The initial schedule shall show all Work intended for the first 60 Days of the Contract to the level of detail described in (2) below, and shall show the priority and interdependence (sequencing and network logic) of all major segments of the remainder of the Work.

(2) Detailed Schedule - In addition to the above requirements, and within 30 Calendar Days after the Notice to Proceed, the Contractor shall provide the Engineer one digital copy and four paper copies of a detailed time-scaled bar chart Project Work schedule indicating the critical course of the Work. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer.

Detailed work schedule activities shall include the following:

- Construction activities;
- The time needed for completion of the utility relocation work;
- Submittal and approval of Material samples and shop drawings;
- Procurement of critical Materials;
- Fabrication, installation, and testing of special Material and Equipment; and
- Duration of Work, including completion times of all stages and their sub phases.

For each activity, the Project Work schedule shall list the following information:

- A description in common terminology;
- The quantity of Work, where appropriate, in common units of measure;
- The activity duration in normal workdays; and
- Scheduled start, completion, and time frame shown graphically using a time-scaled bar chart.

The schedule shall show the Work broken down into logical, separate activities by area, stage, or size. The duration of each activity shall be verifiable by manpower and Equipment allocation, in common units of measure, or by delivery dates.

The bar chart shall be prepared as follows:

- The length of bar shall represent the number of normal workdays scheduled.
- The time scale shall be appropriate for the duration of the Contract.
- The time scale shall be in normal workdays (every day except Saturday, Sunday, and legal holidays).
- The smallest unit shown shall be 1 Calendar Day.

- The first day and midpoint of each month shall be identified by date.
- Distinct symbols shall be used to denote multiple shift, holiday, and weekend Work.

The bar chart drawing(s) shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the bar chart shall be drawn on a reasonable size of paper up to a maximum of 36 inch x 36 inch, using multiple sheets when needed.

Within 10 Calendar Days after submission of the Project schedule the Engineer and the Contractor shall meet to review the Project schedule as submitted. Within 10 Days of the review meeting, the Contractor shall resubmit to the Engineer one digital and four paper copies of the Project schedule, including required revisions.

The accepted Project schedule shall represent all Work, as well as the planned sequence and time for the Work. Review of this and subsequent schedules by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract.

(3) Review and Reporting - The Project Work schedule may require revision as the Work progresses. Therefore, the Contractor shall monitor and when necessary revise the Project Work schedule as follows:

a. Review with the Engineer - The Contractor shall perform ongoing review of the Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the Project Work schedule. After any necessary action has been agreed upon, the Contractor shall make required changes to the Project Work schedule.

The Contractor shall collect information on all activities worked on or scheduled to be worked on during the previous report period, including shop drawings, Material procurement, and Contract Change Orders that have been issued. Information shall include commencement and completion dates on activities started or completed, or if still in progress, the remaining time duration.

The Contractor shall develop detailed sub-networks to incorporate changes, Additional Work, and Extra Work into the Project Work schedule. Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. The restraints shall include those activities from the Project Work schedule that initiated the sub-network as well as those restrained by it.

The Contractor shall evaluate this information and compare it with the Contractor's project schedule. If necessary, the Contractor shall make an updated bar chart schedule to incorporate the effect changes may have on the Project completion time(s). For any activity that has started, the Contractor shall add a symbol to show the actual date the activity started and the number of normal workdays remaining until completion. For activities that are finished, a symbol shall be added to show the actual date. The Contractor shall submit one digital and four paper copies of the updated

bar chart to the Engineer within 7 Days after the progress meeting, along with a progress report as required by "b." below.

b. Progress Report - The Contractor shall submit a progress report to the Engineer each month. The report shall include the following:

- Sufficient narrative to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule; and
- Proposed corrective actions.

(c) Type "C" Schedule - When a Type "C" Schedule is required, the Contractor shall do the following:

(1) Initial Schedule - 10 Calendar Days prior to the preconstruction conference, the Contractor shall provide to the Engineer one digital copy and four paper copies of a time-scaled bar chart Project Work schedule. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer. The initial schedule shall show:

- The expected beginning and completion date of each activity, including all stages and phases;
- The time needed for completion of the utility relocation work; and
- The elements of the traffic control plan as required under 00225.05.

A logic diagram and a time-scaled bar chart will be acceptable in lieu of a time-scaled logic diagram.

The initial schedule shall show all Work intended for the first 60 Days of the Contract to the level of detail described in (2) below, and shall show the priority and interdependence (sequencing and network logic) of all major segments of the remainder of the Work.

(2) Detailed Project Work Schedule - In addition to the above requirements, and within 30 Calendar Days after First Notification, the Contractor shall provide the Engineer one digital copy and four paper copies of a detailed time-scaled critical path method (CPM) network Project Work schedule and computer analysis printout, both clearly indicating the critical path. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer. The first submitted detailed time-scaled critical path method (CPM) network Project Work schedule shall also contain a listing of the quantity of Work for each activity, when appropriate, in common units of measure.

Detailed work schedule activities shall include the following:

- Construction activities;
- Any limitations of operation specified in 00180.40;
- The time needed for completion of the utility relocation work;
- Implementation of TCP for each stage and phase;
- Submittal and approval of Material samples, mix designs, and shop drawings;

- Agency timeframes to process and return Contractor submitted plans, working drawings, equipment lists and other submittals;
- Procurement of critical Materials;
- Fabrication, installation, and testing of special Material and Equipment;
- Duration of Work, including completion times of all stages and their sub-phases; and
- Specified cure times for all concrete elements.

The activities shall be separately identifiable by coding or use of sub-networks or both. The duration of each activity shall be verifiable and consistent with the description in the Project narrative required in (3) below.

Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. In the restraints, include those activities from any Project Work schedule that initiated the sub-network as well as those restrained by it.

The time scale used on the Contractor's detailed time-scaled critical path method (CPM) network Project Work schedule shall be appropriate for the duration of the activities and the Project duration. The time scale shall be in normal workdays, defined as every day except Saturday, Sunday and legal holidays, with calendar dates identified no less than the first and midpoint of each calendar month. The smallest unit shown shall be 1 Day. The network shall show the length of the activity or part scaled to accurately represent the number of normal workdays scheduled. Distinct symbols or graphics shall be used to show multiple shift, holiday, or weekend work.

The schedule network drawing(s) shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the drawings shall be on a reasonable size of paper up to a maximum of 36 inch x 36 inch, using multiple sheets when needed.

The Contractor shall include a tabulation of each activity in the computer mathematical analysis of the network diagram. The following information represents the minimum required for each activity:

- Event (node) number(s) for each activity;
- Maintain event (node) numbers throughout the Project;
- Activity description;
- Original duration of activities (in normal workdays);
- Estimated remaining duration of activities (in normal workdays);
- Earliest start date and actual start date (by calendar date);
- Earliest finish date and actual finish date (by calendar date);
- Latest start date (by calendar date);
- Latest finish date (by calendar date); and
- Slack or float time (in workdays).

Computer print-outs shall consist of at least a node sort and an "early start/total-float" sort.

Within 14 Calendar Days after submission of the detailed time-scaled critical path method (CPM) network Project Work schedule, the Engineer and the Contractor shall meet to review the detailed time-scaled critical path method (CPM) network Project Work schedule as submitted. Within 7 Calendar Days of the meeting, the Contractor shall resubmit to the Engineer one digital and four paper copies of the detailed time-scaled critical path method (CPM) network Project Work schedule, including required revisions.

This first accepted detailed time-scaled critical path method (CPM) network Project Work schedule, also called the accepted Project Work schedule, shall represent all Work, as well as the planned sequence and time for the Work. Review and acceptance of any Project Work schedules and Project narratives by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract.

(3) Project Narrative - In addition to the above requirements, and within 30 Calendar Days after First Notification, the Contractor shall provide to the Engineer a final written Project narrative that discusses the planning, coordinating, scheduling and resourcing of the Work. The Project narrative shall include the following written description:

- Plans for staging the project.
- All critical activities.
- All near critical activities defined as those with less than 30 Days of float.
- All subcontractor activities that are critical, near critical, and those that are greater than two weeks in duration.
- Labor resourcing, by stage and phase, to include the number of crews, average crew size and planned night/weekend shifts including that of subcontractors.
- Equipment allocation, by stage and phase to include mobilization, demobilization and planned activities including that of subcontractors.
- Notifications required under the Contract during each stage and phase which may include but is not limited to road closures, lanes closures, night work, cold plane pavement removal, and pile driving.
- Provide discussion on addressing reasonably predictable weather conditions and their impact on all weather sensitive activities. Also, provide discussion on other weather limitations that may affect the project schedule.
- Submittal and approval of material samples, mix designs, and shop drawings.
- Procurement of critical materials.
- Plans for dealing with "unique" construction items.
- Coordination of utilities and any immediate concerns for impacts/delays.
- Constructability issues.
- Cost Reduction Proposals and/or immediate requests for changes to the specifications.
- Concerns/issues that need to be addressed within the first 90 Days following First Notification.

The accepted Project narrative shall represent all critical and near critical Work, as well as the planned sequence and time for the Work.

(4) Review and Reporting - The Project Work schedule may require revision as the Work progresses. Therefore, the Contractor shall monitor and when necessary revise the Project Work schedule as follows:

a. Review with the Engineer - The Contractor shall perform ongoing review of the accepted Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the accepted Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the accepted Project Work schedule. After any necessary action has been agreed upon, the Contractor shall make required changes to the accepted Project Work schedule and associated Project narrative. Upon acceptance by the Engineer, this will become the new accepted Project Work schedule and associated Project narrative.

The Contractor shall collect information on all activities worked on or scheduled to be worked on during the previous report period, including shop drawings, Material procurement, and Contract Change Orders that have been issued. Information shall include actual start and completion dates on activities started or completed, or if still in progress, the remaining time duration.

The Contractor shall develop detailed sub-networks to incorporate changes, Additional Work, and Extra Work into the Project Work schedule. Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. The restraints shall include those activities from the Project Work schedule that initiated the sub-network as well as those restrained by it. The procedure for acceptance of the revised or updated Project Work schedule as the new accepted Project Work schedule will be as provided above.

The Contractor shall evaluate this information each month and compare it with the accepted Project Work schedule. The Contractor shall make an updated bar chart schedule to incorporate the effect changes may have on the Project completion time(s). For any activity that has started, the Contractor shall add a symbol to show the actual date the activity started and the number of normal workdays remaining until completion. For activities that are finished, a symbol shall be added to show the actual date. The Contractor shall submit , digitally and in paper, copies of the updated bar chart to the Engineer within 7 Days after the progress meeting, along with a progress report as required by "b." below.

b. Progress Report - Each month the Contractor shall submit a progress report and an update of the Project Work schedule to the Engineer. The report and updated schedule shall be submitted both digitally and in paper copy and shall include the following:

- A sufficient description, in narrative form, to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule;
- Proposed corrective actions;

- Proposals to keep the Project on schedule in the event of a delay; and
- Any changes to the logic as compared to the accepted Project Work schedule.

(d) Substitution of Schedules - When a Type "A" schedule is required, a Type "B" or Type "C" schedule may be substituted for the Type "A" schedule.

When a Type "B" schedule is required, a Type "C" schedule may be substituted for the Type "B" schedule.

(e) Specified Contract Time Not Superseded by Schedule Revisions - The completion dates in any Project Work schedule and any revised or updated Project Work schedules shall be within the Contract Time(s) specified for the Project, or within adjusted Contract Times approved according to 00180.80(c). Acceptance of any Project Work schedule or any revised or updated Project Work schedules shall not constitute approval of any completion dates that exceed such Contract Time(s). If the Contractor believes that additional Contract Time is due, the Contractor shall submit, with a revised Project Work schedule, a request for adjustment of Contract Time according to 00180.80(c). A request for an adjustment of Contract Time will be evaluated using the most recently accepted Project Work schedule.

(f) Float Time - Float time shown on the Project Work schedule, including any time between a Contractor's scheduled completion date and the specified Contract Time(s), does not exist for the exclusive use of either party to the Contract and belongs to the Project.

(g) Schedules Do Not Constitute Notice - Submittal of a Project Work schedule, with supporting Project narrative, does not constitute or substitute for any notice the Contractor is required under the terms of the Contract to give the Agency.

(h) Failure to Provide Schedule - The Project Work schedule is essential to the Agency. The Contractor's failure to provide the schedule, schedule information, progress reports, Project narratives, or schedule updates when required will be cause to suspend the Work, or to withhold Contract payments as necessary to protect the Agency, until the Contractor provides the required information to the Engineer.

00180.42 Preconstruction Conference - Unless otherwise approved in writing by the Engineer, before any Work is performed and within 7 Calendar Days of the Notice to Proceed, the Contractor shall meet with the Engineer for a preconstruction conference at a time mutually agreed upon.

00180.43 Commencement and Performance of Work - From the time of commencement of the Work to the time of Final Acceptance the Contractor shall:

- Provide adequate Materials, Equipment, labor, and supervision to perform and complete the Work;
- Perform the Work as vigorously and as continuously as conditions permit, and according to a Project Work schedule that ensures completion within the Contract Time or the adjusted Contract Time;
- Not voluntarily suspend or slow down operations without prior written approval from the Engineer; and
- Not resume suspended Work without the Engineer's written authorization.

00180.44 Project Meetings – The Contractor shall participate in conferences and meetings for the purposes of addressing issues related to the Work, reviewing and coordinating progress of the Work and other matters of common interest to the Contractor, Engineer and Agency.

(a) Meeting Participants - Representatives of entities participating in meetings shall be qualified and authorized to act on behalf of entity each represents.

(b) Meet in Agency's meeting room facility, or in a location otherwise agreed to by Agency and Contractor.

(c) Engineer will distribute to each anticipated participant written notice and agenda of each meeting at least 4 days before meeting.

(d) Require attendance of Contractor's superintendent and project manager, and subcontractors who are or are proximate to be actively involved in the Work, or who are necessary to agenda.

(e) Engineer will invite agencies, utility companies or others when the Work affects their interests, and others necessary to agenda.

(f) Engineer will record minutes of meeting and distribute copies of minutes within 7 days of meeting to participants and interested parties.

(g) Progress Meetings

(1) Purpose of Progress Meetings: To expedite work of subcontractors or other organizations that are not meeting scheduled progress, resolve conflicts, and coordinate and expedite execution of the Work.

(2) Attend regularly scheduled bi-weekly progress meetings conducted by Engineer.

(3) Review progress of the Work, Progress Schedule, 3-week look-ahead schedule, narrative report, Application for Payment, record documents, and additional items of current interest that are pertinent to execution of the Work.

(4) Verify:

- Actual start and finish dates of completed activities since last progress meeting.
- Durations and progress of activities not completed.
- Reason, time, and cost data for Change Order Work that will be incorporated into Progress Schedule and Application for Payment.
- Percentage completion of items on Application for Payment.
- Reasons for required revisions to Progress Schedule and their effect on Contract Time and Contract Amount.

(5) Review status of Requests for Clarification/Information and Submittals review.

(6) Discuss Project safety and security.

(7) Discuss traffic control.

(8) Discuss potential problems which may impede scheduled progress and corrective measures.

(h) Coordination Meetings

(1) Purpose of Coordination Meetings: To coordinate the Work of this Contract with the work of the Agency and with work of other contractors.

(i) Pre-Event Meetings

(1) Prior to start of critical activities, the Contractor shall schedule a meeting with Engineer review applicable specifications and drawings, coordination of inspection requirements and other key activities.

(j) Pre-Survey Conference

(1) The Contractor, applicable subcontractors, Contractor's surveyor, Agency and Agency's surveyor shall meet with the Engineer two weeks prior to beginning survey work. The purpose of the meeting is to discuss methods and practices of accomplishing the survey work.

(k) Other Meetings

(1) The Contractor shall prepare for and attend other meetings as identified elsewhere in the Contract Documents.

00180.50 Contract Time to Complete Work:

(a) General - The time allowed to complete the Work or Pay Item is stipulated in the Solicitation Documents, and will be known as the "Contract Time". (see 00110.20)

(b) Kinds of Contract Time - The Contract Time will be expressed in one or more of the following ways:

(1) Fixed Date Calculation - The calendar date on which the Work or Pay Item shall be completed; or

(2) Calendar Day Calculation - The number of Calendar Days from a specified beginning point in which the Work or Pay Item shall be completed.

(3) Work Day Calculation – The number of Work Days from a specified beginning point in which the Work or Pay item shall be completed.

(c) Beginning of Contract Time - When the Contract Time is stated in Calendar Days, counting of Contract Calendar Days will begin at the date of the Notice to Proceed. When the Contract Time is stated in Work Days, counting of Contract Work Days will begin at the date of the Notice to Proceed.

(d) Recording Contract Time - All Contract Time will be recorded and charged to the nearest one-half Day.

Contract Times may be extended because of delays in the completion of the Work due to abnormal weather conditions provided that the Contractor shall, within 10 days of the beginning of such delay, notify Engineer in writing of the cause of the delay and request an extension of time. Such requests shall be accompanied with supporting documentation referenced to the NOAA INDEX weather in the Project vicinity. Engineer will make recommendations to Agency to extend the Contract Times for completing the Work when, in Engineer's judgement, the findings of facts and extent of delay justify such an extension. Contractor shall not be entitled to any additional compensation of any kind arising out of or relating to abnormal weather conditions.

On Contracts with Calendar Day or Work Day counts, the Engineer will furnish the Contractor a weekly statement of Contract Time charges. The statement will show the number of Calendar Days counted for the preceding week and the number of Calendar Days remaining prior to the established completion date.

For Contracts with fixed completion dates, or fixed completion dates for Pay Items or fixed milestone dates, the Engineer will furnish the Contractor a weekly statement of Contract Time charges only after expiration of the Contract Time. The statement will show the number of Calendar Days of liquidated damages that have been assessed, if any.

These statements will include any exclusions from, or adjustments to, Contract Time.

(e) Exclusions from Contract Time - Regardless of the way Contract Time is expressed in the Contract, certain Calendar Days will not be charged against Contract Time. These exclusions will be allowed when the Contractor is prevented from performing Work due to one of the following reasons, resulting in delay:

- Acts of God or Nature;
- Court orders enjoining prosecution of the Work;
- Strikes, labor disputes or freight embargoes that, despite the Contractor's reasonable efforts to avoid them, cause a shutdown of the entire Project or one or more major operations. "Strike" and "labor dispute" may include union action against the Contractor, a Subcontractor, a Materials supplier, or the Agency; or
- Suspension of the Work by written order of the Engineer for reasons other than the Contractor's failure or neglect.

(f) Time Calculation Protest - In the event the Contractor disputes the accuracy of the statement of Contract Time charges, it shall immediately contact the Engineer and attempt to resolve the dispute. If the dispute cannot be resolved informally, the Contractor shall submit a formal written protest to the Engineer within 7 Calendar Days of the date the Engineer mailed or delivered the statement. Failure to submit a formal written protest within the 7 Calendar Day period constitutes the Contractor's approval of the time charges, or adjusted time charges, itemized in the statement.

(g) End of Contract Time - When the Engineer determines that the On-Site Work has been completed, except for the items listed below, the Engineer will issue a Second Notification.

The Second Notification will list:

- The date the time charges stopped;
- Final trimming and cleanup tasks (see 00140.90);
- Equipment to be removed from the Project Site;
- Minor corrective work not involving additional payment to be completed; and
- Submittals, including without limitation all required certifications, bills, forms, warranties, certificate of insurance coverage (00170.70(b)), and other documents, required to be provided to the Engineer before Third Notification will issue.

The Contractor shall complete all tasks listed in the Second Notification in an expeditious manner within the time frame proposed by the Contractor and accepted by the Engineer. Unless otherwise agreed by the Agency, failure of the Contractor to complete all tasks listed in the Second Notification within the time frame accepted, will result in the Agency rescinding the Second Notification. Counting of time charges will resume upon expiration of the accepted time frame.

00180.60 Notice of Delay - The Contractor shall notify the Engineer of any delay that will likely prevent completion of the Work or a Pay Item by the date specified in the Project Work schedule. The notice shall be in writing and shall be submitted within 7 Calendar Days of when the Contractor knew or should have known of the delay. The notice shall include, to the extent available, the following:

- The reasons or causes for the delay;
- The estimated duration of the delay and the estimated resulting cumulative delay in Contract completion;
- Except for 00180.50(e) and 00180.65 delays, whether or not the Contractor expects to request an adjustment of Contract Time due to the delay;
- Whether or not the Contractor expects to accelerate due to the delay; and
- Whether or not the Contractor expects to request additional compensation due to the delay. Except for 00180.50(e) and 00180.65 delays, failure to include this information will constitute waiver of the Contractor's right to later make such a request.
- If Contractor is delayed and has stopped Contract Item work for less than 60 minutes, neither additional Contract Time nor additional compensation will be considered.

00180.65 Right-of-Way and Access Delays - Right-of-Way and access delays will be taken into consideration in adjusting Contract Time, and in approving additional compensation if the performance of the Work is delayed because of the Agency's failure to make available to the Contractor:

- Necessary Rights-of-Way;
- Agency-owned or Agency-controlled Materials sources that are offered in the Contract for the Contractor's use; or
- Access to, or rights of occupancy of, buildings and other properties the Contractor is required to enter or to disturb according to Contract requirements.

If the ending date of an anticipated delay is stated in the Special Provisions, only the delay occurring after that date will be considered for adjusting Contract Time or providing additional compensation.

00180.70 Suspension of Work:

(a) General - The Engineer has authority to suspend the Work, or part of the Work, for any of the following causes:

- Failure of the Contractor to correct unsafe conditions;
- Failure of the Contractor to carry out any provision of the Contract;
- Failure of the Contractor to carry out orders issued by the Engineer, the Agency, or any regulatory authority;
- Existence of conditions unsuitable to proper or safe performance of the Work; or
- Any reason considered by the Agency to be in the public interest.

When Work has been suspended for any reason, the Contractor shall not resume Work without the Engineer's written authorization.

(b) Contractor's Responsibilities during and after Suspension - During periods of suspension of the Work, the Contractor shall continue to be responsible for protecting and repairing the Work according to 00170.80, and for ensuring that a single designated representative responsible for the Project remains available according to 00150.40(b).

When Work is resumed after suspension, unless otherwise specified in the Contract, the Contractor shall perform the following at no additional compensation:

- Replace or repair any Work, Materials, and Equipment to be incorporated into the Work that was lost or damaged because of the temporary use of the Project Site by the public; and
- Remove Materials, Equipment, and temporary construction necessitated by temporary maintenance during the suspension, as directed by the Engineer.

(c) Compensation and Allowances for Suspension - Compensation and allowance of additional Contract Time due to suspension of any portion of the Work will be authorized only for Agency-initiated suspensions for reasons other than the Contractor's failure or neglect. (refer to 00180.50(e), 00180.65, and 00195.40)

00180.80 Adjustment of Contract Time:

(a) General - Contract Time established for the Work will be subject to adjustment, either by increase or decrease, for causes beyond the control of the Contractor, according to the terms of this Subsection. After adjustment, the Contract Time will become, and be designated as, the "Adjusted Contract Time". Except as provided in 00180.65 and 00195.40, an adjustment of Contract Time shall be the Contractor's only remedy for any delay arising from causes beyond the control of the Contractor.

(b) Contractor's Request Not Required - The Engineer may increase or decrease the Contract Time or the Adjusted Contract Time if Change Orders or Extra Work orders issued actually increase or decrease the amount of time required to perform the Work. The Engineer may also increase Contract Time in the event of Right-of-Way and Access delays (see 00180.65), and those delays due to causes beyond the Contractor's control specified in 00180.50(e). The Engineer will promptly inform the Contractor of adjustments made to Contract Time according to this Subsection, and will include the reasons for adjustment.

If the Agency anticipates delay during performance of the Contract, and specifies its expected duration in the Special Provisions, the Engineer will only consider additional delay beyond the stipulated duration in determining whether to adjust Contract Time.

(c) Contractor's Request Required - In the event the Contractor believes that additional Contract Time is due, the Contractor shall submit to the Engineer a timely request for adjustment of Contract Time. The Engineer will not consider untimely requests. The Agency regards as timely only those requests for adjustment of Contract Time that:

- Accompany a proposed revised Project Work schedule submitted according to 00180.41, for comparison with the last revision of the Project Work schedule; or
- Are not otherwise deemed waived and are submitted within 15 Days after the date of Second Notification, if Second Notification has been issued.

The Engineer will not grant an adjustment of Contract Time for events that occurred prior to the date of the last revision of the Project Work schedule. The Engineer will not authorize, nor the Agency pay, acceleration costs incurred by the Contractor prior to its submittal of a request for adjustment of Contract Time to which the acceleration costs relate.

The Contractor's request for adjustment of Contract Time shall be submitted to the Engineer on a form provided by, or in a format acceptable to, the Engineer, and shall include a copy of the written notice required under 00180.60. The request shall include without limitation:

- Consent of the Contractor's Surety if the request totals more than 30 Calendar Days of additional Contract Time;
- Sufficient detail for the Engineer to evaluate the asserted justification for the amount of additional Contract Time requested;
- The cause of each delay for which additional Contract Time is requested, together with supporting analysis and data;
- Reference to the Contract provision allowing Contract Time adjustment for each cause of delay;
- The actual or expected duration of delay resulting from each cause of delay, expressed in Calendar Days; and
- A schedule analysis based on the current approved Project Work schedule for each cause of delay, indicating which activities are involved and their impact on Contract completion.

(d) Basis for Adjustment of Contract Time - In the adjustment of Contract Time, the Engineer will consider causes that include, but are not limited to:

- Failure of the Agency to submit the Contract and bond forms to the Contractor for execution within the time stated in 00130.50, or to submit the Notice to Proceed within the time stated in 00130.90;
- Errors, changes, or omissions in the Supplemental Drawings, quantities, or Specifications;
- Performance of Extra Work;
- Failure of the Agency or Entities acting for the Agency to act promptly in carrying out Contract duties and obligations;
- Acts or omissions of the Agency or Entities acting for the Agency that result in unreasonable delay referenced in 00195.40;
- Causes cited in 00180.50(e); and
- Right-of-way and access delays referenced in 00180.65.

The Engineer will not consider requests for adjustment of Contract Time based on any of the following:

- Contentions that insufficient Contract Time was originally specified in the Contract;
- Delays that do not affect the specified or Adjusted Contract Time;
- Delays that affect the Contractor's planned early completion, but that do not affect the specified or adjusted Contract Time;
- Shortage or inadequacy of Materials, Equipment or labor;
- Work stoppage required by the Engineer to determine the extent of Work defects
- Time for the Contractor to correct the Work defects from date of notification of the defects until the correction work is completed and has been approved by the Engineer.
- Late delivery of Materials and Equipment to be incorporated into the Work, except under those conditions referenced in 00180.50(e);
- Different area of Material source in 00160.40(a);
- Substitution of Equipment in 00180.31(c);
- Reasonably predictable weather conditions; or
- Other matters within the Contractor's control or Contract responsibility.

(e) Consideration and Response by Agency - The Engineer will only consider a Contractor's request for Contract Time adjustment submitted according to the requirements of 00180.80(c). The Engineer may elect not to consider claimed delays that do not affect the specified or adjusted Contract Time required to complete the Work.

The Engineer may adjust Contract Time for causes not specifically identified by the Contractor in its request.

The Engineer will review a properly submitted request for Contract Time adjustment, and within a reasonable time will advise the Contractor of the Engineer's findings. If the Contractor disagrees with the Engineer's findings, the Contractor may request review according to the procedure specified in 00199.40.

00180.85 Failure to Complete on Time; Liquidated Damages:

(a) Time is of the Essence - Time is of the essence in the Contractor's performance of the Contract. Delays in the Contractor's performance of the Work may inconvenience the traveling public, interfere with business and commerce, and increase cost to the Agency. It is essential and in the public interest that the Contractor prosecute the Work vigorously to Contract completion.

The Agency does not waive any rights under the Contract by permitting the Contractor to continue to perform the Contract, or any part of it, after the Contract Time or adjusted Contract Time has expired.

(b) Liquidated Damages - The Agency will sustain damage if the Work is not completed within the specified Contract Time. However, in certain Agency projects it may be unduly burdensome and difficult to demonstrate the exact dollar value of such damages. The Agency will identify such projects in the Special Provisions related to them. In these projects, the Contractor agrees to pay to the Agency, not as a penalty but as liquidated damages, the amount specified in the Special Provisions for each Calendar Day the Contractor expends performing the Contract in excess of the Contract Time or adjusted Contract Time.

Payment by the Contractor of liquidated damages does not release the Contractor from its obligation to fully and timely perform the Contract according to its terms. Nor does acceptance of liquidated damages by the Agency constitute a waiver of the Agency's right to collect any additional damages it may sustain by reason of the Contractor's failure to fully perform the Contract according to its terms. The liquidated damages shall constitute payment in full only of damages incurred by the Agency due to the Contractor's failure to complete the Work on time.

If the Contract is terminated according to 00180.90(a), and if the Work has not been completed by other means on or before the expiration of Contract Time or adjusted Contract Time, liquidated damages will be assessed against the Contractor for the duration of time reasonably required to complete the Work.

00180.90 Termination of Contract and Substituted Performance:

(a) Termination for Default - Termination of the Contract for default may result if the Contractor:

- Fails to comply with the requirements for records;
- Violates any material provision of the Contract;
- Disregards applicable laws and regulations or the Engineer's instructions;
- Refuses or fails to supply enough Materials, Equipment or skilled workers for prosecution of the Work in compliance with the Contract;
- Fails to make prompt payment to Subcontractors;
- Makes an unauthorized general assignment for the benefit of the Contractor's creditors;
- Has a receiver appointed because of the Contractor's insolvency;

- Is adjudged bankrupt and the court consents to the Contract termination; or
- Otherwise fails or refuses to faithfully perform the Contract according to its terms and conditions.

If the Contract is terminated by the Agency, upon demand the Contractor and the Contractor's Surety shall provide the Engineer with immediate and peaceful possession of the Project Site, and of all Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50.

If the Contract is terminated for default, neither the Contractor nor its Surety shall be:

- Relieved of liability for damages or losses suffered by the Agency because of the Contractor's breach of Contract; or

- Entitled to receive any further progress payments until the Work is completed. However, progress payments for completed Work that remain due and owing at the time of Contract termination may be made according to the terms of 00195.50, except that the Engineer will be entitled to withhold sufficient funds to cover costs incurred by the Agency as a result of the termination. Final payment to the Contractor will be made according to the provisions of Section 00195.

If a termination under this provision is determined by a court of competent jurisdiction to be unjustified, the termination shall be deemed a termination for public convenience.

(b) Substituted Performance - According to the Agency's procedures, and upon the Engineer's recommendation that sufficient cause exists, the Agency, without prejudice to any of its other rights or remedies and after giving the Contractor and the Contractor's Surety 10 Calendar Days' written notice, may:

- Terminate the Contract;
- Substitute the Contractor with another Entity to complete the Contract;
- Take possession of the Project Site;
- Take possession of Materials on the Project Site;
- Take possession of Materials not on the Project Site, for which the Contractor received progress payments under 00195.50;
- Take possession of Equipment on the Project Site that is to be incorporated into the Work;
- Take possession of Equipment not on the Project Site that is to be incorporated into the Work, and for which the Contractor received progress payments under 00195.50; and
- Finish the Work by whatever method the Agency deems expedient.

If, within the 10 Calendar Day notice period provided above, the Contractor and/or its Surety corrects the basis for declaration of default to the satisfaction of the Engineer, or if the Contractor's Surety submits a proposal for correction that is acceptable to the Engineer, the Contract will not be terminated.

(c) Termination for Public Convenience - The Engineer may terminate the Contract for convenience in whole or in part whenever the Engineer determines that termination of the Contract is in the best interest of the public.

The Engineer will provide the Contractor and the Contractor's Surety 7 Calendar Days' written notice of termination for public convenience. After such notice, the Contractor and the Contractor's Surety shall provide the Engineer with immediate and peaceful possession of the Project Site, and of Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50.

If the Contract is terminated for public convenience, neither the Contractor nor its Surety shall be relieved of liability for damages or losses suffered by the Agency as a result of defective, unacceptable or unauthorized Work completed or performed.

Compensation for Work terminated by the Engineer under this provision will be determined according to the provisions of 00195.70(b).

00180.95 Project Closeout

(a) Description of Requirements – Project Closeout is defined to include general requirements near the end of the Contract Time, in preparation for Substantial Completion, Final Completion, final payment, normal termination of Contract, occupancy by Agency and similar actions evidencing completion of the Work. Specific requirements for individual units of Work are specified in various technical specification sections.

(b) Prerequisites To Substantial Completion

(1) Prior to requesting Engineer's inspection for certification of Substantial Completion for the entire work, complete the following and list known exceptions in request:

- In progress payment request, coincide with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete", or list incomplete items, value of incompletion, and reasons for being incomplete. Include supporting documentation for completion as indicated in these Contract Documents.
- Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
- Obtain and submit releases enabling Agency's full and unrestricted use of the Work and access to services and utilities.
- Deliver tools, spare parts, extra stocks of materials, and similar physical items to Agency.
- Where applicable, make final change-over of locks and transmit keys to Agency and advise Agency's personnel of change-over in security provisions.

- Complete start-up testing of systems, and instructions of Agency's operating/maintenance personnel. Discontinue (or change-over) and remove from Project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.

- Touch-up and otherwise repair and restore marred exposed finishes.

(2) Upon receipt of Contractor's request, Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Engineer will either prepare Certificate of Substantial Completion, or advise Contractor of Work which must be performed prior to issuance of certificate; a repeat inspection will be performed when requested and assured by the Contractor that Work has been substantially completed. Results of completed inspection will form initial "punch-list" requirements for Final Completion. If more than two visits are required to complete the final inspection for Substantial Completion then the Contractor shall pay the Agency for the Engineer's time, for all categories of labor required to complete the inspection for Substantial Completion at the Engineer's standard billing rates at the time of inspection. This time shall include time for travel and time to prepare inspection reports. Contractor shall also pay the Engineer's expenses at cost plus 10% and $0.55 per mile for travel to and from the site.

(c) Prerequisites To Final Completion

(1) Prior to requesting Engineer's final inspection for final payment and acceptance, complete the following and list known exceptions (if any) in request:

- Submit final payment request with final releases and supporting documentation which have not previously been submitted and accepted. Include certificates of insurance for products and completed operations where required.

- Submit updated final statement, accounting for additional (final) changes to Contract Amount.

- Submit certified copy of Engineer's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Engineer.

- Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of Substantial Completion or when Agency took possession of and responsibility for corresponding elements of the work.

- Submit consent of surety.

- Submit final liquidated damages settlement statement, acceptable to Agency.

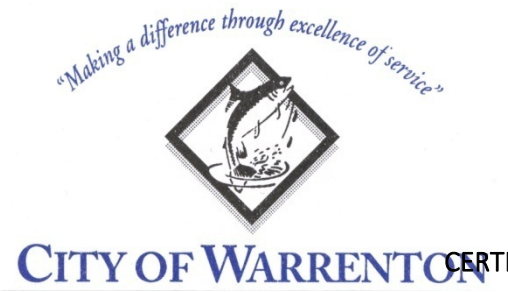
- Submit record drawings, maintenance manuals, and similar final record information.

(2) Re-inspection Procedure: Upon receipt of Contractor's notice that the Work has been completed, including punch-list items resulting from earlier inspections, and accepting incomplete items delayed because of acceptable circumstances, Engineer will re-inspect the work. Upon completion of re-inspection, Engineer will either make recommendation for final payment and acceptance by the Agency or advise Contractor of work not completed or obligations not fulfilled as required for final payment. If necessary, procedure will be repeated. If more than two visits are required to complete the final inspection for final payment then the Contractor shall pay the Agency for the Engineer's time, for all categories of labor required to complete the inspection for final acceptance at the Engineer's standard billing rates at the time of inspection. This time shall include time to travel and time to prepare inspection reports. Contractor shall also pay the Engineer's expenses at cost plus 10% and $0.55 per mile for travel to and from the site.

(d) Closeout Documents

(1) Submit following Closeout Submittals after receipt of Second Notification and at least seven (7) days prior to Application for Final Payment:

- Evidence of Compliance with Requirements of Governing Authorities.
- Project Record Documents.
- Operation and Maintenance Manuals.
- Warranties and Bonds.
- Keys and Keying Schedule.
- Evidence of Payment and Release of Liens as outlined in Conditions of the Contract.
- City of Warrenton Certificate of Compliance provided at the end of this Section



CERTIFICATE OF COMPLIANCE

City of Warrenton
225 S Main Ave
Warrenton, OR 97146

ATTN: Public Works Director

PROJECT NAME: _____

PROJECT LOCATION: _____

I hereby certify that:

A. All work on the above referenced contract has been performed and materials supplied in accordance with the plans, specifications and contract documents for the above work;

B. There have been no substitutions of Subcontractors without prior notification to the City in accordance with ORS279C.585;

C. Contractor and subcontractors performing work under this contract were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.138 before commencing work under the contract;

D. All payments due to all persons supplying labor or material for the performance of the work provided for in this contract have been made;

E. All contributions or amounts due the Industrial Accident Fund from the contractor or subcontractors incurred in the performance of the contract have been paid;

F. All sums withheld from employees under ORS 316.167 have been paid to the Department of Revenue.

Authorized Signature_____ Date_____

Section 00190 - Measurement of Pay Quantities

Description

00190.00 Scope - The Engineer will measure pay quantities for accepted Work according to the United States standard measure unless otherwise provided in the Contract. Unless otherwise specified in the Contract, the Engineer will round off all quantity computations using the following convention:

- The final significant digit will not be changed when the succeeding digit is less than 5.
- The final significant digit will be increased by one when the succeeding digit is 5 or greater.

The measurement provisions contained in the Specifications for each Pay Item will supplement or modify the above convention by:

- Imposing measurement limitations
- Describing measurement or computation procedures
- Giving conversion factors or adjustment conditions
- Providing for determination of reasonably accurate and representative Pay Item quantities

Measurements required or allowed to be made by the Contractor will be subject to the Engineer's verification. The Engineer's decision about measurement is final.

00190.10 Measurement Guidelines - Measurement of quantities will be made on the following bases, unless otherwise specified in the Contract:

(a) Unit Basis - Unit will be each, unless otherwise specified in the Contract and will be determined by actual count of units in place.

(b) Length Basis - Length will be feet or mile, unless otherwise specified in the Contract and will be determined by measuring the length at least to the nearest 0.1 foot or at least to the nearest 0.1 mile, as applicable, unless otherwise specified in the Contract. Measurements will be limited to the dimensions shown or specified, or as directed by the Engineer.

(c) Area Basis - Area will be square foot, square yard, or acre, unless otherwise specified in the Contract and will be determined by measuring the width and the length (or height) at least to the nearest 0.1 foot and computed at least to the nearest 0.1 square foot, nearest 0.1 square yard, or nearest 0.1 acre, as applicable, unless otherwise specified in the Contract.

(d) Weight Basis - Weight will be pound or ton, unless otherwise specified in the Contract and will be determined as follows:

(1) Pound - Pound weight will be determined by the net weight identified on the manufacturer's packaged labels, subject to periodic check weighing. Weight by pound will be measured at least to the nearest 1.0 pound unless otherwise specified in the Contract.

Provide a certificate with each shipment together with a certified copy of the weight of each delivery. If the check weight is less than the manufacturer weight by more than 0.4%, the discrepancy will be resolved by the Engineer.

(2) Ton - Ton weight will be determined on Contractor-provided scales as required under 00190.20 unless otherwise allowed by the Specifications. Weight by ton will be measured at least to the nearest 0.01 ton unless otherwise specified in the Contract.

If bituminous materials, portland cement, lime, and similar bulk Materials are shipped by truck or rail, the supplier's shipping invoice with net scale weights, or volumes converted to weights, may be used for Pay Item quantity determination in place of weights determined on the Contractor-provided vehicle scales.

Shipping invoice weights of the supplier's truck or transport shall be subject to periodic check weighing on the Contractor's vehicle scales, or other scales designated, according to 00190.20. If the check weight is less than the supplier weight by more than 0.4%, the discrepancy will be resolved by the Engineer.

No payment will be made:

- For quantities in excess of the supplier weight
- When Materials have been lost, wasted, or otherwise not incorporated into the Work
- For additional hauling costs resulting from the check weighing

(e) Volume Basis - Volume will be cubic yard truck measure or in-place measure, gallons, foot board measure (FBM), or thousand foot board measure (MFBM), unless otherwise specified in the Contract and will be measured at least to the nearest 0.1 cubic yard, nearest 1.0 gallon, nearest 0.1 FBM, or nearest 0.1 MFBM, as applicable, unless otherwise specified in the Contract.

Truck measure will be the measured and calculated maximum "water level" capacity of the vehicle. Quantities will be determined at the point of delivery, with no allowance for settlement of Material during transit. When required to facilitate measurement, the vehicle load shall be leveled at the point of delivery. Payment will not be made for Material in excess of the maximum "water level" capacity. Deductions will be made for loads below the maximum "water level" capacity.

When bituminous materials are measured by volume, the volume will be measured at 60 °F or will be corrected to the volume at 60 °F using the correction factors found in the MFTP (ODOT TM 321).

(f) Time Basis - Time will be hour, Day, or year, unless otherwise specified in the Contract, and will be measured to at least the nearest 0.5 hour, nearest 1.0 Day, or nearest 1.0 year, as applicable, unless otherwise specified in the Contract.

(g) Standard Manufactured Items - If standard manufactured items, such as fence, wire, plates, rolled shapes, pipe, conduit and other similar items are specified in the Contract by properties such as gauge, unit weight, or section dimensions, the manufacturing tolerances established by the industry involved will be accepted unless more stringent tolerances are cited in the Contract.

(h) Lump Sum Basis - Lump sum, when used, means the Work described shall be completed and accepted without measurement unless changes are ordered in writing by the Engineer. If estimated quantities of the Work to be performed are listed in the Special Provisions, they provide only a basis for adjusting payment amounts. Estimated quantities are approximate only, and are made from a reasonable interpretation of the Contract Documents. Computations based on the details and dimensions shown on the Contract Documents are not guaranteed to equal estimated quantities.

If the Agency issues no Change Order, the Agency will make no pay adjustment for quantities based on the Contractor's computations that overrun or underrun the estimated quantities.

If the Agency issues Change Orders for changes in the Work, the Engineer will measure such changes according to the standards set by 00195.20 to determine adjustment of payment.

00190.20 Contractor to Provide Vehicle Weigh Scales:

(a) General - If the Specifications require measurement by weighing on vehicle weigh scales, the Contractor shall provide vehicle weigh scales and shall transport Materials to the scales. Subject to the Engineer's approval, weights may be determined by plant or hopper scales according to 00190.30.

Contractor-provided scales shall be furnished, installed and maintained by the Contractor or its supplier, or, subject to the Engineer's approval, may be commercial scales located in the vicinity of the Project.

Unless otherwise provided in the Contract, Pay Items to be measured by weight shall include all Contractor costs for providing, maintaining, inspecting, and testing scales; for furnishing appropriate weigh tickets; for self-printing scales; and for transporting Materials to the scales or to check weighing.

(b) Requirements - The scales shall conform to ORS 618, or the laws of the state in which they are located, and NIST Handbook 44, and shall be:

- Licensed by the Oregon Department of Agriculture, or by the analogous regulatory body for scales located outside the State;
- Technically suitable for weighing the Materials;
- Properly installed and maintained; and
- Accurate to the required tolerances.

The weight of any Materials weighed by anyone other than the Engineer will be subject to check weighing as the Engineer directs.

(c) Approaches - Vehicle scale approaches shall be:

- At each end of the scale platform;
- Straight and in line with the platform; and
- Long enough to accommodate combination vehicles longer than the scale platform so that they are level and allow release of brakes before weighing.

(d) Inspections - Contractor shall have all scales certified, that is inspected and their accuracy tested, by the Oregon Department of Agriculture, an analogous regulatory body for scales located outside the State, or a scale service company as follows:

- Before use if installed at a new site;
- 60 Calendar Days after initial inspection;
- Every 6 months thereafter; and
- When the Engineer directs additional inspections.

No Materials weighed on scales without current certifications according to this Subsection will be accepted. The Contractor shall provide a copy of all required certifications to the Engineer.

Testing by a scale service company within the State of Oregon shall comply with ORS 618.

If additional inspections directed by the Engineer confirm that the scale accuracy is within the required tolerances, the Agency will pay the cost for inspecting and testing the scales. If the scale accuracy is not within these tolerances, the Contractor shall pay the cost for inspecting and testing the scales.

(e) Inspection Results - If an inspection indicates the scales have been under-weighing (indicating less than the true weight), the Agency will make no additional payment to the Contractor for Materials previously weighed.

If an inspection indicates the scales have been over-weighing (indicating more than the true weight), the weights will be reduced for Materials received after the time the Engineer determines the overweighing began or, if that is not possible, after the last acceptable certification of the scales. The reduction will be the amount of error in excess of the 0.2% maintenance tolerance allowed in the Contract.

(f) Contractor-Provided Weigh Technician - The Contractor shall provide a technician to operate Contractor-provided vehicle weigh scales. The Agency may observe procedures and require check weighing according to the following:

(1) Scale with Automatic Printer - If the scales have an automatic weigh memo printer that does not require manual entry of gross weight information, the Agency may periodically have a representative at the scales to observe the weighing procedures. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

If a different scale is not available within a 30 mile round trip from the regular haul route the Agency will allow check weighing on an approved alternate basis. Check weights within 0.4% of the Contractor-provided weight are acceptable.

The Engineer will resolve discrepancies found by check weighing. Agency employee costs will be paid by the Agency. The Contractor shall pay all other costs resulting from the check weighings, including without limitation the use of other scales.

If more than 50 tons per Day of all types of Materials are received from a scale, the Contractor shall make random check weighings at least every tenth Day on which more than 50 tons is received or at each interval that 10,000 tons has been weighed, whichever occurs first, or as directed by the Engineer. The Contractor shall make at least one check weighing on projects where more than 2,000 tons of all types of Materials are received from a scale. The Contractor shall provide the Engineer with the results of the check weighing.

(2) Scale Without Automatic Printer - If the scales require manual entry of gross weight information, the Agency may periodically have a representative weigh witness at the scales to observe the weighing procedures. The Contractor shall inform the Engineer of his intent to use a scale without an automatic printer at least 3 working Days before weighing begins or before the Contractor changes to a scale that does not have an automatic printer. The Contractor shall pay costs for the weigh witness. The hourly cost of the weigh witness will be as stated in the Special Provisions. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

If a different scale is not available within a 30 mile round trip from the regular haul route the Agency will allow check weighing on an approved alternate basis. Check weights within 0.4% of the Contractor-provided weight are acceptable.

The Engineer will resolve discrepancies found by check weighing. Agency employee costs for check weighings will be paid by the Agency. The Contractor shall pay all other costs resulting from the check weighings, including without limitation the use of other scales.

If more than 50 tons per Day of all types of Materials are received from a scale, the Contractor shall make random check weighings at least every tenth day on which more than 50 tons is received or at each interval that 10,000 tons has been weighed, whichever occurs first, or as directed by the Engineer. The Contractor shall make at least one check weighing on all projects where materials are received from a scale without an automatic printer. The Contractor shall provide the Engineer with the results of the check weighing.

(3) Duties of Weigh Technician - The Contractor's weigh technician shall:

- Determine twice a Day, or as otherwise directed by the Engineer, the empty haul weights (tare weights) of hauling vehicles, unless vehicles are tared before each load;
- Furnish daily a listing of the tare weights if 10 or more loads are hauled during that Day;
- Furnish a note listing the net weight for each consecutive ten loads with the following load;
- Furnish a daily listing of the net weights and total weight for each type of Material hauled during that Day; and
- Furnish a legible, serially numbered weigh memo for each load of Materials to the Agency's Materials receiver at the point of delivery, or as directed by the Engineer. The memo shall identify the Project, the Materials, the date, net weight (gross and tare as appropriate), and identification of vehicle, driver and weigh technician.

(g) Agency-Provided Weigh Technician - If the Contractor provides vehicle weigh scales without a weigh technician meeting the requirements of this Subsection, the Agency will provide a weigh technician at

the Contractor's expense. The Contractor shall provide a weighhouse for the weigh technician according to Section 00205. The Agency's weigh technician will:

- Determine tare weights;
- Prepare weigh memos for each load;
- Compile the weigh records; and
- Not participate in the production of Materials or the loading of haul vehicles.

00190.30 Plant Scales - The Contractor, with the Engineer's written approval, may weigh plant-mixed Materials on scales that have either:

- An automatic weight batching and mixing control printer system; or
- A weigh hopper printer system.

Any additional costs resulting from the use of these scales shall be borne by the Contractor. Check weighing will be done according to 00190.20(f).

Except for 00190.20(c) regarding approaches, the Contractor's use of plant scales shall comply with all provisions of 00190.20.

The Engineer's approval for the Contractor's use of plant scales to determine pay weights will be rescinded if check weighing or scale inspections indicate the scales do not consistently determine weights within the tolerances allowed by state law.

Section 00195 - Payment

Description

00195.00 Scope and Limit:

(a) General - The Agency will pay only for measured Pay Item quantities incorporated into the Work or performed according to the terms of the Contract. The Contractor understands and agrees that Pay Item quantities listed in the Schedule of Items do not govern payment.

Payment constitutes full compensation to the Contractor for furnishing all Materials, Equipment, labor, and Incidentals necessary to complete the Work; and for risk, loss, damage, and expense arising from the nature or prosecution of the Work or from the action of the elements, subject to the provisions of 00170.80. The Contractor shall include the costs of bonds and insurance for the Project in the unit price for each Pay Item of Work to be performed.

(b) Essential or Incidental Materials or Work - When the Specifications state that the unit price for a Pay Item is compensation for certain Materials or Work essential or Incidental to the Pay Item, the same Materials or Work will not be measured or paid under any other Pay Item.

Provisions and Requirements

00195.10 Payment For Changes in Materials Costs - On certain projects, as identified in the Special Provisions, an escalation/de-escalation clause with respect to certain materials will be in effect during the life of the Contract.

00195.13 Asphalt Cement Material Price Escalation/De-Escalation Clause - Subsections 00195.13, 00195.13(a), 00195.13(b), 00195.13(c), and 00195.13(d) contain the price escalation/de-escalation clause relating to asphalt cement materials (as defined in 00195.13(d)).

(a) Monthly Asphalt Cement Material Price (MACMP) - The Monthly Asphalt Cement Material Price (MACMP) will be established by ODOT each month. For information regarding the calculation of the MACMP, and for the actual MACMP, go to the ODOT website at:

http://www.oregon.gov/ODOT/HWY/ESTIMATING/asphalt_fuel.shtm

If the ODOT selected index ceases to be available for any reason, the Agency in its discretion will select and begin using a substitute price source or index to establish the MACMP each month. The MACMP will apply to all asphalt cement including but not limited to paving grade, polymer modified, and emulsified asphalts, and recycling agents. The Agency does not guarantee that asphalt cement will be available at the MACMP

(b) **Base Asphalt Cement Material Price (Base) -** The Base price for this Project is the MACMP published on the ODOT website for the month immediately preceding the bid opening date.

(c) Monthly Asphalt Cement Adjustment Factor - The Monthly Asphalt Cement Adjustment Factor will be determined each month as follows:

- If the MACMP is within ± 5% of the Base, there will be no adjustment.
- If the MACMP is more than 105% of the Base, then:

  Adjustment Factor (%) = ((MACMP)/(Base)) x (100) – 5

- If the MACMP is less than 95% of the Base, then:

  Adjustment Factor (%) = ((MACMP)/(Base)) x (100) + 5

(d) Asphalt Cement Price Adjustment – If specified in the Special Provisions, an asphalt cement escalation/de-escalation clause will be in effect during the life of the Contract. A price adjustment will be made for each pay item in the bid schedule containing asphalt cement. The price adjustment as calculated in 00195.13(c) above will use the MACMP for the month the asphalt is incorporated into the Project. The price adjustment per a ton of HMAC incorporated that month will be the difference between the cost submitted by the Contractor in the bid schedule for "Asphalt Cement in HMAC Per Ton of HMAC Complete" and the adjusted cost found by multiplying the "Asphalt Cement in HMAC Per Ton Of HMAC Complete" by the Adjustment Factor. The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision shall not limit those rights.

00195.20 Changes to Plans or Character of Work:

(a) Insignificant Changed Work - If the changes made under 00140.30 do not significantly change the character or unit cost of the Work to be performed under the Contract, the Agency will pay for such work at the Pay Item price.

If the Work involved in the change is measured on a lump sum basis and its character is not significantly changed, payment for the Changed Work will be determined:

- As described in the applicable Section of the Specifications;
- If not described there, on a theoretical unit price determined by dividing the Contractor's lump sum price by the estimated quantity of the Pay Item listed in the Special Provisions; or
- If neither of the above apply, the Engineer will make an equitable adjustment.

(b) Significant Changed Work - If the changes made under 00140.30 significantly alter the character, quantity, unit cost, or lump sum cost of the Work, the Agency will adjust the Contract. The Contractor shall not be entitled to compensation for any loss in profits resulting from elimination of, reduction of, or other change to, a part of the Work.

Any such adjustments may be less than, but will not be more than the amount justified by the Engineer on the basis of the established procedures set out in Section 00197 for determining rates for Extra Work, but those procedures shall account for the decrease or elimination of Work as well as for increases in the Work. This does not limit the application of Section 00199.

The term "Significant Changed Work" shall apply only to that circumstance in which the character of the Work, as changed, differs materially in kind, nature, or unit cost from that involved or included in the originally proposed construction.

For purposes of this Section, “Significant” is defined as:

a) An increase or decrease of more than 25 percent of the total cost of the Work calculated from the original proposal quantities and the unit contract prices; or,
b) An increase or decrease of more than 25 percent in the quantity of any one major contract item.

For condition b) above, a major item is defined as any item that amounts to 10 percent or more of the original total contract price.

00195.30 Differing Site Conditions - Upon written notification, as required in 00140.40, the Engineer will investigate the identified conditions. If the Engineer determines that the conditions are differing Project Site conditions under 00140.40 and cause an increase or decrease in the cost or time required to perform any Work under the Contract, an adjustment in the Contract Amount or Contract Time, excluding loss of anticipated profits, will be made, and the Contract modified accordingly, in writing. The Engineer will notify the Contractor as to whether or not an adjustment of the Contract is warranted.

No Contract adjustment which benefits the Contractor will be allowed unless the Contractor has provided the required written notice. Any such adjustments will be made according to 00195.20.

00195.40 Unreasonable Delay by the Agency - If the Contractor believes that performance of all or any portion of the Work is suspended, delayed, or interrupted for an unreasonable period of time in excess of that originally anticipated or customary in the construction industry, due to acts or omissions of the Agency, or persons acting for the Agency, and that additional compensation, Contract Time, or both, are due the Contractor because of the suspension, delay or interruption, the Contractor shall immediately file a written notice of delay according to 00180.60. The Contractor shall then promptly submit a properly supported request for any additional compensation, Contract Time, or both, according to the applicable provisions in 00180.60 through 00180.80 and Section 00199.

The Engineer will promptly evaluate a properly submitted request for additional compensation. If the Engineer determines that the delay was unreasonable, and that the cost required for the Contractor to perform the Contract has increased as a result of the unreasonable suspension, delay or interruption, the Engineer will make an equitable adjustment, excluding profit, and modify the Contract in writing accordingly. The Engineer will notify the Contractor of the determination and whether an adjustment to the Contract is warranted.

Under this provision, no Contract adjustment will be allowed:

- Unless the Contractor has provided the written notice required by 00180.60;
- For costs incurred more than 10 Calendar Days before the Engineer receives the Contractor's properly submitted written request;
- For any portion of a delay that the Engineer deems to be a reasonable delay, or for which an adjustment is provided for or excluded under other terms of the Contract; or
- To the extent that performance would nevertheless have been suspended, delayed or interrupted by causes other than those described in this Subsection.

00195.50 Progress Payments and Retained Amounts:

(a) **Progress Payments** - The Agency's payment of progress payments, or determination of satisfactory completion of Pay Items or Work or release of retainage under 00195.50(d), shall not be construed as Final Acceptance or approval of any part of the Work, and shall not relieve the Contractor of responsibility for defective Materials or workmanship or for latent defects and warranty obligations.

The estimates upon which progress payments are based are not represented to be accurate estimates. All estimated quantities are subject to correction in the final estimate. If the Contractor uses these estimates as a basis for making payments to Subcontractors, the Contractor assumes all risk and bears any losses that result.

(1) Progress Estimates - At the same time each month, the Engineer will make an estimate of the amount and value of Pay Item Work completed. The amount of Work completed will be the sum of the estimated number of units completed for unit price Pay Items plus the estimated percentage completed of lump sum Pay Items.

The estimated value of the Work completed will then be determined by using the Contract unit price for unit price Pay Items, and by using one of the following methods to determine the value of the lump sum Pay Items:

- The "theoretical unit price", when the Special Provisions contain an estimated number of units;
- A Contractor-submitted, Engineer-approved Schedule of Values, when there is no theoretical unit price available; or
- Engineer's determination, when there is neither an available theoretical unit price, nor an approved, Contractor-submitted Schedule of Values.

The amounts to be allowed for lump sum Pay Items in progress payments will not exceed the reasonable value of the Work performed, as determined by the Engineer.

Incidentals such as formwork, falsework, shoring, and cribbing shall be included in the unit prices for the various Pay Items requiring their use, unless specified as a separate Pay Item. No payment will be made for Pay Items that include Incidentals until units or portions of such Pay Item Work are in place and completed. The costs of Incidentals will be paid in proportion to the percentage of Pay Item Work completed.

(2) Value of Materials on Hand - The Engineer will also make an estimate of the amount and value of acceptable Materials on hand, i.e., already delivered and stored according to 00195.60(a), to be incorporated into the Work.

(3) Value of Work Accomplished - The sum of the values in (1) and (2) above will be collectively referred to in this Subsection as the "value of Work accomplished", subject to (4) below.

(4) Limitations on Value of Work Accomplished - In determining the "value of Work accomplished", the Engineer's estimate will be based on the unit prices for the various Pay Items. Any amounts not included in progress payments due to substantial mathematical unbalancing of Pay Item prices will be included in the final payment issued according to 00195.90(b).

(5) Reductions to Progress Payments - With each progress payment, the Contractor will receive a Contract payment voucher and summary setting forth the value of Work accomplished reduced by the following:

- Amounts previously paid;
- Amounts deductible or owed to the Agency for any cause specified in the Contract;
- Additional amounts retained to protect the Agency's interests according to Subsection (e) below.

(b) Retainage - The amount to be retained from progress payments will be 5% of the value of Work accomplished, and will be retained in one of the forms specified in Subsection (c) below.

As provided in 00170.65(a) additional retainage of 25% of amounts earned will be withheld and released according to ORS 279C.845 when the Contractor fails to file the certified statements required in ORS 279C.845, FHWA Form 1273, and 00170.65.

(c) Forms of Retainage - Moneys retained by the Agency under ORS 279C.570(7) shall be retained in a fund by the Agency and paid to the Contractor in accordance with ORS 279C.570. Upon written request from the Contractor, other forms of acceptable retainage are specified below in Subsections (1) and (2). "Cash, Alternate A" is the Agency-preferred form of retainage. If the Agency incurs additional costs as a result of the Contractor's election to use a form of retainage other than Cash, Alternate A, the Agency may recover such costs from the Contractor by a reduction of the final payment.

(1) Cash, Alternate A - Retainage will be deducted from progress payments and held by the Agency until final payment is made according to 00195.90, unless otherwise specified in the Contract.

The Agency will deposit the cash retainage withheld in an interest-bearing account in a bank, trust company, or savings association for the benefit of the Agency, as provided by ORS 279C.560(5). Interest earned on the account shall accrue to the Contractor. Amounts retained and interest earned will be included in the final payment made according to 00195.90.

Any retainage withheld on Work performed by a Subcontractor will be released to the Contractor according to 00195.50(d).

2) Bonds, Securities, and Other Instruments - In accordance with ORS 279C.560, unless the Agency finds in writing that accepting a bond, security or other instrument poses an extraordinary risk that is

not typically associated with the bond, security or other instrument, the Agency will approve the Contractor's written request to deposit bonds, securities or other instruments with the Agency or in a custodial account or other account satisfactory to the Agency with an approved bank or trust company, to be held instead of cash retainage for the benefit of the Agency. In such event, the Agency will reduce the cash retainage by an amount equal to the value of the bonds, securities and other instruments. Interest or earnings on the bonds, securities and other instruments shall accrue to the Contractor.

Bonds, securities and other instruments deposited instead of cash retainage shall be assigned to or made payable to the Agency and shall be of a kind approved by the Director of the Oregon Department of Administrative Services, including but not limited to:

- Bills, certificates, notes or bonds of the United States;
- Other obligations of the United States or agencies of the United States;
- Obligations of a corporation wholly owned by the federal government;
- Indebtedness of the Federal National Mortgage Association;
- General obligation bonds of the State of Oregon or a political subdivision of the State of Oregon;
- Irrevocable letters of credit issued by an insured institution, as defined in ORS 706.008.

The Contractor shall execute and provide such documentation and instructions respecting the bonds, securities and other instruments as the Agency may require to protect its interests. When the Engineer determines that all requirements for the protection of the Agency's interest have been fulfilled, the bonds and securities deposited instead of cash retainage will be released to the Contractor.

(d) Reduction of Retainage - As the Work progresses, the amounts to be retained under (b) of this Subsection are subject to reduction in the Engineer's sole discretion. Retainage reductions will be considered only as follows:

- When the Work is 97.5% or more completed, the Engineer may, without application by the Contractor, reduce the retained amount to 100% of the value of the Work remaining.

- For a project funded by the FHWA, when a subcontractor has satisfactorily completed all of its Work, it may request release of retainage for that Work from the Contractor. The Contractor shall request reduction of retainage in the amount withheld for the subcontractor's Work after certifying to the Agency that the subcontractor's Work is complete, and that all contractual requirements pertaining to the subcontractor's Work have been satisfied. Within 60 Calendar Days of the end of the month in which the Agency receives the Contractor's certification regarding the subcontractor's Work, the Agency will either notify the Contractor of any deficiencies which require completion before release of retainage, or verify that the subcontractor's Work complies with the Contract and release all retainage for that Work with the next scheduled progress payment. Within 10 Calendar Days of receipt of retainage, the Contractor shall pay to the subcontractor all such retainage released except for latent defects or warranty.

- The Agency will only release retainage for satisfactorily completed portions of the Work represented by Pay Items in the Schedule of Items, or by Pay Items added by Change Order. Work

not represented by a Pay Item, but which constitutes part of an uncompleted Pay Item, will not be regarded as satisfactorily completed Work for the purposes of this Subsection.

If retainage has been reduced or eliminated, the Agency reserves the right to protect its interests by retaining amounts from further progress payments at the rates provided in 00195.50(b).

(e) Withholding Payments - In addition to any other rights the Agency may have to withhold payments under other provisions of the Contract, the Engineer may withhold such amounts from progress payments or final payment as may reasonably protect the Agency's interests until the Contractor has:

- Complied with all orders issued by the Engineer according to the Specifications; and
- Satisfied all legal actions filed against the Agency, the Agency's governing body and its members, and Agency employees that the Contractor is obliged to defend. (see 00170.72)

Notwithstanding ORS 279C.555 or ORS 279C.570 or 00195.50(d), if a Contractor is required to file statements on the prevailing rate of wages, but fails to do so, the Agency will retain 25% of any amount earned as required in 00170.65.

(f) Prompt Payment Policy - Payments shall be made promptly according to ORS 279C.570.

00195.60 Advance Allowance for Materials on Hand:

(a) General - If the total value of Materials on hand is at least $1,000 or the total value of a single class of Materials on hand is at least $500, the Engineer may authorize an advance allowance for the Materials in the progress payments. The Agency will not make advance allowances on the Materials unless the following three conditions are satisfied:

(1) Request for Advance Allowance - If Materials on hand meet the requirement of (2) below, an advance allowance will be made if:

- A written request for advance allowance for Materials on hand has been received by the Engineer at least 5 Calendar Days before the pay period cutoff date; and
- The request is accompanied by written consent of the Contractor's Surety, if required by the Agency.

(2) Stored or Stockpiled Conditions - The Materials shall have been delivered and/or acceptably stored or stockpiled according to the Specifications and as follows:

- At the Project Site;
- On Agency-owned property;
- On property in the State of Oregon on which the property owner has authorized storage in writing. The written authorization must allow the Agency to enter upon the property and remove Materials for at least 6 months after completion of the Project. The Contractor shall furnish a copy of the written permission to the Agency; or
- On property outside the State of Oregon on which the property owner has authorized storage in writing, provided that such storage location is allowed by the Special Provisions or authorized in

writing by the Engineer. The permit must allow the Agency to enter upon the property and remove Materials for at least 6 months after completion of the Project. The Contractor shall furnish a copy of the written permission to the Agency.

To be eligible for advance allowance, the Materials shall:

- Meet Specification requirements;
- Have the required Materials conformance and quality compliance documents on file with the Engineer (see Section 00165);
- Be in a form ready for incorporation into the Work; and
- Be clearly marked and identified as being specifically fabricated, or produced, and reserved for use on the Project.

(3) Responsibility for Protection - The Contractor has full control and responsibility for the protection of Materials on hand from the elements and against damage, loss, theft, or other impairment until the entire Project has been completed and accepted by the Agency.

If Materials are damaged, lost, stolen, or otherwise impaired while stored, the monetary value advanced for them, if any, will be deducted from the next progress payment.

If these conditions in 00195.60(a-1) through 00195.60(a-3) have been satisfied, the amount of advance allowance, less the retainage described in 00195.50, will be determined by one of the following methods as elected by the Engineer:

- Net cost to the Contractor of the Materials, f.o.b. the Project Site or other approved site; or
- Price (or portion of it attributable to the Materials), less the cost of incorporating the Materials into the Project, as estimated by the Engineer.

(b) Proof of Payment - The Contractor shall provide the Engineer with proof of payment to the Materials suppliers for purchased Materials within 30 Calendar Days of the date of the progress payment that includes the advance allowance.

If proof of payment is not provided, sums advanced will be deducted from future progress payments, and the Engineer will not approve further prepayment advance allowance requests.

(c) Terminated Contract - If the Contract is terminated, the Contractor shall provide the Agency immediate possession of all Materials for which advance allowances have been received, as provided above. If, for any reason, immediate possession of the Materials cannot be provided, the Contractor shall immediately refund to the Agency the total amount advanced for the Materials. The Agency may deduct any amount not so refunded from final payment.

00195.70 Payment under Terminated Contract - Payment for Work performed under a Contract that is terminated according to the provisions of 00180.90 will be determined under (a) or (b) of this Subsection.

(a) Termination for Default - Upon termination of the Contract for the Contractor's default, the Agency will make no further payment until the Project has been completed. The Agency will make progress payments to the party to whom the Contract is assigned, but may withhold an amount sufficient to cover anticipated Agency costs, as determined by the Engineer, to complete the Project.

Upon completion of the Project, the Engineer will determine the total amount that the defaulting Contractor would have been entitled to receive for the Work, under the terms of the Contract, had the Contractor completed the Work (the "cost of the Work").

If the cost of the Work, less the sum of all amounts previously paid to the Contractor, exceeds the expense incurred by the Agency in completing the Work, including without limitation expense for additional managerial and administrative services, the Agency will pay the excess to the Contractor, subject to the consent of the Contractor's Surety.

If the expense incurred by the Agency in completing the Work exceeds the Contract Amount, the Contractor or the Contractor's Surety shall pay to the Agency the amount of the excess expense.

The Engineer will determine the expense incurred by the Agency and the total amount of Agency damage resulting from the Contractor's default. That determination will be final as provided in 00150.00.

If a termination for default is determined by a court of competent jurisdiction to be unjustified, it shall be deemed a termination for public convenience, and payment to the Contractor will be made as provided in Subsection (b) below.

(b) Termination for Public Convenience:

(1) General - Full or partial termination of the Contract shall not relieve the Contractor of responsibility for completed or performed Work, or relieve the Contractor's Surety of the obligation for any just claims arising from the completed or performed Work.

(2) Mobilization - If mobilization is not a separate Pay Item, and payment is not otherwise provided for under the Contract, the Agency may pay the Contractor for mobilization expenses, including moving Equipment to and from the Project Site. If allowed, payment of mobilization expenses will be based on cost documentation submitted by the Contractor to the Engineer.

(3) All Other Work - The Agency shall pay the Contractor at the unit price for the number of Pay Item units of completed, accepted Work. For units of Pay Items partially completed, payment will be as mutually agreed, or, if not agreed, as the Engineer determines to be fair and equitable. No claim for loss of anticipated profits will be allowed. The Agency will purchase Materials left on hand according to 00195.80.

00195.80 Allowance for Materials Left on Hand:

(a) Purchase of Unused Materials - If Materials are delivered to the Project Site, or otherwise acceptably stored at the order of the Engineer, but not incorporated into the Work due to complete or partial elimination of Pay Items, changes in Plans, or termination of the Contract for public convenience according to 00180.90, and it is not commercially feasible for the Contractor to return them for credit or

otherwise dispose of them on the open market; the Agency will purchase them according to the formula and conditions specified in Subsection (b) below.

(b) Purchase Formula and Conditions:

(1) Formula - The Agency will apply the following formula in determining the Contractor's allowance for Materials left on hand:

Contractor's Actual Cost, plus 5% Overhead Allowance, minus Advance Allowances under 00195.60, but no markup or profit.

(2) Conditions - The Agency will not purchase the Contractor's Materials left on hand unless the Contractor satisfies the following conditions:

- Requests the Agency's purchase of unused Materials;
- Shows acquisition of the Materials according to 00160.10;
- Shows that the Materials meet Specifications;
- Provides receipts, bills and other records of actual cost of Materials delivered to the designated delivery points; and
- Demonstrates to the satisfaction of the Engineer that the materials cannot be returned for credit or otherwise disposed of on the open market.

00195.90 Final Payment:

(a) Final Estimate - As soon as practicable after Final Inspection of the Project, as provided in 00150.90, the Engineer will prepare a final estimate of the quantities of the Pay Items completed. With this estimate of quantities as a base, the total amount due the Contractor will be determined according to the terms of the Contract including without limitation any amounts due for Extra Work performed.

(b) Final Payment - The amount of final payment will be the difference between the total amount due the Contractor and the sum of all payments previously made. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

After computation of the final amount due, and after the Engineer's issuance of Third Notification, final payment will be mailed to the Contractor's last known address as shown in the records of the Agency.

(c) No Waiver of Right to Make Adjustment - The fact that the Agency has made any measurement, estimate, determination or certification either before or after completion of the Project, Final Acceptance, Agency assumption of possession of the Project Site, determination of satisfactory completion of Pay Items or Work or release of retainage under 00195.50(d) or payment for any part of the Work, shall not prevent either party from:

- Showing the true amount and character of the Work;

- Showing that any measurement, estimate, determination or certification is incorrect;
- Recovering from the other party damages that may have been suffered because the other party failed to comply with the Contract.

00195.95 Error in Final Quantities and Amounts:

(a) Request for Correction of Compensation - If the Contractor believes the quantities and amounts detailed in the final Contract payment voucher, prepared by the Engineer according to 00195.90, to be incorrect, the Contractor shall submit an itemized statement to the Engineer detailing all proposed corrections.

This statement must be submitted to the Engineer within 90 Calendar Days from the date the voucher was mailed to the Contractor, according to 00195.90(b). Any request for compensation not submitted and supported by an itemized statement within the 90 Calendar Day period will not be paid by the Agency. This does not limit the application of Section 00199.

(b) Acceptance or Rejection of Request:

(1) Consideration of Request - The Engineer will consider and investigate the Contractor's request for correction of compensation submitted according to 00195.95(a), and will promptly advise the Contractor of acceptance or rejection of the request in full or in part.

(2) Acceptance of Request - If the Engineer accepts the Contractor's request(s) in full or in part, the Engineer will prepare a post-final Contract payment voucher, including all accepted corrections, and will forward it to the Contractor.

(3) Rejection of Request - If the Engineer rejects the request(s) in full, the Engineer will issue a written notice of rejection and mail it to the Contractor.

(4) Contractor Objection to Revised Voucher or Notice of Rejection - If the Contractor disagrees with the revised voucher or notice of rejection, the Contractor may seek review and resolution according to the procedure specified in 00199.40. If the Contractor fails to submit a request for 00199.40 review within 30 Calendar Days after the Engineer mails a post-final Contract payment voucher or notice of rejection, the Contractor waives all rights to a claim based on errors in quantities and amounts.

Section 00196 - Payment for Extra Work

Description

00196.00 General - Only work not included in the Contract as awarded but deemed by the Engineer to be necessary to complete the Project (see 00140.60) will be paid as Extra Work. Regardless of alterations and changes, any item of Work provided for in the Contract will not constitute Extra Work. Payment for alterations and changes to Work will be made according to 00195.20.

Compensation for Extra Work will be paid only for Work authorized in writing by the Engineer and performed as specified. Work performed before issuance of the Engineer's written authorization shall be at the Contractor's risk. Extra Work will be paid as determined by the Engineer, according to 00196.10 and 00196.20.

Provisions and Requirements

00196.10 Negotiated Price - If the Engineer can reasonably determine a price estimate for Extra Work, the Engineer may then give written authorization to the Contractor to begin the Extra Work. As soon as practicable, but within 10 Calendar Days after that authorization, the Contractor shall respond in writing to the Engineer's Extra Work price estimate by submitting to the Engineer an Extra Work price quote. The price quote shall detail the following items related to the Extra Work:

- Types and amounts of Materials
- Hours of Equipment use and hours of labor
- Travel
- Overhead and profit
- Other costs associated with the proposed Extra Work

Pending approval of the price quote, the Engineer will maintain force account records of the Extra Work. As soon as practicable, but within 10 Calendar Days of receipt of a properly supported price quote, the Engineer will review the price quote and advise the Contractor if it is accepted or rejected. The Engineer will not accept a price quote that cannot be justified on a Force Account basis. If the Contractor's price is accepted, the Engineer will issue a Change Order, and the Extra Work will be paid at the accepted price.

00196.20 Force Account - If the Engineer and the Contractor cannot agree on a price for the Extra Work, the Engineer may issue a Force Account Work order requiring the Extra Work to be paid as Force Account Work. Force Account Work records and payment will be made according to Section 00197.

Section 00197 - Payment for Force Account Work

00197.00 Scope - The Materials, Equipment and labor rates and procedures established in this Section apply only to Extra Work ordered by the Engineer to be performed as Force Account Work.

00197.01 General - Before ordering Force Account Work, the Engineer will discuss the proposed work with the Contractor, and will seek the Contractor's comments and advice concerning the formulation of Force Account Work specifications. The Engineer is not bound by the Contractor's comments and advice, and has final authority to:

- Determine and direct the Materials, Equipment and Labor to be used on the approved Force Account Work; and
- Determine the time of the Contractor's performance of the ordered Force Account Work.

Force account work performed by subcontractors will be measured and paid for on the same basis and in the same manner as force account work performed directly by the Contractor.

If the Engineer orders the performance of Extra Work as Force Account Work, the Engineer will record, on a daily basis, the Materials, Equipment and Labor used for the Force Account Work during that day. Engineer and the Contractor shall sign the record daily to indicate agreement on the Materials, Equipment and Labor used for the Force Account Work performed on that day.

The following shall be reflected on the daily record:

- Materials used in the Force Account Work as directed by the Engineer, except those furnished and paid under rental rates for use of Equipment;
- Equipment which the Engineer considers necessary to perform the Force Account Work. Equipment hours will be recorded to the nearest quarter hour;
- Labor costs, including that of Equipment operators and supervisors in direct charge of the specific operations while engaged in the Force Account Work; and
- The Engineer's and Contractor's signatures confirming its accuracy.

00197.10 Materials:

(a) General - The Contractor will be paid for Materials actually used in the Force Account Work as directed by the Engineer, except for those furnished and paid for under rental rates included with the use of Equipment. Payments will be at actual cost, including transportation costs to the specified location, from the supplier to the purchaser, whether the purchaser is the Contractor, a Subcontractor, or other forces. All costs are subject to the provisions of this Subsection.

(b) Trade Discount - If a commercial trade discount is offered or available to the purchaser, it shall be credited to the Agency, even though the discount may not have actually been taken. The Agency will not take any discounts for prompt or early payment, whether or not offered or taken.

(c) Not Directly Purchased From Supplier - If Materials cannot be obtained by direct purchase from and direct billing by the supplier, the cost shall be considered to be the price billed to the purchaser less commercial trade discounts, as determined by the Engineer, but not more than the purchaser paid for the Materials. No markup other than actual handling costs will be permitted.

(d) Purchaser-Owned Source - If Materials are obtained from a supply or source wholly or partly owned by the purchaser, the cost shall not exceed the price paid by the purchaser for similar Materials furnished from that source on Pay Items, or the current wholesale price for the Materials delivered to the Project Site, whichever is lower.

00197.20 Equipment:

(a) General - Equipment approved by the Engineer to perform the Force Account Work will be eligible for payment at the established rates only during the hours it is operated or on standby if so ordered by the Engineer. Equipment hours will be recorded on the daily record to the nearest quarter hour.

Except as modified by these provisions, Equipment use approved by the Engineer will be paid at the rental rates given in the most current edition of the Rental Rate Blue Books for Construction Equipment ("Blue Book"), Volumes 1, 2, and 3, published by Penton Media, Inc., and available from EquipmentWatch (phone 1-800-669-3282).

(b) Equipment Description - On the billing form for Equipment costs, the Contractor shall submit to the Engineer sufficient information for each piece of Equipment and its attachments to enable the Engineer to determine the proper rental rate from the Blue Book.

(c) Rental Rates (without Operator):

(1) Rental Rate Formula - Rental rates for Equipment will be paid on an hourly basis for Equipment and for attachments according to the following formula:

$$\text{Hourly Rate} = \frac{\text{Monthly Base Rate x Rate Adjustment Factor}}{\text{176 hours/month}} + \text{Hourly Operating Rate}$$

Some attachments are considered "standard Equipment" and are already included in the monthly base rate for the Equipment. That information can be obtained from EquipmentWatch.

(2) Monthly Base Rate - The monthly base rate used above for the machinery and for attachments represents the major costs of Equipment ownership, such as depreciation, interest, taxes, insurance, storage, and major repairs.

(3) Rate Adjustment Factor - The rate adjustment factor used above will be determined as per page iii of each section of the Blue Book.

(4) Hourly Operating Rate - The hourly operating rate used above for the machinery and for attachments represents the major costs of Equipment operations, such as fuel and oil, lubrications, field repairs, tires or ground engaging components, and expendable parts.

(5) Limitations - The Blue Book "Regional Adjustment Factor" shall not apply.

If multiple attachments are included with the rental Equipment, and are not considered "standard Equipment", only the attachment having the higher rental rate will be eligible for payment, provided the attachment has been approved by the Engineer as necessary to the Force Account Work.

Rental will not be allowed for small tools that have a daily rental rate of less than $5, or for unlisted Equipment that has a fair market value of $400 or less.

The above rates apply to approved Equipment in good working condition. Equipment not in good working condition, or larger than required to efficiently perform the work, may be rejected by the Engineer or accepted and paid for at reduced rates.

(d) Moving Equipment - If it is necessary to transport Equipment located beyond the Project Site exclusively for Force Account Work, the actual cost to transport the Equipment to, and return it from, its On-Site Work location will be allowed as an additional item of expense. However, the return cost will not exceed the original delivery cost. These costs will not be allowed for Equipment that is brought to the Project Site for Force Account Work if the Equipment is also used on Pay Item or related Work.

If transportation of such Equipment is by common carrier, payment will be made in the amount paid for the freight. No markups will be allowed on common carrier transportation costs. If the Equipment is hauled with the Contractor's own forces, transportation costs will include the rental rate of the hauling unit and the hauling unit operator's wage. If Equipment is transferred under its own power, the rental rate allowed for transportation time will be 75% of the appropriate hourly rate for the Equipment, without attachments, plus the Equipment operator's wage.

(e) Standby Time - If ordered by the Engineer, standby time will be paid at 40% of the hourly rental rate calculated according to this Subsection, excluding the hourly operating rate. Rates for standby time that are calculated at less than $1 per hour will not be paid. Payment will be limited to not more than 8 hours in a 24-hour period or 40 hours in a 1 week period.

(f) Blue Book Omissions - If a rental rate has not been established in the Blue Book, the Contractor may:

- If approved by the Engineer, use the rate of the most similar model found in the Blue Book, considering such characteristics as manufacturer, capacity, horsepower, age and fuel type;
- Request EquipmentWatch to furnish a written response for a rental rate on the Equipment, which shall be presented to the Engineer for approval; or
- Request that the Engineer establish a rental rate.

(g) Outside Rental Equipment - If Contractor-owned or Subcontractor-owned Equipment is not available, and Equipment is rented from outside sources, payment will be based on the actual paid invoice. Approval of the Engineer to rent from outside sources must be obtained prior to renting the equipment.

If the invoice specifies that rental rate does not include fuel, lubricants, field repairs, and servicing, an amount equal to the Blue Book hourly operating cost may be added for those items that were excluded.

The Agency may reduce the payment when the invoice amount plus allowance is higher than the amount authorized under (c) through (f) of this Subsection.

The provisions of 00180.20(c) apply to owner-operated Equipment.

00197.30 Labor - The Contractor will be paid for all labor engaged directly on Force Account Work, including Equipment operators and supervisors in direct charge of the specific force account operations, as follows:

(a) Wages - The actual wages paid to laborers and supervisors, if those wages are paid at rates not more than those for comparable labor currently employed on the Project, or at the recognized, current, prevailing rates in the locality of the Project.

(b) Required Contributions - The actual cost of industrial accident insurance, unemployment compensation contributions, payroll transit district taxes, and social security for old age assistance contributions incurred or required under statutory law and these Specifications. The actual cost of industrial accident insurance is the National Council on Compensation Insurance (NCCI) rate for the assigned risk pool for the appropriate work class multiplied by the experience modification factor for the Contractor.

(c) Required Benefits - The actual amount paid to, or on behalf of, workers as per diem and travel allowances, health and welfare benefits, pension fund benefits, or other benefits when such other benefits are required by a collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the Project.

No overtime will be compensated unless authorized in advance of performing the work by the Engineer.

00197.80 Percentage Allowances - To the Contractor's actual costs incurred, as limited in this Section 00197, amounts equal to a percentage markup of such costs will be allowed and paid to the Contractor as follows:

Subsection	Percent
00197.10 Materials	17
00197.20 Equipment	17
00197.30 Labor	22

When a Subcontractor performs ordered Force Account Work, the Contractor will be allowed a supplemental markup of 8% on each Force Account Work order.

These allowances made to the Contractor will constitute complete compensation for bonds, insurance, overhead, general and administrative expense, profit, and all other Force Account Work costs that were incurred by the Contractor, or by other forces that the Contractor furnished. No other reimbursement, compensation, or payment will be made.

00197.90 Billings - Billings for Force Account Work by the Contractor shall be submitted for the Engineer's approval on forms provided by the Agency or approved by the Engineer. Billings for Materials (other than Incidental items out of the inventory of the Contractor or Subcontractors), rental Equipment from sources other than the Contractor or Subcontractors, and Special Services, shall be accompanied by copies of invoices for the goods and services. The invoices shall be fully itemized showing dates, quantities, unit prices, and complete descriptions of goods and services provided. Invoices for amounts of $10 or less per invoice are not required, unless requested by the Engineer.

Costs included on the billings shall comply with 00197.01(a) and 00197.10 through 00197.40.

When a billing for Force Account Work has been paid at the Project level, no further corrections will be made because of further review if those corrections amount to less than $10.

Section 00199 - Disagreements, Protests, and Claims

Description

00199.00 General - This Section details the process through which the parties agree to resolve any disagreement concerning additional compensation or concerning a combination of additional compensation and Contract Time. (See 00180.80 for disagreements and claims concerning additional Contract Time only, and 00195.95 for disagreements and claims concerning correction of final compensation.) The Agency will not consider direct disagreements, protests, or claims from subcontractors, Suppliers, or any other Entity not a party to the Contract.

Provisions and Requirements

00199.10 Procedure for Resolving Disagreements - When disagreements occur concerning additional compensation or a combination of additional compensation and Contract Time, the Contractor shall first pursue resolution through the Engineer of all issues in the dispute, including without limitation the items to be included in the written notice in 00199.20. If the discussion fails to provide satisfactory resolution of the disagreement, the Contractor shall follow the protest procedures outlined in 00199.20. If the Engineer denies all or part of the Contractor's protest, and the Contractor desires to further pursue the issues, the Contractor shall submit a claim for processing according to 00199.30.

00199.15 Inappropriate Protest or Claim - It shall be presumed that the Contractor submits a protest or claim for additional compensation in good faith, based upon facts which reasonably support the Contractor's position and with full knowledge and understanding of the injury done to the Agency when notice of differing Project Site conditions or claims for additional compensation are not submitted in a timely manner as required under the Contract. Accordingly, the submission of a protest or claim without the concurrent submission of evidence that reasonably supports the protest or claim, or the submission of a protest or claim in an untimely manner will constitute a waiver of the protest or claim.

00199.20 Protest Procedure - If the Contractor disagrees with anything required in a Change Order or other written or oral order from the Engineer, including any direction, instruction, interpretation, or determination, or if the Contractor asserts a disagreement or dispute on any other basis, except 0195.95, that, in the Contractor's opinion, entitles or would entitle the Contractor to additional compensation or a combination of compensation and Contract Time, the Contractor shall do all of the following in order to pursue a protest and preserve its claim:

(a) Oral Notice - Give oral notice of protest to the Engineer and outline the areas of disagreement before starting or continuing the protested Work.

(b) Written Confirmation of Oral Notice – Not later than the end of the next business day following the day that oral notice of protest is given, deliver written documentation to the Engineer of the oral notice that includes the notice of protest and the areas of disagreement.

(c) Written Notice - File a proper written notice of protest with the Engineer within 7 Calendar Days after receiving the protested order. In the notice the Contractor shall:

- Describe the acts or omissions of the Agency or its agents that allegedly caused or may cause damage to the Contractor or to the Project, citing specific facts, persons, dates and Work involved;
- Describe the Contractor's proposed alternative to the Work ordered, if any, which will avoid damage to Contractor or to the Project;
- Describe the nature of the damages;
- Cite the specific Contract provision(s), if any, that support the protest;
- Include the estimated dollar cost, if any, of the protested Work, and furnish a list of estimated Materials, Equipment and labor for which the Contractor might request additional compensation; and
- If additional compensation is estimated to be due, include the estimated amount of additional time required, if any.

FAILURE TO COMPLY WITH THIS NOTICE REQUIREMENT RENDERS THE NOTICE IMPROPER AND SHALL CONSTITUTE A WAIVER OF ANY CLAIM FOR ADDITIONAL COMPENSATION OR A COMBINATION OF ADDITIONAL COMPENSATION AND CONTRACT TIME FOR ANY PART OF THE PROTESTED WORK.

(d) Engineer's Record and Response – The Engineer will file a copy of each written notice of protest in the Project records and will issue a written response to the protest within seven (7) work days of receipt of a timely filed written notice of protest. The Engineer has no responsibility to evaluate the protest unless the Contractor has timely filed a proper notice submitting all of the above information.

(e) Final Documentation of Claim - Within 60 Calendar Days following completion of the protested work, Contractor shall provide the Engineer with complete documentation of protested work, listing exact materials, equipment and labor used for the work and the dollar amount requested for each. If the claim is accepted, no additional compensation will be awarded based on documentation submitted after this deadline. If the claim is denied or if the Contractor is not satisfied with the decision by the Engineer, the amount claimed by the Contractor in any subsequent Step or proceeding may not exceed the dollar amount requested under this subsection.

(f) Records - Keep complete records of all costs and time incurred throughout the protested Work, and allow the Engineer access to those and other supporting records. Provide daily records of protested Work, on a weekly basis, on a schedule to be set by agreement with the Engineer.

(g) Comparison of Records - Provide the Engineer adequate facilities for keeping cost and time records of the protested Work. The Contractor and the Engineer will compare records and either bring them into agreement at the end of each day, or record and attempt to explain any differences.

(h) Work to Proceed - In spite of any protest, proceed promptly with the Work ordered by the Engineer.

(i) Evaluation of Protest - The Engineer has no responsibility for evaluating a protest that is not timely filed, or for which adequate supporting documentation has not been made available to the Engineer. Provided the procedures above are followed, the Engineer will promptly evaluate all protests, after the Contractor has fully complied with the requirements described in 00199.20(c), Written Notice. If the protest is denied, the Engineer will notify the Contractor in writing of the reasons for full or partial denial.

If a protest is found to be valid, the Engineer will, within a reasonable time, make an equitable adjustment of the Contract. Adjustment of time will be evaluated according to 00180.80.

The Engineer has no responsibility for evaluating and may reject a protest that does not comply with 00199.20(b). If the protest is rejected, the Engineer will notify the Contractor in writing of the reasons for rejection.

(j) Protest Evaluation by Third Party Neutral - If the Engineer agrees that the Contractor has fully complied with the requirements described in 00199.20(b), and if the Engineer fully or partially denies, in writing, the Contractor's protest according to 00199.20(f), the Contractor may request that a mutually selected Third Party Neutral review the protest. Procedures for selecting, using, and paying for the cost of the Third Party Neutral will be specified by Change Order.

If the Contractor does not accept the Engineer's evaluation of the protest, or either the Contractor or Engineer disagrees with the resolution recommended by the Third Party Neutral, the Contractor may pursue a claim as described in 00199.30.

00199.30 Claims Procedure:

(a) General - If the Contractor believes that additional compensation is due, or a combination of additional compensation and Contract Time, and has pursued and exhausted all the procedures provided in 00199.10 and 00199.20 to resolve a disagreement and protest, the Contractor may file a claim.

The Agency's Contract is with the Contractor. There is no contractual relationship between the Agency and any subcontractors, Suppliers or any Entity other than the Contractor. It is the Contractor's responsibility to fully evaluate any claim before presenting it to the Agency. In addition, when a claim includes Work done or costs incurred by any subcontractors, Suppliers, or any Entity other than the Contractor, the Contractor remains solely responsible for presenting the claim to the Agency.

Claims that include Work done or costs incurred by subcontractors, Suppliers, or any Entity other than the Contractor will not be considered by the Agency unless the Contractor has:

- Completed and provided its own written evaluation of the claim;
- Verified by its own independent review and evaluation of the amount of compensation sought; and
- Certified the claim in accordance with 00199.30(b) (Part 10).

(b) Claims Requirements - At any time during the progress of the Work, but not later than 45 Calendar Days following the date of the Second Notification, the Contractor shall submit to the Engineer in writing, claims for additional compensation or a combination of additional compensation and Contract Time additional to that specified in the Contract. For a claim not submitted within the 45 day limit, that has not met the requirements of 00199.20, or is not filed as provided in 00199.30, the Contractor waives any claim for additional compensation or for additional compensation and Contract Time, and the Agency may reject the claim.

Written claims to the Engineer or the Agency by the Contractor shall be delivered to the Agency address shown in the Special Provisions, unless a different address is agreed to by the Engineer, and shall be delivered:

- By U.S. Postal Service first class mail or priority mail (which at the sender's option may include certified or registered mail return receipt requested); or
- By overnight delivery service of a private industry courier.

Claims will be considered as having been received by the Agency:

- At the time of actual receipt or 7 Calendar Days after the postmarked date when deposited for delivery by first class or priority mail, whichever is earlier; or
- At the time of actual receipt or 3 Calendar Days after deposit with a private industry courier for overnight delivery service, whichever is earlier.

The Agency reserves the right at any time and at any step in the claim decision or review process to request additional information, records or documentation related to the claim or the Contract either directly or through agents working toward resolution of the disputed or claimed events and issues.

Claims shall be made in writing, and shall include all information, records and documentation necessary for the Agency to properly and completely evaluate the claim.

To be considered, claims for additional compensation, or for additional compensation and Contract Time, shall be completed according to 00199.30 and shall be submitted with the required information and in the format below and labeled as required below for each claimed issue:

(Part 1) Summary (label page 1.1 through page 1.X) - In the summary, include a detailed, factual statement of the claim for additional compensation and Contract Time, if any, with necessary dates and locations of Work involved in the claim and the dates of when the event arose. Also include detailed facts supporting the Contractor's position relative to the Engineer's decision (see 00199.20(f));

(Part 2) Proof of notice (label page 2.1 through page 2.X) - Submit a copy of the written notice, with all attachments, that was given to the Agency. Include the date when that written notice and the date when oral notice was given:

(Part 3) Copies of the Contract Specifications that support the Contractor's claim (label page 3.1 through page 3.X);

(Part 4) Theory of entitlement supporting the claim (label page 4.1 through page 4.X) - Include a narrative of how or why the specific Contract Specifications support the claim and a statement of the reasons why such Specifications support the claim;

(Part 5) Itemized list of claimed amounts (label page 5.1 through page 5.X) - Claimed damages that resulted from the event with a narrative of the theories and records and documents used to arrive at the value of the damages;

(Part 6) Additional Contract Time requests (label page 6.1 through page 6.X) - If the claim is for a combination of additional compensation and Contract Time, submit a copy of the schedule that was

in effect when the event occurred and a detailed narrative which explains how the event impacted Contract Time. In addition, if an Agency-caused delay is claimed:

- Include the specific days and dates under claim;
- Provide detailed facts about the specific acts or omissions of the Agency that allegedly caused the delay, and the specific reasons why the resulting delay was unreasonable; and
- Provide a schedule evaluation that accurately describes the impacts of the claimed delay.
- Also see 00180.80 for additional requirements regarding claims for Contract Time and causes that are eligible and ineligible for consideration;

(Part 7) Copies of actual expense records (label page 7.1 through page 7.X) - Include documents that contain the detailed records and which support and total to the exact amount of additional compensation sought. Include the information and calculations necessary to support that amount. That amount may be calculated on the basis of Section 00197, if applicable, or may be calculated using direct and indirect costs presented in the following categories:

- Direct Materials;
- Direct Equipment. The rate claimed for each piece of Equipment shall not exceed the actual cost. In the absence of actual Equipment costs, the Equipment rates shall not exceed 75 percent of those calculated under the provisions of 00197.20. For each piece of Equipment, the Contractor shall include a detailed description of the Equipment and attachments, specific days and dates of use or standby, and specific hours of use or standby;
- Direct labor;
- Job overhead;
- General and administrative overhead; and
- Other categories as specified by the Contractor or the Agency;

(Part 8) Supporting records and documents (label page 8.1 through page 8.X) - Include copies of, or excerpts from the following:

- Any documents that support the claim, such as manuals standard to the industry and used by the Contractor; and
- Any daily reports or diaries related to the event, photographs or media that help explain the issue or event (optional), or all other information the Contractor chooses to provide (optional);

(Part 9) Certification (label page 9.1 through 9.X) - A certified statement, signed by a person authorized to execute Change Orders, by the Contractor, subcontractor, Supplier, or Entity, originating the claim, as to the validity of facts and costs with the following certification:

Under penalty of law for perjury or falsification, the undersigned, (Name), (Title), (Company) certifies that this claim for additional compensation for Work on the Contract is a true statement of the actual costs incurred (in the amount of $_____, exclusive of interest) and is fully documented and supported under the Contract between the parties.

Signature: _____

Date: _____, 20___

Subscribed and sworn before me this ____ day of _____, 20___

_____

Notary Public

My commission expires _____.

(Part 10) Contractor evaluation of a lower tier claim (label page 10.1 through 10.X) - If the claim includes Work done or costs incurred by any subcontractors, Suppliers, or any Entity other than the Contractor, the following are required:

- Data required by the other Subsections of 00199.30(b);
- Copies of the Contractor's, subcontractor's, Supplier's and Entity's, at all tiers above the level of which the claim originates, separate evaluation of entitlement;
- Copies of the Contractor's, subcontractor's, Supplier's and Entity's, at all tiers above the level of which the claim originates, independent verification and evaluation of the amount of damages sought; and
- A person authorized to execute Change Orders on behalf of the Contractor, subcontractor, Supplier and Entity, at all tiers above the level of which the claim originates, must sign a statement with the following certification:

  Under penalty of law for perjury or falsification, the undersigned, (Name) (Title), (Company) certifies that this claim originating from the subcontractor, Supplier or Entity (Company) for additional compensation for Work on the Contract is a reasonable statement, independently verified, of the costs incurred (in the amount of $_____, exclusive of interest) and is fully documented and supported under the Contract between the parties.

  Signature: _____

  Date: _____, 20___

  Subscribed and sworn before me this ____ day of _____, 20__

  _____

  Notary Public

  My commission expires _____.

If the Engineer determines that additional information, records or documentation is needed to allow proper evaluation of the claim submittal, the Engineer will request the information, records or documentation. The Contractor shall submit to the Engineer within 14 Calendar Days, or as otherwise agreed by the parties, the required additional information, records and documentation.

If the Engineer determines that the claim submittal with the additional information, records and documentation submitted is incomplete and not accepted as a claim, the Engineer will notify the Contractor in writing and the submittal will be rejected and will not be considered under 00199.40.

(c) Records Requirements - The Contractor shall comply with 00170.07.

(d) Compliance Required - Full compliance by the Contractor with the provisions of this Section is a condition precedent to the commencement of any lawsuit by the Contractor to enforce any claim.

00199.40 Claim Decision; Review; Exhaustion of Administrative Remedies - The Agency intends to resolve all claims at the lowest possible administrative level. The Engineer will also determine whether multiple claims should be advanced separately or together.

If the Engineer denies the claim for additional compensation or a combination of additional compensation and Contract Time, in full or in part, according to 00199.40(a), the Contractor may request review of the denial. The disputed claim for additional compensation or a combination of additional compensation and Contract Time may then be resolved, in full or in part, at any of the progressive steps of claim review procedure as specified in (b) through (c) of this Subsection.

If the Engineer has denied a claim, in full or in part, for Contract Time only according to 00180.80, or has denied a claim, in full or in part, for correction of final compensation according to 00195.95, those disputed claims may then be resolved, in full or in part, at either of the two progressive steps of claim review procedure as specified in (b) through (c) of this Subsection.

A person authorized by the Contractor to execute Change Orders on behalf of the Contractor must be present and attend all claim hearings. For all claims, all of the actions and review under each step of the review process shall occur before the review can be advanced to the next higher step.

If, at any step in the claim decision or review process, the Contractor fails to promptly submit requested information or documentation that the Agency deems necessary to analyze the claim, the Contractor is deemed to have waived its right to further review, and the claim will not be considered properly filed and preserved.

(a) Decision by the Engineer - The Engineer will, as soon as practicable, consider, investigate, and evaluate a Contractor's claim for additional compensation, or for a combination of additional compensation and Contract Time, if submitted as required by 00199.30.

Once the Engineer determines the Agency is in receipt of a properly submitted claim, the Engineer will arrange a meeting, within 21 Calendar Days or as otherwise agreed by the parties, with the Contractor in order to present the claim for formal review and discussion.

If the Engineer determines that the Contractor must furnish additional information, records or documentation to allow proper evaluation of the claim, the Engineer will schedule a second meeting, to be held within 14 Calendar Days or as otherwise agreed by the parties, at which the Contractor shall present the requested information, records and documentation.

The Engineer will provide a written decision to the Contractor within 30 Calendar Days of the last Engineer-level meeting.

If the Contractor does not accept the Engineer's decision, the Contractor may, within 10 Calendar Days of receipt of the written decision, request in writing that the Engineer arrange a review at Step 1 (see (b) below).

(b) Step 1: Public Works Director Level Review - The Contractor shall request that the Engineer arrange a meeting with the Public Works Director or the Public Works Director's designee, as determined by the Public Works Director, in order to present the denied or partially denied claim for formal review and discussion. The meeting will take place within 21 Calendar Days of the Agency's receipt of the request, or as otherwise agreed by the parties.

If the Public Works Director (or designee) determines that the Contractor must furnish additional information, records or documentation to allow proper evaluation of the claim, the Public Works Director (or designee) will schedule a second meeting, to be held within 14 Calendar Days, or as otherwise agreed by the parties, at which the Contractor shall present the requested information, records and documentation.

The Public Works Director (or designee) will provide a written decision to the Contractor within 30 Calendar Days of the last meeting with the Public Works Director (or designee).

The claim is subject to 00199.60, if not all of the records requested by the Public Works Director (or designee) were furnished. If applicable, advancement of the claim is subject to the provisions of 00199.60 regarding waiver and dismissal of the claim or portions of the claim.

If the Contractor does not accept the decision, the Contractor may, within 180 Calendar Days from the date of receipt of the Public Works Director (or designee) written decision or within 90 Calendar Days of the date of Second Notification, whichever is later, initiate Step 2 as set forth in subsection (c) below.

(c) Step 2: Arbitration and Litigation - The Contractor must follow each step in order, and exhaust all available administrative remedies before resort to arbitration and litigation. Litigation of a claim that cannot be resolved in Step 1 shall be initiated by filing a complaint in the Circuit Court for the State of Oregon in the county where the Agency's main office is located that contains a stipulation to arbitration under ORS 36.410. The claim and all cross and counter-claims filed in response to the complaint shall be submitted to the Court Arbitration Program set forth in ORS 36.400 to 36.425, Chapter 13 of the Oregon Uniform Trial Court Rules and the Circuit Court supplemental local rules concerning arbitration. Either party may seek, and shall be entitled to, an order directing the other party to submit to arbitration as provided herein and to judgment for its costs, expenses and attorney fees in obtaining and enforcing the order

In no event shall this Subsection be construed as a waiver by the Agency or by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court.

(d) Payment of Costs, Expenses and Attorney's Fees – The prevailing party shall be entitled to an award for reasonable costs and expenses incurred after the initiation of Step 2, including costs and expenses incurred for arbitration, trial de novo and on appeal. Costs and Expenses shall include, but shall not be limited to, reasonable attorney fees and expenses, arbitrator fees and expenses, and costs of discovery

As used in this subsection 00199.40(d), "prevailing party" for an arbitration award means (1) a Contractor who has received an arbitration award, exclusive of interest, costs and expenses, that is more than the dollar amount claimed by the Contractor in its Final Documentation of Claim under 00199.20(d) or (2) the Agency if there is no arbitration award to the Contractor or if the arbitration award to the Contractor, exclusive of interest, costs and expenses, is less than the dollar amount of the award in the Step 1 decision. For all other arbitration awards, there shall not be a "prevailing party."

The award of costs and expenses after trial de novo shall be made as provided for in ORS 36.425. The award of costs and expenses after appeal from a judgment entered after trial de novo shall be to the prevailing party designated as such by the appeals court.

The Contractor shall comply with 00170.00.

00199.50 Mediation - Notwithstanding the formal claims procedure specified above, the parties may enter into nonbinding mediation by mutual agreement at any time, in which case the parties may also agree to suspend the time requirements in Section 00199 pending the outcome of the mediation process. The rules, time and place for mediation, as well as selection of the mediator, shall be established by mutual agreement. Costs shall be divided equally between the Contractor and the Agency. Either party may terminate mediation at any time upon 5 Calendar Days notice to the other, after which the time requirements of Section 00199 shall be automatically reinstated and shall resume from the point at which the time requirements were suspended.

00199.60 Review of Determination Regarding Records - If not all of the records requested by the Agency under 00199.40(c) Step 2 were provided, then the Agency will determine:

- If the records are of the type described in 00170.07; and
- If the records have not been maintained or the records, or access to the records, has not been provided to the Agency as required by 00170.07 and this Section; and
- If the records are material and necessary for proper evaluation of part or all of the claim; and
- The portions of the claim for which the records are material and necessary for proper evaluation.

If the Agency makes the foregoing determinations, then subject to the review process described below, all portions of the claim for which the Agency determined the records are material and necessary for proper evaluation are immediately waived and irrevocably dismissed.

Even if the records have not been maintained or the records, or access to the records, have not been provided to the Agency in a given instance, the Agency may determine that sufficient records have been provided for the Agency to properly evaluate the claim in that instance. If the Agency makes this determination, the claim or portions of the claim will not be waived or dismissed under this provision.

If the Contractor does not accept the Agency written determination that the records are material and necessary for proper evaluation of part or all of the claim, and the portions of the claim for which the records are material and necessary, the Contractor may, within 14 Calendar Days of receipt of the Agency determination, request, in writing, a review of such determination by the Public Works Director (or designee). If the Contractor does not request a review of the Agency determination, the Agency

determination shall then become the Agency's final determination as of the expiration of the time limit to request review.

If the Contractor requests the review, the Public Works Director (or designee) will schedule a review meeting within 14 Calendar Days, or as otherwise agreed by the parties, of when the Public Works Director (or designee) receives the written review request. The Agency and the Contractor will each have an opportunity to explain their respective positions at the review meeting in a manner determined by the Public Works Director (or designee).

Within 10 Calendar Days of the review meeting, the Public Works Director (or designee) will issue a written proposed finding of whether the records not maintained or not provided to the Agency, or for which access was not provided to the Agency, are material and necessary for proper evaluation of part or all of the claim. If the Public Works Director (or designee) makes that finding, then the Public Works Director (or designee) will also make a proposed written finding as to what portions of the claim the records are material and necessary and, therefore, waived and irrevocably dismissed.

Even if the records have not been maintained or the records, or access to the records, have not been provided to the Agency in a given instance, the Public Works Director (or designee) may determine that sufficient records have been provided for the Agency to properly evaluate the claim in that instance. If the Public Works Director (or designee) makes this determination, then the claim or portions of the claim will not be waived or dismissed under this provision.

The Public Works Director's (or designee) findings will be submitted to the Contractor. The Public Works Director's (or designee) findings are the Agency's final determination.

If the Agency's final determination is that the records are material and necessary for proper evaluation of part or all of the claim, then the claim or that portion of the claim for which the records are material and necessary is waived and irrevocably dismissed, unless the Contractor provides the records, or access to the records, to the Agency within 5 Calendar Days of the Agency's final determination. If the Contractor provides the records, or access to the records, within this time limit, the Agency will schedule a meeting with the Contractor within 14 Calendar Days or as otherwise agreed by the parties, to discuss the records.

The Agency's final determination that records are material and necessary for proper evaluation of part or all of the claim, and the Agency's final determination of the portions of the claim for which the records are material and necessary, shall be final and binding.

If the entire claim is waived and irrevocably dismissed pursuant to the Agency's final determination there will be no further decision by the Agency on the claim or further review of the claim under 00199.40 and the claim will not be eligible for mediation under 00199.50. If only portions of the claim are waived and irrevocably dismissed pursuant to the Agency's final determination, the Agency will provide a written decision to the Contractor regarding the remaining portions of the claim within 30 Calendar Days of the final Step 2 meeting, or the Agency's final determination regarding the records, whichever is later. There will be no further decision by the Agency on or further review under 00199.40 of the portions of the claim waived and irrevocably dismissed pursuant to Agency's final determination and those portions will not be eligible for mediation under 00199.50.

SECTION 00 73 00 – SPECIAL PROVISIONS

PART 00100 – GENERAL CONDITIONS

Section 00110 – Organization, Conventions, Abbreviations, and Definitions

00110.00 Organization of Specifications – Modify the third bullet as follows:

- The Special Provisions, which include the Technical Specifications, Divisions 01 through 48.

00110.20 Definitions – The definition of "ENGINEER" is modified as follows:
ENGINEER – Consor North America, Inc. is designated ENGINEER and is to act as AGENCY's representative, assume duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Section 00120 – Bidding Requirements and Procedures

00120.01 Receipt of Bids; Opening - Add the following:
Bids must be delivered to Kevin Gorman, Public Works Director, at the front desk of Warrenton City Hall, 225 South Main Street, Warrenton, OR 97146, by 2:00 PM local time on April 24, 2025. Bids will be publicly opened and read by the Public Works Director at 2:00 PM, local time on April 24, 2025, in the Warrenton Fire Training Room. Bids may not be submitted by fax or electronic means.

00120.02 Prequalification of Bidders – No prequalification is required.

00120.05 Request for Solicitation Documents – Add the following:
Solicitation Documents may be obtained via email request to Twyla Vittetoe, Engineering Technician, tvittetoe@warrentonoregon.us. Documents are available at no charge in electronic file format (PDF).

00120.04 Pre-Bid Meeting
A voluntary pre-bid meeting will be held on April 15, 2025, at 10:00 AM, local time, at Warrenton City Hall, P.O. Box 250, 225 South Main Street, Warrenton, OR 97146. A project site tour will follow the pre-bid meeting.

00120.17 Use of Agency-Owned Land for Staging and Storage Areas – Add the following:
CONTRACTOR may use the following lands for staging or storage areas: (a) project limits as delineated in the Drawings and (b) L&C Tree Farms LLC Staging Area as delineated in the Drawings. CONTRACTOR shall comply with all Restrictions on Use as defined in the General Conditions, Technical Specifications and Drawings.

Section 00150 – Control of Work

00150.30 Delivery of Notices – CONTRACTOR written notice to ENGINEER or AGENCY shall be delivered to:

Kevin Gorman, Public Works Director
P.O. Box 250
Warrenton, OR 97146

Section 00160 – Source of Materials

00160.20(a) Buy America – The project does not involve federal funds. These Materials provisions are not applicable.

Section 00165 – Quality of Materials

00165.03 Testing by AGENCY – Replace this section with the following:
Testing responsibilities shall be in accordance with the Technical Specifications, Section 01 45 00, Quality Control.

00165.04 Costs of Testing – Replace this section with the following:
Costs of Testing shall be in accordance with the Technical Specifications, Section 01 45 00, Quality Control.

Section 00170 – Legal Relations and Responsibilities

00170.02 Permits, Licenses, and Taxes – Add the following:

- Obtain business license from CITY of Warrenton.

00170.03 Furnishing Rights of Way and Permits – Add the following:
The AGENCY will apply and pay for the following Permits:

- Clatsop County – Development Permit and Grading, Drainage and Erosion Control Permit.
- Oregon Department of State Lands – General Authorization for Temporary Disturbance to Non-Tidal Wetlands, Removal-Fill Permit.
- Oregon Department of Forestry – Permit to Use Fire or Operate Power-Driven Machinery, complying with Fire Season requirements and subject to Industrial Fire Precaution Levels (IFPLs) for Protection West of Cascades.

CONTRACTOR is required to comply with all terms and conditions of Permits.

Prior to commencement of respective work, the CONTRACTOR shall confirm that required permits have been issued and obtain copies of such permits. CONTRACTOR shall provide such CONTRACTOR information to the respective permitting authority as is necessary for issuance of permits in accordance with the procedures required by the permitting authority.

The CONTRACTOR shall be responsible for coordinating and scheduling all inspections required by applicable permits with the respective permitting authorities, including those for permits issued by the AGENCY.

The CONTRACTOR shall be responsible for paying all permit reinspection fees, investigation fees, penalties, and other permit fees arising from the CONTRACTOR's failure to properly request, coordinate, schedule, and obtain required inspections; CONTRACTOR's failure to properly prepare the work for inspection; CONTRACTOR's commencement of work prior to issuance of required permits; or CONTRACTOR's failure to comply with the provisions of any permit. The CONTRACTOR shall pay such fees or penalties promptly to the respective permitting authority, and no separate payment, reimbursement, or other compensation will be paid to the CONTRACTOR by the AGENCY for such penalties or fees. If any such penalties or fees are levied against the AGENCY and the permitting authority requires the AGENCY

to pay them directly to the permitting authority, the CONTRACTOR shall reimburse the AGENCY, which may include deducting such amounts from payments due to the CONTRACTOR.

Any delays in the Work arising from the CONTRACTOR's failure to properly request, coordinate, schedule, and obtain required inspections; CONTRACTOR's failure to properly prepare the work for inspection; CONTRACTOR's commencement of work prior to issuance of required permits; or CONTRACTOR's failure to comply with the provisions of any permit; or CONTRACTOR's failure to remit payment to the permitting authority any reinspection fees, investigation fees, penalties, or other fees or penalties as provided in this section, shall be counted against the Contract Time. No additional Contract Time will be provided for such delays.

00170.65(b)(1) Minimum Wage Rates – BOLI Prevailing Wage Rates (Effective January 1, 2025) title page is included at the end of these Special Provisions.

00170.70(a) Insurance Coverages

Required minimum Insurance coverage levels are as follows:

Commercial General Liability	$2,000,000 Combined Single Limit Per Occurrence
Pollution Liability Coverage	$2,000,000
Asbestos Liability Endorsement	Not Required
Lead Liability Endorsement	Not Required
Commercial Automobile Liability	$2,000,000 Combined Single Limit Per Occurrence
with Pollution Coverage	Required
Builder's Risk	Contract Value

00170.70(c) Additional Insured - The liability insurance coverages of 00170.70(a) shall include the AGENCY, the AGENCY's governing body, board, or Commission and its members, and the AGENCY's officers and employees as Additional Insureds, but only with respect to the CONTRACTOR's activities to be performed under the Contract. When federal transportation funding is involved, the liability coverages of 00170.70(a) shall also include the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers, members and employees as additional insureds, but only with respect to the CONTRACTOR's activities to be performed under the Contract. Coverage shall be primary and non-contributory with any other insurance and self-insurance. The liability coverages of 00170.70(a) that are permitted by the AGENCY to be obtained by an appropriate SUBCONTRACTOR shall include all of the foregoing as Additional Insureds and shall also include CONTRACTOR and its officers and employees as Additional Insureds.

Section 00180 – Prosecution and Progress

00180.20(a) Subcontracting Limitations; General – The CONTRACTOR's own organization shall perform work amounting to at least 50% of the original Contract Amount.

00180.40(a) Limitation of Operations; In General – Add the following to subsection:

- As further detailed in the Technical Specifications, Section 01 10 00 Summary of Work.

00180.40(b) Limitation of Operations; On-Site Work – Add the following item to the bulleted list:

- An approved Removal-Fill Permit from Oregon DSL.

00180.41 Project Work Schedules – A Type "A" Schedule shall be required for the Project.

00180.85(b) Liquidated Damages – Add the following:
CONTRACTOR shall pay to the Agency, not as a penalty but as liquidated damages, one thousand two dollars ($1,200) per calendar day for each Calendar Day the CONTRACTOR expends performing the Contract in excess of the Contract Time or adjusted Contract Time.

Section 00190 – Measurement of Pay Quantities

00190.00 Scope – This section is supplemented by the Technical Specifications, Section 01 22 20 Unit Price Measurement and Payment.

Section 00199 – Disagreements, Protests, and Claims

00199.30(b) Claims Requirements – CONTRACTOR written claims to ENGINEER or AGENCY shall be delivered to:

Kevin Gorman, Public Works Director
P.O. Box 250
Warrenton, OR 97146

PREVAILING WAGE RATES

This Contract is for a project that is subject to ORS 279C.800 to 279C.870. All persons working under this contract and all associated subcontracts must be paid not less than the applicable state prevailing rate of wage. ***"Prevailing Wage Rates for Public Works Contracts in Oregon" (effective January 1, 2025)*** are the appropriate prevailing wage rate publications for this contract. These documents are published by the Oregon Bureau of Labor and Industries (BOLI) and are available on-line at:

http://www.oregon.gov/BOLI/WHD/PWR/Pages/pwr_state.aspx

BOLI Office Locations

Bend	1645 NE Forbes Rd, Suite 106 Bend, OR 97701	541-322-2435
Eugene	1400 Executive Pkwy., Suite 200 Eugene, OR 97401	541-686-7623
Medford	119 N Oakdale Ave. Medford, OR 97501	541-776-6270
Portland	800 NE Oregon St., Suite 1045 Portland, OR 97232	971-673-0761
Salem	3865 Wolverine Ave. NE Building E, Suite 1 Salem, OR 97305	503-378-3292

The successful Bidder and all subsequent subcontracts shall comply with ORS 279C.845 wage rate requirements and produce appropriate certificates that they have compiled.

TECHNICAL SPECIFICATIONS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 10 00 – SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Work covered by Contract Documents.
2. Contractor's use of Site.
3. Permits.
4. Specification conventions.
5. Prevailing wage rates for public works contracts in Oregon
6. Oregon products.
7. Use of explosives.
8. Contaminated material.
9. Extended warranty provisions for paving in Clatsop County and ODOT rights-of-way.
10. Work with existing asbestos water pipelines.
11. Inadvertent Discovery Plan for cultural resources.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of the Project includes furnishing all permits, labor, materials, and equipment necessary for the construction of the following:

1. Installation of approximately 3,800 linear feet (LF) of buried 24-inch diameter HDPE raw water transmission main, including isolation valves and other appurtenances, and connections to existing fiberglass and HDPE mains.
2. Abandonment in place of approximately 3,800 LF of existing 24-inch diameter fiberglass raw water transmission main.
3. Delineated wetlands and waters are within the project area. All work must comply with Oregon Department of State Lands (DSL) permit provisions.

B. The defined Work elements are a general outline of principal features of the Work and do not in any way limit the responsibility of the Contractor(s) to perform all Work and furnish all equipment, labor and materials required by the Contract Documents.

1.3 NOT USED

1.4 NOT USED

1.5 NOT USED

1.6 CONTRACTOR'S USE OF SITE

A. The Work included in the Contract Documents is to be performed within City rights-of-way and easements. Contractor shall have use of Project site for construction operations as indicated on Drawings, requirements of this Section, and terms and conditions of City rights-of-way and easements.

B. Maintain all City rights-of-way and easements clear and available in accordance with terms and conditions of respective rights-of-way use permits or other written permission from authorities having jurisdiction.

C. Noisy and Disruptive Operations (such as Use of Jack Hammers and Other Noisy Equipment): Not allowed in close proximity to existing buildings during regular hours of operation. Coordinate and schedule such operations with Owner to minimize disruptions.

D. Time Restrictions for Performing Work: All work shall be conducted between the hours of 7:00 a.m. and 6:00 p.m. on non-holiday weekdays only. Weekend work will only be allowed with prior approval. Requests for variations in work hours shall be made in writing for consideration by the Owner. No work shall be conducted outside of the above-described days and hours without prior approval of the Owner.

E. Utility Outages and Shutdown:

1. Coordinate and schedule electrical and other utility outages with Owner.

2. Outages: Allowed only at previously agreed upon times.

3. At least one week before scheduled outage, submit Outage Request Plan to Owner itemizing the dates, times, and duration of each requested outage.

F. Sound Level Restrictions: Shall comply with local Noise Ordinance.

G. Construction Plan: Before start of construction, submit three copies of construction plan regarding access to Work, use of Site, and utility outages for acceptance by Owner. After acceptance of plan, construction operations shall comply with accepted plan unless deviations are accepted by Owner in writing.

1.7 NOT USED

1.8 NOT USED

1.9 PERMITS

A. Unless provided for otherwise in these Contract Documents, all permits, licenses, and fees shall be obtained by the Contractor and all costs shall be borne by the Contractor. Contractor shall pay all plan check fees and other fees necessary to obtain permits and shall accommodate

special inspections required thereof. Contractor shall be responsible for compliance with all permit provisions and shall accommodate all special inspections required thereof, all at no additional expense to the Owner beyond prices as bid.

B. Furnish all necessary permits for construction of Work including the following:

1. Clatsop County – Grading, Drainage and Erosion Control Permit

2. Oregon Department of State Lands – General Authorization for Temporary Disturbance to Non-Tidal Wetlands

3. Oregon Department of Forestry – Permit to Use Fire or Operate Power-Driven Machinery, complying with Fire Season requirements and subject to Industrial Fire Precaution Levels (IFPLs) for Protection West of Cascades

1.10 SPECIFICATION CONVENTIONS

A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed at the Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.11 PREVAILING WAGE RATES FOR PUBLIC WORKS CONTRACTS IN OREGON

The Contractor shall abide by ORS 279C.800 through 279C.870 which relate to the prevailing wage rates for the building and construction trades in the State of Oregon. These prevailing wage rates are shown in the Bureau of Labor and Industries document which is included elsewhere in these contract documents.

1.12 OREGON PRODUCTS

Contractor's attention is directed to the provisions of Oregon Law, ORS 279A.120 regarding the preference for products that have been manufactured or produced in Oregon. Contractor shall use Oregon-produced or manufactured materials with respect to common building materials such as cement, sand, crushed rock, gravel, plaster, etc., and Oregon-manufactured products in all cases where price, fitness, availability, and quality are otherwise equal.

1.13 USE OF EXPLOSIVES

The use of explosives shall not be allowed on this Project. Alternative methods of excavation shall be utilized.

1.14 CONTAMINATED MATERIAL

A. General

It is possible that the Contractor may encounter contaminated material (soil and/or water) during excavation activities. This specification identifies requirements for handling and disposing contaminated media.

B. Definitions

1. "Contaminated material" is defined as soil, water, free product, Underground Storage Tanks (UST), buried abandoned utility lines containing residual or free product, solid waste, treated wood waste, chemical containers, or other solid, liquid, or gas substances with contamination levels above background levels.

2. "Hazardous substances" shall mean those substances or materials defined in the ORS 465.200, as amended.

3. "Release" shall have the meaning as defined in ORS 465.200, as amended.

4. "Environmental laws" shall mean any applicable statute, law, ordinance, order, consent decree, judgment, permit, license, code, covenant, deed, common law, treaty, convention, or other requirement pertaining to protection of the environment, health or safety, natural resources, conservation, wildlife, waste management or disposal, hazardous substances, or pollution, including but not limited to regulation of releases to air, land, water, and groundwater.

C. Execution

1. Discovery of Contaminated Material

   In the event that the Contractor, during the course of construction or during any other activities authorized under this contract, should encounter suspected contaminated material or any other materials suspected of posing a threat to human health and the environment, the Contractor shall notify the Engineer immediately and manage according to requirements identified below.

2. Discovery of Contaminated Soil

   Contractor shall note evidence of contamination (odor, visual staining of soil, free liquid product seeping from soil, sheen on groundwater, etc.) and note location of evidence on a sketch of the excavation and provide to the Engineer.

   Contractor shall report the discovery to the Engineer immediately. Contractor shall stop all excavation activities and secure the site to prevent entry by the public. The excavation shall not be backfilled. Protect all open excavations with berms, plates, and fencing. Contractor may continue with work in other non-contaminated areas.

   Contractor shall assist Engineer in collecting sample(s) of suspected contaminated media for testing and characterization. Contractor shall allow 21 days, at no cost to Owner, for testing, results, and instructions as to how to proceed with contaminated materials.

   The Contractor shall obtain a copy of an approved soil disposal/acceptance permit (Disposal/Treatment Facility requires transporter to have a copy of the permit.)

   Contractor will transport and dispose of contaminated material at an approved disposal/treatment facility.

   Contractor shall provide the Engineer with a copy of the contaminated soil disposal receipt.

3. Handling of Contaminated Soil

After approval from the Engineer, excavate the soil in a manner that prevents commingling of contaminated and non-contaminated soil. Engineer will make determination (based on soil saturation) if contaminated soil can be directly transported to a treatment or disposal facility, or if soil needs to be stockpiled to reduce water content. Engineer will determine when stockpiled soil can be transported off-site.

Contractor will be responsible for stockpiling contaminated soil in containers or on impervious surface to prevent the spread of contamination. Any water runoff from the contaminated soil stockpile area(s) must be contained by Contractor and handled as contaminated water.

Minimize movement of excavation equipment over or through contaminated soil to prevent movement of contaminated soil into areas where no contaminated soil exists.

Stockpiles will be created on an approved site and shall be surrounded by a fence to limit access. The stockpiles must be covered and bermed during periods of rainfall to prevent run-on and run-off. The stockpiles shall be covered with a minimum 10-mil high density polyethylene (HDPE) plastic during periods of strong winds, nightfall, over the weekends, or during extended work stoppages. If dust is observed coming from the stockpiles, the stockpiles shall be either covered or the dust controlled with water.

Maintain excavation equipment in good working order. Prevent spillage of oil, fuel, or hazardous substances from equipment. In particular, promptly repair oil leaks from equipment and clean up any contaminated soil.

4. Transport of Contaminated Materials

Contractor shall comply with all applicable Federal, State, or local laws, codes, and ordinances that govern or regulate contaminated substance transportation. Contaminated soils placed in stockpiles shall be loaded into trucks in a manner that prevents the spilling or tracking of contaminated soil into areas of the site with uncontaminated soil. Loose material falling onto the exterior of the truck during loading shall be removed before the truck leaves the loading area. Any material collected in the loading area shall either be placed back into the truck or back into the stockpile. If loading areas are unpaved, the surface soil shall be sampled at the conclusion of the loading activities to confirm that contaminated soil is not present. If loading areas are paved, any loose soil shall be cleaned from the pavement at the conclusion of the loading activities.

Specific truck haul routes shall be established before beginning off-site contaminated media transport. On-site truck routes shall be established to minimize or prevent movement of trucks over contaminated soils. Off-site truck routes shall be established to reduce the risk of releases of contaminated soils and impact on local traffic. The Contractor shall be responsible for ensuring that loaded truck weights are within acceptable limits. All trucks shall be covered before they leave the loading area.

The Contractor shall ensure that all drivers of vehicles transporting contaminated substances have in their possession during transport all applicable Oregon State and local vehicle insurance requirements, valid driver's license, and vehicle registration and license. The Contractor shall be responsible for informing all drivers of transport vehicle about:

a. The nature of the material transported.

b. Required routes to and from the off-site thermal treatment or disposal facility.

c. Applicable City/County Street regulations and requirements, and State of Oregon Department of Transportation codes, regulations, and requirements.

d. The City/County's requirement for proper handling and transportation of the substances.

The Contractor shall not allow contaminated substances to be spilled or tracked off-site at any time during the Project. Trucks used for the transportation of contaminated substances off-site shall be watertight, substance compatible, licensed, insured, and permitted pursuant to federal, state, and local statutes, rules, regulations, and ordinances.

If contaminated media is discarded prior to removal of contaminated material, the price per cubic yard of soil materials and price per 100 gallons of contaminated water will be negotiated with Owner.

1.15 NOT USED

1.16 EXTENDED WARRANTY PROVISIONS FOR PAVING IN CLATSOP COUNTY AND ODOT RIGHTS-OF-WAY

The Contractor shall provide an extended warranty for all paving work performed in Clatsop County and ODOT rights-of-way. The warranty for this work shall extend an additional one year beyond that provided for the overall project.

1.17 NOT USED

1.18 WORK WITH EXISTING ASBESTOS WATER PIPELINES

The Contractor shall comply with all requirements of the State of Oregon, Department of Environmental Quality (DEQ) with respect to the safe handling, removal, and disposal of asbestos cement pipe, including all reporting requirements.

1.19 INADVERTENT DISCOVERY PLAN FOR CULTURAL RESOURCES

The Contractor shall follow this Inadvertent Discovery Plan (IDP) if cultural material including human remains are encountered during construction. In addition to the requirements below, the Contractor shall comply in all respects to the requirements of Standard Specifications for Construction, Oregon Department of Transportation (ODOT).

The IDP for the Project is as follows:

A. When to Stop Work

Construction work may uncover previously unidentified Native American or Euro-American artifacts. This may occur for a variety of reasons but may be associated with access restrictions during project development, or if the area contains impervious surfaces throughout most of the Project area which would have prevented standard archaeological site discovery methods.

1. Work must stop when the following types of artifacts and/or features are encountered:

a. Native American artifacts may include (but are not limited to):

1) Flaked stone tools (arrowheads, knives, scrapers, etc.)

2) Waste flakes that resulted from the construction of flaked stone tools.

3) Ground stone tools like mortars and pestles.

4) Layers (strata) of discolored earth resulting from fire hearths. May be black, red, or mottled brown and often contain discolored cracked rocks or dark soil with broken shell

5) Human remains

6) Structural remains- wooden beams, post holes, fish weirs

b. Euro-American artifacts my include (but are not limited to):

1) Glass (from bottles, vessels, windows, etc.)

2) Ceramic (from dinnerware, vessels, etc.)

3) Metal (nails, drink/food cans, tobacco tins, industrial parts, etc.)

4) Building materials (bricks, shingles, etc.)

5) Building remains (foundations, architectural components, etc.)

6) Old wooden posts, pilings, or planks (these may be encountered above or below water)

7) Even what looks to be old garbage could very well be an important archaeological resource

8) Remains of ships or sea-going vessels, marine hardware, etc.

9) Old farm equipment may indicate historic resources in the area

B. Protocol for Coordination in the Event of Inadvertent Discovery

1. Stop ALL Work in the vicinity of the find.

2. Secure and protect area of inadvertent discovery with 100 foot buffer—work may continue outside of this buffer.

3. Notify Owner and Engineer.

4. Owner will contact a professional archaeologist to assess the find.

5. If archaeologist determines the find is an archaeological site or object, the Owner will contact State Historic Preservation Office (SHPO). If it is determined to not be archaeological, the Owner will notify the Contractor to continue Work.

C. Protocol for Coordination in the Event of Inadvertent Discovery of Human Remains

1. If it is believed the find may be human remains, stop ALL Work.

2. Secure and protect area of inadvertent discovery with 100 foot buffer, then Work may continue outside of this buffer with caution.

3. Cover remains from view and protect them from damage or exposure, restrict access, and leave in place until directed otherwise. Do not take photographs. Do not speak to the media.

4. Notify the following:

    a. Owner

    b. Engineer

    c. Oregon State Police DO NOT CALL 911

        1) Lt. Craig Heuberger: 503-508-0779

    d. SHPO

        1) Asst. State Archaeologist, John Pouley: 503-480-9164

        2) GIS Archaeologist, Jamie French: 503-979-7580

    e. Legislative Commission on Indian Services (LCIS)

        1) Mitch Sparks: 503-986-1086

    f. Appropriate Native American Tribes

        1) Confederated Tribes of Grand Ronde

            a) Deputy Tribal Historic Preservation, Briece Edwards: 503-879-2084

        2) Confederated Tribes of Siletz Indians

            a) History & Archaeology Specialist, Peter Sv-gvs (Black Bear) Hatch: 541-444-8319

        3) Confederated Tribes of Warm Springs Reservation of Oregon

            a) THPO & NAGPRA Coordinator, Bobby Brunoe: 541-553-2026

5. If the site is determined not to be a crime scene by the Oregon State Police, do not move anything. The remains will continue to be secured in place along with any associated funerary objects, and protected from weather, water runoff, and shielded from view.

6. Do not resume any Work in the buffered area until a plan is developed and carried out between the State Police, SHPO, LCIS, and appropriate Native American Tribes. The Owner shall notify the Contractor when Work may continue.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 12 16 - WORK SEQUENCE

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes general sequencing, project phasing and coordination requirements for the Work.

B. Contract Requirements:

1. Raw Water Transmission Facilities

a. The existing raw water transmission facilities within the Project convey source water to the Owner's water treatment plant. Plan and prosecute the Work such that water service is not interrupted, expect as specified herein.

b. Prosecution of particular segments of the Work will require specific coordination with L&C Tree Farms LLC. Location of affected Work areas are delineated in the Drawings.

C. Related Sections:

1. Section 01 10 00, Summary of Work.

1.2 SUBMITTALS

A. Section 01 33 00, Submittal Procedures: Requirements for submittals.

B. Work Sequencing Plan: At a minimum, to include the following:

1. Complete sequence of construction for all activities contained herein.

1.3 NOT USED

1.4 GENERAL WORK CONSTRAINTS

A. Constraints primarily relate to interfacing with and tying into existing raw water transmission pipelines and other aspects of Owner enterprise utilities.

B. Make every effort to give proper attention to each of these items so as to minimize interruptions of the existing facilities and avoid delays that may result if the constraints are not observed.

C. Constraints listed below involve limits on activities during construction. These limits relate to the critical nature of the existing raw water transmission facilities.

1. Coordinate construction schedule with Owner and L&C Tree Farms LLC.

2. Owner recognizes portions of the raw water transmission facilities may have to be interrupted, shut down, or interfered with in order to accommodate construction activities. Owner will, through its personnel, attempt to accommodate Work, provided that

proper notification is given. Owner reserves the right to deny permission for interruption or shutdown on any day.

3. Do operate any of the Owner utility facilities. Contractor is liable for any loss or damage caused to property, equipment or any personal injury resulting from or related to this unauthorized operation or use.

D. Extended Working Hours: If it is desired to perform any Work outside the specified working hours, obtain written permission from Owner and all necessary permitting agencies, and make all necessary arrangements prior to commencing.

1.5 TEMPORARY SHUTDOWNS

A. Provide 14-day minimum advance notice to request approval of a temporary shutdown of a facility.

B. Each Notice of Request for Approval of a Temporary Shutdown submitted to Owner shall include the following:

1. Dates, times, and duration of proposed shutdown.

2. Work activities to be performed during the shutdown.

3. Assistance required of Owner's personnel before, during, and after shutdown.

4. Personnel to be on Site during shutdown.

5. Contingency plan if work during shutdown is not completed during allotted time or critical equipment fails.

C. Upon receipt of such request, Owner will decide what action(s) is required by Owner and if the requested shutdown is acceptable. The request from Contractor will be returned to Contractor with the Owner's written decision noted. If Owner deems that the requested shutdown is unacceptable, Owner will state such reasons, and Contractor shall reschedule the shutdown as required.

D. It is hereby agreed between the Contractor and Owner that disapproval by Owner of the Contractor's shutdown request does not entitle Contractor to any time extension unless Contractor can demonstrate to the satisfaction of Owner, through an updated CPM schedule, that the overall project completion date will not be met as a result of this disapproval.

E. Owner may postpone a planned and approved shutdown at any time for critical water or sanitary sewer service demands or safety reasons.

1.6 INTERRUPTION OF UTILITY SERVICE

A. Indicate required shutdowns of existing utilities or interruptions of existing operations on Progress Schedule. Interruptions to utility service will be allowed to the extent that customer service will not be adversely compromised.

B. Submit requests for interruptions to utility service not less than 14-days in advance of the date scheduled for the interruption.

C. Following receipt of the request, Engineer will notify Contractor if the requested date will be permitted. Evaluation of the request will be based upon the availability of the utility owner's personnel to assist and monitor utilities during the shutdown period and impact to customer service.

D. Minimize the period of interruption by thorough advance planning. Procure and provide all required materials, equipment, and labor on site during the shutdown.

E. Do not begin interruption until written authorization is received from Engineer.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 22 20 - UNIT PRICE MEASUREMENT AND PAYMENT

PART 1 GENERAL

Measurement and payment will be on a unit price basis in accordance with the prices set forth in the proposal for individual work items. Where work is required but does not appear as a separate item in the proposal, the cost for that work shall be included and absorbed in the unit prices named in the proposal. Contractor shall make a careful assessment when preparing the bid.

A. Mobilization, Bonds, Insurance and Demobilization: Payment for mobilization, bonds, insurance, and demobilization will be on a lump sum basis. The amounts paid for mobilization in the contract progress payment will be based on the percent of the original contract amount that is earned from other contract items, as follows:

1. When 5 percent is earned, either 100 percent of the amount for mobilization or 5 percent of the original contract amount, whichever is the least.

2. When all work is completed, amount of mobilization exceeding 5 percent of the original contract amount.

This schedule of mobilization progress payments will not limit or preclude progress payments otherwise provided by the contract.

B. Record Drawings: Payment for record drawings will be on a lump sum basis. Payment will include all labor and materials necessary to prepare and maintain a set of construction drawing markups at the project site to document work completed including any approved changes.

C. Temporary Work Zone Traffic Control: No measurement of quantities will be made. Payment will be on a lump sum basis and shall include furnishing, installing, moving, operating, maintaining, inspecting, and removing materials and traffic control devices, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures.

D. Temporary Erosion & Sediment Control: No measurement of quantities will be made. Payment for temporary erosion and sedimentation control will be on a lump sum basis. The lump sum price shall include compensation for all labor, equipment, materials, planning and design for temporary erosion and sedimentation control measures, upkeep and maintenance of all measures, removal of erosion and sedimentation control measures at the completion of the Project and after vegetation is fully established, and all other materials and work necessary.

E. Construction Survey & Staking: No measurement of quantities will be made. Payment for construction survey and staking will be on a lump sum basis and shall include all labor, materials, and equipment necessary to complete the work.

F. Trench Safety System: No measurement of quantities will be made. Payment for trench safety system shall be made on lump sum basis. Payment shall include all labor, equipment, and materials necessary for selection, design, installation, maintenance, protection, and removal of excavation support systems as required in Section 31 50 00, Excavation and Support Protection.

G. Temporary Dewatering System: No measurement of quantities will be made. Payment for all temporary dewatering work that is not included in other bid items shall be made on a lump sum basis. Payment shall include all labor, equipment and materials to design, construct, test, operate, maintain, and decommission the temporary dewatering system as required by Section 31 23 19, Dewatering. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures.

H. Rock Excavation: Payment for rock excavation, as defined in Section 31 23 18, Rock Removal and approved by the Engineer, will be made at the unit price per cubic yard of rock excavated and rock excavation will be paid for in addition to the linear foot price for pipe, trench excavation and backfill. Measurement for rock excavation in pipe trench shall be for the length and depth of rock encountered to 6-inches below the pipe invert and the pay width shall be the nominal pipe diameter plus 12-inches on each side of the pipe for all pipe sizes. Measurement for rock excavation for vaults and other structures shall be for the depth of rock encountered to the depth necessary to install the structure and to a maximum of 18-inches beyond the outside walls of the vault or structure. No payment will be made for rock excavation beyond these limits.

I. General Surfacing Restoration: No measurement of quantities will be made. Payment will be made on a lump sum basis for general surface restoration, including stripping and stockpiling topsoil, regrading to original contours, bark mulching planting areas, resurfacing gravel surfaces, and cleanup following construction as required. Measurement and payment for surface restoration of asphaltic concrete pavement will be paid under separate bid items.

J. Tree Removal: Payment for tree removal will be on a lump sum basis and shall include all labor, materials and equipment necessary to complete the work to the limits as shown on the Drawings. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures.

K. Water Pipe, HDPE (IPS) DR-17: Payment for furnishing and installing HDPE (IPS) DR-17 pipe, at all depths as shown on the plans, including all work and materials, testing, inspection, and acceptance, will be made on a linear foot basis for the pipe diameters and the trench backfill specified. Payment will include but not limited to excavation, loading, hauling, disposal, pipe and trench zone materials (including aggregate base course[s] for surface restoration), pipe installation, and the placement, compaction, and testing of the Class of trench backfill shown and specified. Measurement will be based on the total horizontal length of piping constructed as indicated on the plans without deduction for fittings and valves. Measurement and payment for surface restoration will be paid under separate bid items.

L. Trench Dam: Measurement and payment for furnishing and installing trench dams, at all depths shown on the plans, including all work and materials, testing, inspection, and acceptance, will be made on a per each basis. Measurement and payment for surface restoration will be paid under separate bid items.

M. Air Release Valve Assembly: Measurement and payment for air release valve assemblies will be on a per each basis for the assembly type and size specified. Payment will include but not limited to excavation, loading, hauling, disposal, pipe and trench zone materials (including aggregate base course[s] for surface restoration), pipe, valves, fittings, boxes and covers, risers and extensions if required; installation, testing, and acceptance of water system materials as

shown in the plans and specifications. Measurement and payment for surface restoration will be paid under separate bid items.

N. Blow Off Assembly: Measurement and payment for blow off assemblies will be on a per each basis for the assembly type and size specified. Payment will include but not limited to excavation, loading, hauling, disposal, pipe and trench zone materials (including aggregate base course[s] for surface restoration), pipe, valves, fittings, boxes and covers, risers and extensions if required; installation, testing, and acceptance of water system materials as shown in the plans and specifications. Measurement and payment for surface restoration will be paid under separate bid items.

O. Fire Hydrant Assembly: Measurement and payment for fire hydrant assemblies will be on a per each basis. Payment will include but not limited to excavation, loading, hauling, disposal, pipe and trench zone materials (including aggregate base course[s] for surface restoration), shackles, tie rods, pier blocks, gravel, painting, and all other items for the complete installation of the hydrant including the pipe connecting the hydrant to the main; installation, testing, and acceptance of water system materials as shown in the plans and specifications. Measurement and payment for surface restoration, hydrant isolation valves, and tees will be paid under separate bid items.

P. Connections to Existing Waterline: No measurement of quantities will be made. Payment will be made on a lump sum basis for the completion of each water main connection as indicated on the Bid Form and in the Drawings. Lump sum payment under this item shall include but not limited to excavation, loading, hauling, disposal, pipe and trench zone materials (including aggregate base course[s] for surface restoration), pipe, fittings, restraints, valves; installation, testing and acceptance of water system materials within the pay limits as shown in the plans and specifications. Lump sum payment shall also include potholing or exploratory excavation work required to confirm existing piping connection configuration and requirements, work to properly drain existing piping and dispose of water (where required) and performing swab and/or spray disinfection of connection piping per AWWA C651, all per the requirement of the Specifications. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures. Measurement and payment for surface restoration will be paid under separate bid items.

Q. Abandon Existing Water Pipe: No measurement of quantities will be made. Payment will be made on a lump sum basis for the completion of all work for abandoning the existing water pipe as shown on the plans. Lump sum payment under this item shall cover all particular elements of the project, whether or not specifically or specially identified, as specified herein, in the contract documents and as shown on the plans, except for work included separately under separate bid items. Payment shall be full and complete compensation for all work shown in the drawings and other work required for abandonment of the existing water pipe in place, including materials, equipment, and labor for construction. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures.

R. Fire Watch: Measurement and payment for providing fire watch will be on a per day basis. Payment will include but not limited to providing necessary personnel, vehicles, material and equipment to comply with Fire Watch requirements set forth by the Oregon Department of Forestry for Industrial Fire Protection Requirements for the affected Project area.

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. This Section contains administrative and procedural requirements for submittals for review, information, and for Project closeout.

B. Section includes:

1. Schedule of Submittals.
2. Submittal requirements.
3. Submittal procedures.
4. ENGINEER review.
5. Resubmittal procedures.
6. Product data.
7. Shop Drawings.
8. Samples.
9. Design data.
10. Test reports.
11. Certificates.
12. Manufacturer's instructions.
13. Manufacturer's field reports.
14. Construction progress schedules.
15. Breakdown of contract price.
16. Construction photographs.
17. Other Submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require ENGINEER's responsive action.

B. Informational Submittals: Written and graphic information and physical Samples that do not require ENGINEER's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SCHEDULE OF SUBMITTALS

A. Within 10 days after the Effective Date of the Contract, CONTRACTOR shall submit to ENGINEER a preliminary Schedule of Submittals, including proposed list of major products proposed for use, with specification section reference, name of Manufacturer, supplier, trade name, SUBCONTRACTOR, and model number of each

product. Provide a schedule of specific target dates for the submission and return of submittals and shop drawings required by the Contract Documents.

B. For products specified only by reference standards, indicate Manufacturer, trade name, model or catalog designation, and reference standards.

C. The list and schedule shall be updated and resubmitted when requested by the ENGINEER.

D. CONTRACTOR's Schedule of Submittals will be acceptable to the ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

1.4 SHOP DRAWING AND SAMPLE SUBMITTAL REQUIREMENTS

A. Before submitting a Shop Drawing or Sample, CONTRACTOR shall have:

1. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

2. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

3. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

4. determined and verified all information relative to CONTRACTOR's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

B. Each submittal shall bear a stamp or specific written certification that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review of that submittal, and that CONTRACTOR approves the submittal.

C. With each submittal, CONTRACTOR shall give ENGINEER specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to ENGINEER for review of each such variation.

1.5 SUBMITTAL PROCEDURES

A. CONTRACTOR shall submit Shop Drawings and Samples to ENGINEER for review in accordance with the accepted Schedule of Submittals.

B. Transmit each submittal with ENGINEER-accepted transmittal form certifying compliance with requirements of Contract Documents.

C. Sequentially number transmittal forms. Mark transmittal forms for resubmittals with original number and sequential alphabetic suffix.

D. Show each Submittal with the following numbering and tracking system:

1. Submittals shall be numbered according to specification section. For example, the first product submittal for Section 05 50 00 would be “05 50 00-1”. Resubmittals of that submittal would be “05 50 00-1.1”, followed by “05 50 00-1.2”, and so on. The second product submittal for that Section would be “05 50 00-2”.

2. Submittals containing product information from multiple sections of the specifications will not be reviewed. CONTRACTOR and/or their supplier shall divide submittals in a manner that meets the numbering and tracking system requirements stated herein.

3. Alternative method of numbering may be used if acceptable to ENGINEER.

E. Identify: Project, CONTRACTOR, SUBCONTRACTOR and supplier, pertinent drawing and detail number, and specification Section number appropriate to submittal.

F. Apply CONTRACTOR's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.

G. Coordinate submission of related items.

1. All shop drawings for interrelated items shall be scheduled for submission at the same time.

2. The ENGINEER may hold shop drawings in cases where partial submission cannot be reviewed until the complete submission has been received or where shop drawings cannot be reviewed until correlated items affected by them have been received. When such shop drawings are held, the ENGINEER will advise the CONTRACTOR in writing that the shop drawing submitted will not be reviewed until shop drawings for all related items have been received.

H. When hard copies of submittals are provided by the CONTRACTOR, six copies of all materials shall be provided to the ENGINEER. Two copies of reviewed submittals will

be kept by the ENGINEER, two copies of reviewed submittals will be transmitted to the OWNER, and two copies of reviewed submittals will be returned to the CONTRACTOR. If the CONTRACTOR requests that more than two copies of the reviewed submittal be returned, then the CONTRACTOR shall submit the appropriate quantity of submittals.

I. When electronic transmittals of submittals are provided by the CONTRACTOR under established protocols described elsewhere in the Contract Documents or as jointly developed by the OWNER, ENGINEER and CONTRACTOR, provide electronic submittals in portable document format (PDF) in addition to the source document format (Word, Excel, AutoCAD, etc.). Reviewed submittals will be returned to the CONTRACTOR as PDF electronic files.

J. For each submittal for review, allow not less than 14 days for ENGINEER review, excluding delivery time to and from CONTRACTOR.

K. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.

L. Allow space on submittals for CONTRACTOR and ENGINEER review stamps or comments.

M. When revised for resubmission, the CONTRACTOR shall identify changes made since previous submission. A narrative of changes shall be provided, and shop drawings or calculations shall indicate that a revision was made.

N. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with review comments.

O. Submittals not requested will not be recognized nor processed.

P. Incomplete Submittals: ENGINEER will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of ENGINEER.

1.6 ENGINEER REVIEW

A. Informational submittals and other similar data are for ENGINEER's information, do not require ENGINEER's responsive action, and will not be reviewed or returned with comment.

B. The ENGINEER’s review of submittals and shop drawings is not a check of any dimension or quantity and will not relieve the CONTRACTOR from responsibility for errors of any sort in the submittals and shop drawings.

C. Submittals made by CONTRACTOR that are not required by Contract Documents may be returned without action.

D. The ENGINEER will review the submitted data and shop drawings and return to the CONTRACTOR with notations thereon indicating "No Exception Taken", "Make Corrections Noted", "Rejected", "Revise and Resubmit", or "Submit Specified Item".

E. If more than two submissions of an item are required to meet the Project specifications, CONTRACTOR shall be responsible for ENGINEER's charges to OWNER for its review time, and OWNER may impose a set-off against payments due to CONTRACTOR to secure reimbursement for such charges, unless the need for such change is beyond the control of CONTRACTOR.

F. ENGINEER will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to ENGINEER. ENGINEER's review will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

G. ENGINEER's review will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

H. ENGINEER's review of a separate item as such will not indicate approval of the assembly in which the item functions.

I. ENGINEER's review of a Shop Drawing or Sample shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has complied with the requirements of Paragraph 1.4.C and ENGINEER has given written acceptance of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. ENGINEER will document any such accepted variation from the requirements of the Contract Documents in a Field Order.

J. ENGINEER's review of a Shop Drawing or Sample shall not relieve CONTRACTOR from responsibility for complying with the requirements of Paragraph 1.4 A. and B.

K. ENGINEER's review of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

L. Neither ENGINEER's receipt, review, return of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

M. CONTRACTOR shall perform the Work in compliance with the requirements and commitments set forth in returned Shop Drawings and Samples, subject to the provisions of Paragraph 1.6.I.

1.7 RESUBMITTAL PROCEDURES

A. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

B. CONTRACTOR shall furnish required submittals with sufficient information and accuracy to obtain required review of an item with no more than two submittals. ENGINEER will record ENGINEER's time for reviewing a third or subsequent submittal of a Shop Drawings, sample, or other item requiring review, and CONTRACTOR shall be responsible for ENGINEER's charges to OWNER for such time. OWNER may impose a set-off against payments due to CONTRACTOR to secure reimbursement for such charges.

C. If CONTRACTOR requests a change of a previously reviewed submittal item, CONTRACTOR shall be responsible for ENGINEER's charges to OWNER for its review time, and OWNER may impose a set-off against payments due to CONTRACTOR to secure reimbursement for such charges, unless the need for such change is beyond the control of CONTRACTOR.

PART 2 PRODUCTS

2.1 CONSTRUCTION PROGRESS SCHEDULES

A. Within 10 days after the Effective Date of the Contract, prepare and submit to the ENGINEER a practicable schedule showing the order in which the CONTRACTOR proposes to carry out the Work, the dates on which the important features of the work will start, and the contemplated dates for completing same. A time-scaled bar chart schedule shall include the following:

- Construction activities
- Submittal and review of critical material samples and shop drawings
- Procurement and delivery of critical materials
- Duration of work, including completion times of all stages and their sub-phases

B. Attention is drawn to typical local climatic weather patterns and Work shall be coordinated accordingly.

C. Complete Project schedule shall be revised and resubmitted to the ENGINEER at a minimum occurrence of every three (3) weeks for review.

D. Three Week Lookahead Schedules: Provide each week at the weekly construction meeting. The previous week's completed work shall be shown on the schedule for a total of 4 weeks shown.

2.2 BREAKDOWN OF CONTRACT PRICE

A. Within 10 days after the Effective Date of the Contract, submit a complete breakdown of all lump sum bid items showing the value assigned to each part of the work, including an allowance for profit and overhead adding up to the total lump sum contract price.

B. Breakdown of lump sum bids shall be coordinated with the items in the schedule and shall be in sufficient detail to serve as the basis for progress payments during construction.

C. ENGINEER will review the contract price breakdown and may request items to be further broken down or for more items be added in order to facilitate tracking of work progress for payment.

D. Preparatory work, bonds, and insurance required in setting up the job will be allowed as a separate entry on the cost breakdown but shall not exceed 5 percent of the total base bid.

E. Upon acceptance of the breakdown of the contract price by the ENGINEER, it shall be used as the basis for all requests for payment.

2.3 PRODUCT DATA

A. Product Data: Action Submittal: Submit to ENGINEER for review for assessing conformance with information given and design concept expressed in Contract Documents. Submitted data shall be sufficient in detail for determination of compliance with the Contract Documents.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement Manufacturers' standard data to provide information specific to this Project.

1. Note submittal will be returned to CONTRACTOR without review of submittal if products, models, options, and other data are not clearly marked or identified.

C. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. After review, produce copies and distribute according to Paragraph 1.5.M and for record documents.

2.4 SHOP DRAWINGS

A. Shop Drawings: Action Submittal: Submit to ENGINEER for assessing conformance with information given and design concept expressed in Contract Documents.

B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional ENGINEER licensed in the state of Project, responsible for designing components shown on Shop Drawings.

1. Include signed and sealed calculations to support design.

2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.

3. Make revisions and provide additional information when required by authorities having jurisdiction.

D. All dimensioned shop drawings shall be scalable and provided as full-sized (22-inch x 34-inch) sheets. PDF electronic files shall print as scalable full-sized sheets.

E. After review, produce copies and distribute according to Paragraph 1.5.M and for record documents.

2.5 SAMPLES

A. Samples: Action Submittal: Submit to ENGINEER for assessing conformance with information given and design concept expressed in Contract Documents.

B. Samples for Selection as Specified in Product Sections:

1. Submit to ENGINEER for aesthetic, color, and finish selection.

2. Submit Samples of finishes, textures, and patterns for OWNER selection.

C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.

D. Include identification on each Sample, with full Project information.

E. Submit number of Samples specified in individual Specification Sections; ENGINEER will retain one Sample.

F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.

G. After review, produce copies and distribute according to Paragraph 1.5.M and for record documents.

2.6 DESIGN DATA

A. Informational Submittal: Submit data for ENGINEER's knowledge as Contract administrator or for OWNER.

B. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

2.7 TEST REPORTS

A. Informational Submittal: Submit reports for ENGINEER's knowledge and records as Contract administrator or for OWNER.

B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

2.8 CERTIFICATES

A. Informational Submittal: Submit certification by Manufacturer, installation/application SUBCONTRACTOR, or CONTRACTOR to ENGINEER, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product but must be acceptable to ENGINEER.

2.9 MANUFACTURER'S INSTRUCTIONS

A. Informational Submittal: Submit Manufacturer's installation instructions for ENGINEER's knowledge as Contract administrator or for OWNER.

B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to ENGINEER in quantities specified for Product Data.

C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

2.10 MANUFACTURER'S FIELD REPORTS

A. Informational Submittal: Submit reports for ENGINEER's knowledge and records as Contract administrator or for OWNER.

B. Submit report within 48 hours of observation to ENGINEER for information.

C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

2.11 ERECTION DRAWINGS – NOT USED

2.12 PROJECT HEALTH AND SAFETY PROGRAM – NOT USED

2.13 CONSTRUCTION PHOTOGRAPHS

A. Provide photographs of Site and construction throughout progress of Work.

B. Submit photographs with Application for Payment.

C. Photographs: Electronic, PDF, or JPEG format.

D. Take photographs of key construction elements: lateral connections, valve connections, creek crossings, and connections to existing piping. Take photographs with different angles and with varying zoomed in/out perspective to provide details of work and relative reference of the trench and Site.

E. Identify each photo in the electronic file name. Identify name of Project, pipe stationing, orientation of view, and date photo is taken.

2.14 OPERATION AND MAINTENANCE (O&M) INSTRUCTIONS – NOT USED

2.15 OTHER REQUIRED SUBMITTALS

A. Other required submittals include the items listed below. This list is provided for CONTRACTOR's convenience only and may not be complete in all respects. CONTRACTOR shall provide all submittals specified or required, whether or not listed here.

1. CONTRACTOR Emergency Contact List.
2. Erosion and Sediment Control Plan.
3. Traffic Control and Protection Plan.
4. Work Sequencing Plan.
5. Tree Removal Plan.
6. Existing Utility Protection Plan.
7. Record Drawings.

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 45 00 - QUALITY CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

A. This Section covers quality control requirements supplementary to those of the General Conditions and Technical Specifications.

1.2 PROVISIONS

A. CONTRACTOR's Responsibility for Testing

The CONTRACTOR shall be responsible for the cost of all testing as specified in this section. Additional information has been provided regarding the payment responsibility for the OWNER with regards to the Project.

B. OWNER's Right to Perform Additional Tests

The OWNER or ENGINEER reserves the right to complete additional testing. In such cases, the CONTRACTOR shall provide safe access for the OWNER or ENGINEER and their inspectors to adequately inspect the quality of work and the conformance with Project specifications.

1.3 QUALITY ASSURANCE

A. Testing Requirements

An independently owned and operated laboratory approved by the ENGINEER shall perform all testing as specified herein.

B. Testing

1. General

a. All required testing of work and/or materials shall be conducted in the presence of the ENGINEER. The CONTRACTOR shall provide 48-hour notification to the OWNER and OWNER's Representative prior to conducting any and all quality assurance testing. Where applicable, work and materials shall only be buried with the consent of the ENGINEER.

b. Where such inspection and testing are to be conducted by an independent laboratory or agency, the sample, or samples of material to be tested shall be selected by such laboratory or agency or by the ENGINEER. The CONTRACTOR shall furnish such samples of all materials without charge to OWNER.

c. The results from any and all tests are made for the information of the OWNER. Regardless of any test results, the CONTRACTOR is solely responsible for the quality of workmanship and materials and for compliance with the requirements of the Drawings and Specifications.

2. Costs of Testing

a. The CONTRACTOR shall be responsible for and shall pay for all tests as specified in Part 3 of this Section. Additional information has been provided regarding the payment responsibility for the OWNER with regards to the Project.

b. With regards to all materials to be tested, where test results demonstrate that the material or workmanship does not meet the minimum requirements of the Contract Documents, additional testing shall be completed and shall be paid for by the CONTRACTOR with no reimbursement by the OWNER.

1.4 SPECIAL INSPECTIONS – NOT USED

1.5 SUBMITTALS

A. Laboratory Test or Inspection Reports

Each report shall be signed and certified by the independently owned and operated testing laboratory. Unless otherwise specified, submit three copies of each report to the OWNER or OWNER's Representative.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 FIELD TESTING SCHEDULE

A. The CONTRACTOR shall complete field testing in accordance with the following schedule. Additional source material testing shall be completed as necessary to establish the basis of field tests. The frequency of testing listed in this schedule lists the minimum number of tests per quantity of work completed by the CONTRACTOR. Testing locations to be determined by the ENGINEER.

Material to be Tested	Payment Responsibility for Initial Testing	Minimum Testing Frequency
Trench Backfill	CONTRACTOR	In-place compaction testing (w/ nuclear compaction gauge) performed at the surface and on each lift of backfill for every 200 lineal feet of pipeline trench as measured along pipe centerline. ENGINEER may reduce frequency to one test per lift for every 1,500 lineal feet of pipeline trench when satisfied with CONTRACTOR's method of compaction. See Article 3.16, Field Quality Control of Section 31 23 17, Trenching for further details.
Asphalt Concrete	CONTRACTOR	As required when placed. See detailed requirements in Article 3.3, Field Quality Control of Section 32 12 16, Asphalt Paving.
Concrete	CONTRACTOR	As required when placed. See Section 03 11 00, Concrete Work.
Waterline – Hydrostatic testing	CONTRACTOR	As required. See Section 33 13 00, Testing and Disinfection of Water Utility Piping.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Temporary construction facilities and control requirements for the Work include the following. CONTRACTOR is responsible for providing all temporary facilities and controls necessary to complete the Work as described in the Contract Documents.

1. Utilities including lighting, electricity, communications, and water.
2. Water truck and backflow device for connection to water system.
3. Sanitary facilities.
4. Fire protection.
5. Security fencing.
6. Enclosures.
7. Parking area.
8. Traffic Control.
9. OWNER's access to facilities.
10. Secured storage for materials.

B. Maintain temporary facilities in proper and safe condition throughout progress of Work.

C. Comply with federal, state, and local codes and regulations, and utility company requirements.

1.2 LAYOUT OF TEMPORARY FACILITIES

A. Before starting Work, submit to OWNER, for approval, proposed layout of temporary facilities.

B. Should CONTRACTOR require space in addition to that shown on Drawings, CONTRACTOR shall make arrangements for storage of materials and equipment in locations off Site.

1.3 UTILITY PROPERTIES AND SERVICE

A. In areas where the CONTRACTOR's operations are adjacent to or near a utility and such operations may cause damage which might result in significant expense, loss and inconvenience, the operations shall be suspended until all arrangements necessary for the protection thereof have been made by the CONTRACTOR.

B. The CONTRACTOR shall notify all utility offices which may be affected by the construction operation at least 48 hours in advance. Before exposing any utility, the utility having jurisdiction shall grant permission and may oversee the operation. Should service of any utility be interrupted due to the CONTRACTOR's operation, the proper authority shall be notified immediately. It is of the utmost importance that the CONTRACTOR cooperates with the said authority in restoring the service as promptly as possible. Any costs shall be borne by the CONTRACTOR.

C. CONTRACTOR to contact one-number locator service (811) at least 48 hours in advance in advance of all excavations or other activities that may disturb and/or damage existing utilities. Existing utilities which may be impacted include the following:

UTILITY	UTILITY PROVIDER
Non-Potable Water	City of Warrenton
Storm Water	Private
Sanitary Sewer	None
Natural Gas	None
Telephone/Data	
Power	Pacific Power (PacifiCorp)

1.4 TEMPORARY LIGHTING AND ELECTRICITY

A. General:

1. Temporary lighting shall be sufficient to enable CONTRACTOR and SUBCONTRACTORs to complete Work and enable OWNER to observe Work. Illumination shall meet or exceed state code requirements.

B. Temporary Electric Power:

1. Provide portable generator(s) as needed.

1.5 TEMPORARY HEAT – NOT USED

1.6 TEMPORARY COMMUNICATIONS

A. Provide temporary telephone service for CONTRACTOR's use. Cell phones are acceptable.

B. Provide temporary internet access service for CONTRACTOR's use. Internet access shall be capable of sending and receiving emails with large file attachments, drawings, spreadsheets, and other documents.

1.7 PROJECT IDENTIFICATION – NOT USED

1.8 WATER FOR CONSTRUCTION AND TESTING

A. CONTRACTOR is responsible for making all arrangements necessary for temporary water for construction.

1. Non-potable water for construction purposes will be furnished by the OWNER at no cost to the CONTRACTOR.

2. Potable water for construction purposes may be purchased from the OWNER through an approved hydrant meter permit application and payment of necessary fees.

3. The CONTRACTOR shall furnish all valves, hoses, connections, and other devices as necessary to obtain sufficient water for construction and for filling and testing of water lines as required. Fire hydrant use is allowed only by permission of the utility OWNER.

4. Backflow protection is required on all connections to potable water systems.

1.9 SANITARY FACILITIES

A. Provide temporary sanitary facilities conforming to state and local regulations, in sufficient numbers for use of CONTRACTOR's and SUBCONTRACTOR's employees.

B. Maintain in sanitary condition and properly supply with toilet paper.

C. Use of OWNER's existing sanitary facilities is not allowed.

1.10 TEMPORARY FIRE PROTECTION

A. Provide and maintain fire extinguishers and other fire protection equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at Site.

B. Provide materials, equipment and labor necessary to comply with Fire Season requirements subject to Industrial Fire Precaution Levels (IFPLs) for Oregon Department of Forestry Protection West of Cascades and Permit to Use Fire or Operate Power-Driven Machinery.

1.11 TEMPORARY SITE AND OTHER ROADS

A. Maintain existing roads used during construction free from accumulation of dirt, mud, and construction debris.

B. CONTRACTOR shall repair or replace existing roads that remain to original or better condition prior to Final Completion. Survey and record condition of existing roads prior to construction.

1.12 CONTRACTOR'S WORK AREA

A. Work Area:

1. Limit construction operations and storage of equipment and materials to areas shown on Drawings and as determined by OWNER.

2. Except as provided herein, no private property, or other area adjacent to Site shall be used for storage of CONTRACTOR's equipment and materials unless prior written approval is obtained from legal OWNER of the respective locations.

3. CONTRACTOR shall maintain staging areas during construction in a manner that will not obstruct operations of existing facilities. Work shall proceed in an orderly manner, maintaining construction Site and staging area free of debris and unnecessary equipment or materials.

B. Storage and Protection of Equipment and Materials:

1. The CONTRACTOR shall be solely responsible for the protection and security of all equipment and materials stored on the site. Equipment and materials stored at the site shall be placed neatly on the job site in an area and environment that will provide protection and security. Materials that are not adequately protected or stored in conformance with the Manufacturer's recommendations will be rejected. Unusable materials (i.e., rejected, or damaged liner material, old concrete chunks, metal scraps, etc.) shall be expeditiously removed from the job site.

2. Provide appropriate barricades, signs, and traffic control devices in like-new condition where necessary to protect the public and OWNER employees from any hazards associated with the storage of materials and equipment used for this Project.

3. No equipment and/or materials shall be stored outside the immediate work area, in the following locations, or in the following manner:

   a. In any maintained landscape or lawn area.

   b. In a manner that would totally eliminate an individual residents' street parking, or parking for the OWNER's existing buildings.

   c. In front of any business.

   The "immediate work area" is the area where work is taking place or will be taking place within one calendar day. The CONTRACTOR shall immediately move stored material or equipment which causes a nuisance or creates complaints.

4. See Section 01 10 00, Summary of Work for additional requirements.

1.13 SECURITY

A. CONTRACTOR shall be responsible for loss or injury to persons or property where Work is involved and shall provide security and take precautionary measures to protect CONTRACTOR's and OWNER's interests.

B. Provide and maintain temporary fencing of design and type needed to prevent entry into active construction areas.

1.14 ENCLOSURES

A. Provide and maintain all enclosures, scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of Work.

1.15 PARKING

A. Staging area and designated areas within construction limits may be used for parking of construction personnel's private vehicles and CONTRACTOR's lightweight vehicles. Parking shall not impede access or traffic on adjacent roadways.

B. Make arrangements for additional parking off site as required.

C. No overnight parking, camping, or storage of personal vehicles, trailers or other items will be authorized.

1.16 TRAFFIC CONTROL AND PROTECTION

A. The Project is located on private property and the Work Area is accessed by an existing gravel/paved roadway. CONTRACTOR access is granted through the OWNER's easements with private property owners. The CONTRACTOR shall maintain traffic control and protection in the work areas during construction operations. Traffic control shall conform to the requirements set forth by the ODOT as well as the standards set forth in the Manual on Uniform Traffic Control Devices (MUTCD) and local jurisdiction.

B. The Contractor shall conduct its operations so as to keep one lane of traffic open on the existing privately-owned gravel/paved roadway. OWNER easement provisions may have more stringent requirements than noted in this section.

C. Prior to beginning construction, the CONTRACTOR shall submit a traffic control plan to the OWNER for approval. As construction proceeds, the CONTRACTOR shall notify the OWNER as to the status of street closures or detours, if required.

D. All work shall be carried on with due regard for safety to the public. Open trenches shall be backfilled or covered with steel plates at the end of each day, unless otherwise noted in the Special Provisions.

1.17 CONTRACTOR'S FIELD OFFICES AND BUILDINGS – NOT USED

1.18 ENGINEER'S FIELD OFFICE AND EQUIPMENT – NOT USED

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL

A. Maintain and operate systems to ensure continuous service for duration of construction.

B. Modify and extend systems, as Work progress requires.

3.2 REMOVAL

A. Completely remove temporary materials, equipment, signs, and structures when no longer required.

B. In unfinished areas, clean and repair damaged caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed, or plant as necessary to provide appearance equal to or better than original.

C. In finished areas, restore existing or permanent facilities used for temporary services to specified, or original condition.

3.3 DAMAGE TO EXISTING PROPERTY

A. CONTRACTOR is responsible for replacing or repairing damage to existing buildings, structures, sidewalks, roads, parking areas, and other existing assets.

B. CONTRACTOR shall have option of having OWNER contract for such Work and have cost deducted from Contract Price.

3.4 OWNER'S USE – NOT USED

END OF SECTION

SECTION 01 55 00 - SITE ACCESS, STAGING, AND STORAGE

PART 1 GENERAL

1.1 CONTRACTOR'S WORK AND STORAGE AREAS

A. Portions of the Site and off-Site areas for CONTRACTOR's use during the term of the Contract as a stockpiling, storage, staging and shop area for construction operations for the WORK are identified on the Drawings as those areas enclosed by erosion control methods and as identified in Article 3.2 below. At completion of the WORK, the CONTRACTOR shall restore these areas to their original condition, including grading, surfacing and landscaping, unless otherwise indicated in this Section, on the Drawings, or by the ENGINEER.

B. Other lands to be furnished by the OWNER for storage, staging, construction operation, roads and other purposes are indicated on the Drawings. Should the CONTRACTOR find it necessary to use any additional land for its operations or for other purposes during the construction of the WORK, it shall arrange for the use of such lands at its own expense.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PUBLIC ACCESS

A. Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, private residences, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Continuous emergency vehicle access shall be provided through work areas in public roadways. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time, as approved by the ENGINEER.

1. If exceptions are necessary, notify OWNER so that OWNER can secure written consent of individuals or authorities concerned to permit such temporary construction associated with access points.

2. Plan and perform the construction work so that all adjacent businesses have access at all times. Maintain clear communication and scheduling with the business owners and residents at all times.

3. Access to the WORK shall be provided as may be required by the OWNER or its representatives, and all authorized representatives of the state and federal governments and any other agencies having jurisdiction over any phase of the work, for inspection of the progress of the work, the methods of construction or any other required purposes.

3.2 STAGING AND STORAGE AREAS

A. Staging areas for CONTRACTOR personnel, materials, and equipment may occur at the following sites. Staging area use shall only be allowed with the following limitations stated in this specification and as noted on the Drawings. CONTRACTOR will inspect and become familiar with the existing conditions at each site prior to Mobilization. CONTRACTOR shall not be required to use or develop all sites. The following conditions apply to the sites if they are used by the CONTRACTOR:

Location	Allowed Activities
L&C Tree Farms LLC Staging Area	CONTRACTOR may utilize delineated area as shown in the Drawings for staging and material storage. Contractor shall prepare a detailed staging plan for approval which incorporates all OWNER requirements including but not limited to temporary chain-link security fencing and erosion control.

3.3 TEMPORARY CONSTRUCTION ACCESS AND PARKING AREAS

A. Locate any temporary construction roads, drives, walks, and parking facilities to provide uninterrupted access to construction offices, mobilization, work and storage areas, and other areas required and approved by the OWNER.

B. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials.

3.4 WORK AND STORAGE AREA

A. Make arrangements for any additional off-site storage or shop areas necessary for the proper execution of the WORK at no additional cost to the OWNER.

3.5 ROADWAY LIMITATIONS

A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any temporary haul roads required for its construction operations.

END OF SECTION

SECTION 01 56 39 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes provisions for temporary protection of trees and other plant life in preparation for trenching, site or building excavation Work.

B. This specification shall be applied concurrently and in conjunction with other plant material protection measures herein described and specified.

C. Related Sections:

1. Section 31 10 00 - Site Clearing
2. Section 31 22 13 - Rough Grading
3. Section 31 23 16 - Excavation
4. Section 31 23 17 - Trenching

PART 2 MATERIALS - Not Used

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect all trees specified on the Drawings for protection prior to construction.

1. Document with written memorandum and photographs any unusual conditions.
2. Submit copies of documentation to Engineer prior to beginning work.

B. Verify all conditions on the Drawings with actual conditions at Site regarding tree protection prior to any site disturbance.

C. The Engineer must be present during demolition of existing conditions occurring within the drip line of trees designated to remain.

D. Notify Engineer 24 hours prior to inspections and/or tagging of protected trees.

3.2 PROTECTION

A. Install barricades specified in the Drawings at drip lines of trees designated to remain prior to the commencement of construction.

B. Clearly designate protected trees and clear of any material storage, personnel, or vehicular movement.

C. Provide temporary fencing, barricades, and guards as necessary or required to protect trees designated on the Drawings to remain, from damage above and below grade.

D. Protect root systems of trees and plant life to remain.

1. Protect from damage due to noxious materials in solution caused by runoff or spillage during mixing and placement of construction materials.

2. Protect from flooding, erosion, or excessive wetting resulting from dewatering operations and compaction.

3. Protect against unauthorized cutting, breaking, skinning roots and branches, or bruising bark.

4. Protect from smothering and compaction.

a. Do not store construction materials or permit vehicles to drive or park within the drip line area of any tree to remain.

5. Protect from dumping of refuse in close proximity.

E. Where cutting is necessary, review conditions with the Engineer before proceeding, and comply with directives of Engineer.

3.3 EXCAVATION AROUND TREES

A. Excavate within drip lines of trees only where indicated on the Drawings or as directed by Engineer.

B. Where trenching for utilities is required within drip lines, tunnel under or around roots by hand excavating.

1. Where possible trench toward trunk of tree and tunnel under central root mass to avoid severing all lateral roots on side of trench.

2. Do not cut main lateral roots or tap roots over 1-inch in diameter.

3. Temporarily support and protect trees from damage until permanently covered with approved backfill.

C. Do not allow exposed roots to dry out before backfill is placed.

1. Provide temporary earth or burlap cover.

2. Water roots daily when exposed and maintain in a moist condition.

D. Backfill roots only upon inspection approval from the Engineer.

1. Backfill around root excavations only with clean imported topsoil free from materials deleterious to root growth.

2. Backfill to eliminate voids and compact only by means of manual tamping at root areas.

3. Water sufficiently to settle topsoil and eliminate voids or air pockets around roots.

4. Allow for natural settlement of soil surface and furnish and apply topsoil sufficient to bring to original finish grade after backfill settlement.

E. If during excavation, any condition arises that threatens the survivability of the protected tree, or an unknown condition arises that affects the stability or integrity of the root system, notify the Engineer immediately.

3.4 REPAIR AND REPLACEMENT OF DAMAGED TREES

A. In the event of damage to existing trees:

1. Immediately prune limbs smaller than 3-inch caliper or roots smaller than 2-inch caliper to repair trees damaged by construction operations.

2. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.

3. Any such pruning and/or repairs shall be approved in advance and at completion by Engineer.

4. The Engineer shall reserve the right, at cost to the Contractor, to obtain the services of a Certified Consulting Arborist with current membership in the American Society of Consulting Arborists to determine the severity of damage.

5. The Contractor is responsible for the cost of repairs caused by their actions or by the actions of subcontractors engaged by the Contractor.

B. Remove and replace dead or damaged trees which are determined by the Engineer to be incapable of restoration to normal growth patterns at no additional cost to Owner.

1. Provide new trees of the same species as those removed or damaged, with size and/or quantity to be determined by Engineer.

2. Furnish replacement trees and plant life to the Site and plant, maintain, and warranty as directed by the Engineer.

3. If trees are not replaceable with the same species, and size, compensate the Owner for the replacement cost of the trees based on the evaluation of a Certified Consulting Arborist.

4. The Contractor is responsible for additional costs of removing damaged trees and labor for planting new specimens.

3.5 DESIGNATED TREE REMOVAL PROCEDURES

A. If designated tree removal is specified by Engineer, furnish labor, material, and equipment necessary for removing and/or salvaging existing trees, if necessary, as designated on the Drawings for removal.

1. Verify location and species with Engineer prior to removal.

B. Salable logs or timber shall be salvaged and transported to L&C Tree Farms LLC Staging Area or as otherwise directed by OWNER.

3.6 DESIGNATED TREE TRANSPLANTING PROCEDURES

A. If designated tree transplanting is specified by Engineer, verify, and identify existing trees to be transplanted.

B. All work shall be in accordance with the standards and practices outlined in the following: Tree and Shrub Transplanting Manual, E.B. Himelick, 1981 Ed., International Society of Arboriculture.

C. Prior to commencement of Work, submit a coordination schedule, method of transplanting, traffic control, routing, etc., to Engineer, for review and approval.

D. Warranty for transplanted trees shall be determined and directed on a case-by-case basis by the Engineer, upon contracting of specified transplanting work.

E. Review and verify location of utilities in area of operation. Obtain location and jurisdictional approval from utilities prior to transplanting activities. Protect utilities and the public at all times.

F. Prior to transplanting, spray trees with an anti-desiccant emulsion-type film forming agent, "Dowax" by Dow Chemical Company, "Wilt-Pruf" by Nursery Specialty Products Inc., "D-Wax", by Plant Products Inc., or equal, prior to digging with two separate applications allowing 48 hours apart. Use a power sprayer to provide an adequate film over trunks, branches, stems, twigs, and foliage. Anti-desiccant must be dry prior to relocation.

G. Dig, ball, and burlap, and move designated trees for relocation to the new planting location shown on the Drawings. In the event the new planting area is not prepared, place tree in a storage area approved by the Engineer solely designated for healing-in of plant materials until final planting may occur. Brace in a vertical position, provide shade, wind protection, and irrigation at plant storage area. Utilize all horticulturally proper methods for plant storage. Plants shall be maintained by Contractor while in storage.

3.7 GRADING AND FILLING AROUND TREES

A. Maintain existing grade within drip line of trees unless otherwise indicated on the Drawings or directed by the Engineer.

3.8 MAINTENANCE OF PROTECTIVE MEASURES

A. Maintain protective measures throughout the construction process. Immediately repair any alteration to protection measures throughout construction process. Repair or reinstall protective measures immediately upon alteration. Monitor protective measures daily.

B. Remove and clear area of debris and fencing, barricades, etc., upon final written approval of Engineer.

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS

SECTION 02 30 00 - SUBSURFACE INVESTIGATION

PART 1 GENERAL

1.1 SUMMARY

A. Subsurface investigations and reporting have been performed for the purpose of obtaining data for the planning and design of this Project. Copies of such reporting are attached to the Contract Documents as Supplementary Information.

1.2 LIMITATIONS

A. The subsurface investigations and reporting are being made available solely for the convenience of the Bidder and shall not relieve the Bidder or the Contractor of any risk, duty to make examinations and investigations as required by Article 4 of the Instructions to Bidders, or any other responsibility under the Contract Documents.

B. It is mutually agreed to by all parties:

1. Written reports are reference documents and are not part of the Contract Documents.

2. Subsurface investigations are for the purpose of obtaining data for planning and design of the Project.

3. Data concerning borings and test pits is intended to represent with reasonable accuracy conditions and material found in specific borings and test pits at the time the borings and test pits were made.

C. It is expressly understood and agreed the Owner and Engineer assume no responsibility whatsoever in respect to the sufficiency or accuracy of the investigation thus made, the records thereof, or of the interpretations set forth therein, or made by the Owner in the Owner's use thereof; and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations, or records thereof, are representative of those existing throughout such areas, or any part, or that unforeseen developments may not occur.

D. The Owner's subsurface investigations and reporting are made available to Bidder or Contractor only on the basis of the understandings and agreement herein stated.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of existing facilities.

2. Abandoning and removing utilities.

B. Related Sections:

1. Section 31 05 16 - Aggregates for Earthwork

2. Section 31 10 00 - Site Clearing

3. Section 31 22 13 - Rough Grading

4. Section 31 23 16 - Excavation

5. Section 33 05 50 - Existing Pipe Abandonment

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Submit to Engineer a copy of written permission of private property owners, with copy of fill permit for said private property, as may be required for disposal of materials.

1.3 QUALITY ASSURANCE

A. Existing Conditions: Determine the extent of work required and limitations before proceeding with Work.

B. Conform to applicable local, state, and federal codes for environmental requirements in relation to disposal of debris.

1. Burning at the Site for the disposal of refuse, debris, and waste materials resulting from demolition and site clearing operations shall not be permitted.

C. Permits: The Contractor is responsible for obtaining all necessary permits required for completion of the Work described in this Section.

D. Protection of Persons and Property: Meet all federal, state, and local safety requirements for the protection of workmen, other persons, and property in the vicinity of the Work and requirements of the General Provisions.

E. If the existing material to be demolished and removed contains any hazardous materials which will require special handling upon removal, such as asbestos or lead, it is the responsibility of

the Contractor to remove and dispose of the material in accordance with all applicable federal, state, and local regulations.

PART 2 PRODUCTS

2.1 MATERIALS

A. Existing Materials: All materials, equipment, miscellaneous items, and debris involved, occurring, or resulting from demolition, clearing, and grubbing work shall become the property of the Contractor at the place of origin, except as otherwise indicated in the Drawings or Specifications.

B. Crushed Rock: As specified in Section 31 05 16-2.1, Aggregates for Earthwork. Of the size shown in the Drawings or specified herein.

C. Sand: As specified in Section 31 05 16-2.2, Aggregates for Earthwork.

PART 3 EXECUTION

3.1 EXAMINATION

A. The Owner assumes no responsibility for the actual condition of the facilities to be demolished. The Contractor shall visit the site, inspect all facilities and be familiar with all existing conditions and utilities.

B. Demolition drawings identify major equipment and structures to be demolished only. Auxiliary utilities such as water, air, chemicals, drainage, lubrication oil, hydraulic power fluid, electrical wiring, controls, and instrumentation are not necessarily shown shall be considered incidental to all demolition work.

C. Identify waste and salvage areas for placing removed materials.

3.2 PREPARATION

A. Carefully coordinate the work of this Section with all other work and construction.

B. Call Local Utility Line Information service at 1-800-332-2344, not less than three working days before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

2. Disconnect or arrange for disconnection of utilities (if any) affected by required work.

3. Keep all active utilities intact and in continuous operations.

3.3 PROTECTION

A. Utilities: Locate, identify, and protect utilities located by utilities and indicated in the Drawings to remain from damage.

B. Survey control: Protect benchmarks, survey control points, and existing structures from damage or displacement.

C. Preservation and Trimming of Trees, Shrubs and Other Vegetation: As specified in Section 31 10 00-3.4.C, Site Clearing.

D. Landscaped Areas: Protect existing landscaped areas as specified in Section 31 10 00-3.4.D, Site Clearing.

E. Miscellaneous Site Features: Protect all existing miscellaneous site features from damage by excavating equipment and vehicular traffic, including but not limited to existing structures, fences, mailboxes, sidewalks, paving, guy wires, utility poles, and curbs.

F. Repair and Replacement:

1. Damaged items, including but not restricted to those noted above, shall be repaired, or replaced with new materials as required to restore damaged items or surfaces to a condition equal to and matching that existing prior to damage or start of Work of this contract.

2. Any damage to existing facilities or utilities to remain as caused by the Contractor's operations shall be repaired at the Contractor's expense.

3.4 DEMOLITIONS

A. Areas which are to be excavated for the purpose of demolition shall be cleared and stripped in accordance with Section 31 10 00-3.6, Site Clearing.

B. Carefully consider all bearing loads and capacities for placement of equipment and material on site. In the event of any questions as to whether an area to be loaded has adequate bearing capacity, consult with Engineer prior to the placement of such equipment or material.

C. Demolition of Existing Structures:

1. Excavate around existing structures as required to perform demolition operations and to plug associated existing pipelines where shown in the Drawing.

2. Provide shoring, bracing, and supports, as required, to ensure adjacent structures are not damaged and structural elements of existing structures are not overloaded during demolition activities.

a. Increase structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under any part of this Contract.

b. Remove all temporary protection when the Work is complete or when so authorized by the Engineer.

3. Any floors that are to remain in place shall be completely cracked through to allow for drainage. Cracking shall be accomplished by dropping a demolition ball or by other methods approved by the Engineer.

4. Remove and dispose of all exposed and/or protruding metalwork, piping, plumbing, and conduits resulting from demolition activities, and all woodwork, roofing, and electrical and mechanical equipment removed from demolished structures.

    a. Reinforcing bars shall be cut flush with final wall elevations as shown in the Drawings.

    b. No detached metalwork, excluding concrete reinforcing bars, shall be buried with the concrete and masonry rubble.

D. Backfill at Demolished Structures:

1. For structures designated to be abandoned and/or demolished in place, concrete and/or masonry rubble and excavated soils resulting from demolition activities shall be used for backfill or placed in the bottoms of said structures only as directed by the Engineer.

2. Concrete and masonry rubble used for backfilling shall be broken into pieces no larger than 12 inches on any one side.

3. Materials resulting from abandonment/demolition activities approved for backfill shall be combined with imported filler sand to create a dense, compacted backfill.

4. Backfilling or placement of the excavated material in the structures shall meet the following requirements.

    a. Furnish, place and compact filler sand along with the concrete and masonry rubble so that all voids are filled and a dense, compacted backfill is obtained.

    b. Filler sand shall be placed in horizontal layers completely filling all voids between pieces of rubble and not exceeding 12 inches in thickness.

    c. Each layer of filler sand shall be compacted to obtain at least 90 percent of maximum density as determined by ASTM Method D-698-78 (AASHTO T-99).

    d. Water shall be furnished by the Contractor and added to each layer as required to maintain optimum moisture content.

    e. The amount of filler sand used shall only be the amount needed to fill all voids created by placement of the concrete and asphalt rubble, as directed by the Engineer.

    f. At locations where concrete and masonry rubble are used for backfill, they shall be placed such that a minimum of 3 feet of compacted non-rubble backfill material (crushed rock) exists between any rubble and finished grade. Protruding reinforcing bars shall be cut to lengths that allow granular backfill to be placed and compacted to required levels in and above the rubble.

5. Disposal of all materials not used for backfill shall be performed off-site and in compliance with applicable local, state, and federal codes and requirements.

6. In areas where new construction will take place, no trace of these structures shall remain prior to placing of backfill.

E. Backfilling within the footprint of new structures with rubble material resulting from demolition activities will not be allowed.

F. All existing improvements designated in the Drawings or specified to be removed, including but not limited to structures, pipelines, walls, footings, foundations, slabs, pavements, curbs, fencing, and similar structures occurring above, at, or below existing ground surface shall be included in the demolition work.

G. Unless otherwise specified, any resulting voids shall be backfilled with suitable excavated or imported material compacted to the density of the adjacent soil.

3.5 EXISTING WATER UTILITY PIPING ABANDONMENT

A. As specified in Section 33 05 50, Existing Pipe Abandonment.

3.6 NOT USED

3.7 NOT USED

3.8 ASPHALTIC CONCRETE DEMOLITION

A. Asphalt pavement shall be removed to the limits shown in the Drawings.

B. The limits of the removal shall be saw cut.

C. Asphalt pavement may not be used as rubble fill.

3.9 REMOVAL

A. Remove debris, rock, excavated materials, rubble, abandoned piping, and extracted plant life resulting from abandonment and/or demolition activities from site.

B. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

C. Removal: All material resulting from demolition, clearing, grubbing, and trimming operations shall be removed from the Project Site and disposed of in a lawful manner. Materials placed on property of private property owners shall be by written permission only.

3.10 GRADING

A. All grading work shall be completed in accordance with Section 31 22 13, Rough Grading.

3.11 CLEANUP

A. During and upon completion of work, promptly remove all unused tools and equipment, surplus materials, debris, and dust and shall leave all areas affected by the work in a clean condition, as may be subject to Engineer approval.

B. Adjacent structures shall be cleaned of dust, dirt, and debris resulting from demolition.

C. Adjacent areas shall be returned to their existing condition prior to the start of work.

3.12 NOT USED

END OF SECTION

DIVISION 03 - CONCRETE

SECTION 03 11 00 - CONCRETE WORK

PART 1 GENERAL

1.1 SUMMARY

A. The extent of concrete work is shown on the Drawings.

B. Work includes providing formwork and shoring for cast-in-place concrete and installation into formwork of items such as reinforcing steel bar (rebar), anchor bolts, setting plates, bearing plates, anchorages, inserts, reveals, frames, nosings, sleeves and other items to be embedded in concrete.

1.2 QUALITY ASSURANCE

A. Codes and Standards

Comply with the provisions of the following codes, specifications, and standards, except as otherwise shown or specified here:

ACI 301 "Specifications for Structural Concrete for Buildings"

ACI 311 "Recommended Practice for Concrete Inspection"

ACI 318 "Building Code Requirements for Reinforced Concrete"

ACI 347 "Recommended Practice for Concrete Formwork"

ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete"

Concrete Reinforcing Steel Institute, "Manual of Standard Practice"

Comply with building code requirements which are more stringent than the above and all Occupational Safety and Health Administration (OSHA) requirements.

B. ASTM International (ASTM)

1. C31, Making and Curing Concrete Test Specimens in the Field
2. C33, Specification for Concrete Aggregate
3. C39, Compressive Strength of Cylindrical Concrete Specimens
4. C40, Organic Impurities in Fine Aggregate for Concrete
5. C85, Cement Content of Hardened Portland Cement Concrete
6. C88, Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate
7. C94, Standard Specifications for Ready-Mixed Concrete

8. C131, Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

9. C136, Method for Sieve Analysis to Fine and Coarse Aggregate

10. C143, Slump of Portland Cement Concrete

11. C150, Standard Specification for Portland Cement

12. C156, Water Retention by Concrete Curing Materials

13. C173, Air Content of Freshly Mixed Concrete by the Volumetric Method

14. C231, Air Content of Freshly Mixed Concrete by the Pressure Method

15. C233, Standard Method of Testing Air-Entraining Admixtures for Concrete

16. C260, Standard Specifications for Air-Entraining Admixtures for Concrete

17. C289, Standard Test Method for Potential Reactivity of Aggregates (Chemical Method)

18. C441, Standard Test Method for Effectiveness of Mineral Admixtures in Preventing Excessive Expansion of Concrete Due to the Alkali-Aggregate Reaction

19. C457, Microscopical Determination of Air-Void Content and Parameters of the Air-Void System in Hardened Concrete

20. C494, Standard Specifications for Chemical Admixtures for Concrete

21. C670, Preparing Precision Statements for Test Methods for Construction Materials

22. C803, Penetration Resistance of Hardened Concrete

C. Workmanship

The Contractor is responsible for correction of concrete work that does not conform to the specified requirements, including strength, tolerances, and finishes. Correct deficient concrete as directed by the Engineer. The Contractor shall also be responsible for the cost of corrections to any other work affected by or resulting from corrections to the concrete work.

D. Concrete Testing Service

The Contractor will engage a special inspector/testing laboratory to perform material evaluation tests and to design concrete mixes. See detailed requirements in Part 3.14 “Quality Control Testing during Construction”. Per the Owner or Engineer’s requirements the Contractor shall notify the designated representative to schedule the special inspections and materials testing required by the Project documents.

E. Testing Requirements

Materials and installed work may require testing and retesting, as directed by the Engineer, at any time during the progress of the work. Allow free access to material stockpiles and facilities

at all times. All testing, including the retesting of rejected materials and installed work shall be done at the Contractor's expense.

F. Tests for Concrete Materials

1. Test aggregates by the methods of sampling and testing of ASTM C33.

2. For Portland cement, sample the cement and determine the properties by the methods of test of ASTM C150.

3. Submit written reports to the Engineer, for each material sampled and tested prior to the start of work. Provide the Project identification name and number, date of report, name of Contractor, name of concrete testing service, source of concrete aggregates, Material Manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.

4. Certificates of material properties and compliance with specified requirements may be submitted in lieu of testing. The materials producer and the Contractor must sign certificates of compliance.

G. Allowable Tolerances:

1. Construct formwork to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347, and as follows:

a. Variation from plumb in lines and surfaces of columns, piers, walls and rises; 1/4-inch per 10 feet, but not more than 1-inch. For exposed corner columns, control joint grooves, and other conspicuous lines, 1/4-inch in any bay or 20 feet maximum; 1/2-inch maximum in 40 feet or more.

b. Variation from level or grade in slab soffits, ceilings, beam soffits, and rises 1/4-inch in 10 feet, 3/8-inch in any bay or 20 feet maximum, and 3/4-inch in 40 feet or more. For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, 1/4-inch in any bay or 20 feet maximum and 1/2-inch in 40 feet or more.

c. Variation from position of the linear lines and related columns, walls, and partitions, 1/2-inch in any bay or 20 feet maximum, and 1-inch in 40 feet or more.

d. Variation in sizes and locations of sleeves, floor openings, and wall openings, 1/4-inch.

e. Variation in cross-sectional dimensions of columns and beams and thickness of slabs and walls, minus 1/4-inch and plus 1/2-inch.

f. Variations in footing plan dimensions, minus 1/2-inch and plus 2 inches; misplacement or eccentricity, 2 percent of the footing width in direction of misplacement but not more than 2 inches; thickness reduction, minus 5 percent.

g. Variation in steps - In a flight of stairs, 1/8-inch for rise and 1/4-inch for treads; in consecutive steps, 1/16-inch for rise and 1/8-inch for treads.

h. Circular structures shall be constructed in a true circular form, with maximum variation of 1/4-inch from the dimensions shown on the plans.

2. Before concrete placement check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and location of concrete members and stability of forming systems.

3. During concrete placement check formwork and related supports to ensure that forms are not displaced, and that completed work will be within specified tolerances.

H. Quality Control Testing During Construction

See Section 3 - Execution.

1.3 SUBMITTALS

A. For information only, submit six copies of Manufacturer's data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, water stops, joint systems, chemical floor hardeners, dry-shake finish materials, and others. Bind and submit in one submittal.

B. Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with the ACE 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangements of concrete reinforcement. Include special reinforcement required at openings through concrete structures.

C. Submit shop drawings for fabrication and erection of specific finished concrete surfaces as shown or specified. Show the general construction of forms including jointing, special formed joints or reveals, location and pattern of form tie placement, and other items which affect the exposed concrete visually. Submit form drawings for building columns, walls, fascias, and intersections, and concrete pan and joist system. Submit for typical sections only. Engineer's review is for general architectural applications and features only. Design of formwork for structural stability and efficiency is the Contractor's responsibility.

D. Submit six copies of laboratory test reports for concrete materials and mix design tests as specified.

E. Material Certificates may be provided in lieu of materials laboratory test reports. The Material Manufacturer and the Contractor, certifying that each material item complies with, or exceeds, the specified requirements shall sign material certificates.

1.4 CONCRETE MIX DESIGNS

A. All concrete materials shall be proportioned so as to produce a workable mixture in which the water content will not exceed the maximum specified.

B. If the concrete mix designs specified herein have not been used previously by the ready-mix supplier or if directed by the Engineer, mix proportions and concrete strength curves for regular cylinder tests, based on the relationship of 7-, 14- and 28-day strengths versus slump values of 2, 4, and 6 inches, all conforming to these Specifications, shall be established by an

approved ready-mix supplier or an independent testing laboratory. A laboratory, independent of the ready-mix supplier, shall be required to prepare and test all concrete cylinders. The costs for preparation of mix designs and testing of concrete and materials shall be borne by the Contractor.

C. The exact proportions by weight of all materials entering into the concrete delivered to the jobsite shall conform to the approved mix design unless specifically so directed by the Engineer or Laboratory for improved specified strength or desired density, uniformity and workability.

D. The proportions of such mix design shall be based on a full cubic yard of hardened concrete.

E. Ready-mix companies or jobsite batch plants shall furnish delivery tickets, signed by a Certified Weighmaster, on which each shall state the weight of aggregates, sand, cement, admixtures and water, and the number of cubic yards of concrete furnished, which will be compared against the approved mix design.

F. There shall be no variation in the weights and proportions of materials from the approved mix design.

G. There shall be no variation in the quality and source of materials once they have been approved for the specific mix design.

1.5 READY-MIXED CONCRETE

Ready-mixed concrete shall conform to the requirements of ACI 301 and ASTM C 94. In case of conflict, ACI 301 shall govern.

1.6 SAMPLE

Contractor shall pour and finish one 2-foot square exposed aggregate concrete sample for Engineer's approval prior to construction if exposed aggregate is included on job.

1.7 JOB CONDITIONS

Maintain continuous traffic control and access for vehicular and pedestrian traffic as required for other construction activities as well as to adjoining facilities for regular operation. Utilize flagmen, barricades, warning signs and warning lights as required, to maintain a safe entrance and passage on all roads or drives abutting the Project.

PART 2 PRODUCTS

2.1 WALL FORMS

A. Full Height Pours: The wall form design shall be such that wall sections can be poured full height without creating horizontal cold joints and without causing snapping of form ties which shall be of sufficient strength and number to prevent spreading of the forms during the placement of concrete and which shall permit ready removal of the forms without spalling or damaging the concrete.

B. Wall Form Ties

1. Form ties which remain in the wall of a subgrade water-retaining structure shall have waterstops and a 1-inch minimum break back or cone depth.

2. Snap ties, if used, shall not be broken until the concrete has reached the design concrete strength. Snap ties, designed so that the ends must be broken off before the forms can be removed, shall not be used. The use of tie wires as form ties will not be permitted. Fully threaded stub bolts may be used in lieu of smooth ties with waterstops.

3. Taper ties with plastic or rubber plugs of an approved and proven design may also be used. The plugs must be driven into the hole with a steel rod, placed in a cylindrical recess made therefore in the plug. At no time shall plugs be driven on the flat area outside the cylindrical recess. Plugs shall be A-58 SURE PLUG as manufactured by DAYTON SUPERIOR, Santa Fe Springs, CA; phone: (714) 522-3442.

4. Ties shall positively secure the wall to the required dimension and hold the wall to that dimension prior to and during concrete placement.

C. Wall Form Stiffeners

1. Horizontal walers shall consist of structural steel channels, angles, or tubing of adequate size to retain the concrete without deflecting.

2. The walers shall be rolled or welded to the proper radii or offset brackets shall be used for shaping the wall to the dimensions shown on the Drawings and shall be used both for inside and outside wall forms in direct contact with the wall panels and at vertical spacings of no more than 96 inches on center.

3. There shall be at least one such waler within 24 inches of the top and bottom of the wall.

4. The largest dimension of the steel waler shall be in the radial direction.

5. Vertical structural steel or wood members shall be used at a minimum horizontal spacing of 74 inches and shall have sufficient rigidity and strength to insure the proper vertical alignments with the aid of braces under all predictable stress conditions.

6. In lieu of the above, a different system and spacings may be used if it is satisfactorily demonstrated to the Engineer that it will be equally effective.

2.2 FORMS FOR EXPOSED FINISH CONCRETE

Unless otherwise shown or specified, construct all formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Finish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection. Use overlaid plywood complying with U.S. Product Standard PS-1 “B-B High Density Overlaid Concrete Form”, Class I. Use flexible spring steel forms or laminated boards free of distortion and defects to form radius bends as required.

2.3 FORMS FOR UNEXPOSED FINISH CONCRETE

A. Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.

2.4 FORM MATERIALS

A. Form Coatings

Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces requiring bond or adhesion, nor impede wetting of surfaces to be cured with water or curing compound. Petroleum based coatings shall not be used for structures in creeks and waterways. Biodegradable coatings shall be used which will not contaminate the creeks/waterways or an alternate method for stripping the form shall be proposed.

B. Chamfers, Reveals, Drips

Provide preformed PVC or shaped wood or metal of size and profile as shown on drawings.

C. Cylindrical Columns and Supports

Form round-section members with paper or fiber tubes, constructed of laminated plies using water-resistant type adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation. Provide units having “seamless” interior to minimize spiral gaps or seams.

D. Pan Forms

Provide forms for concrete pan-type construction complete with covers and end enclosures to form a true, clean, smooth concrete surface. Design units for easy removal without damaging placed concrete. Block adjoining pan units if required to avoid lateral deflection of formwork during concrete placement and compaction. Provide standard or tapered end forms, as shown.

If required, factory-fabricate pan form units to required sizes and shapes of the following:

1. Steel – 16-gauge minimum, free of dents, irregularities, sag, and rust, or

2. Glass-Fiber Reinforced Plastic - Molded under pressure with matched dies, 0.11 inches minimum wall thickness.

E. Inserts

Provide metal inserts for anchorage of materials or equipment to concrete construction, not supplied by other trades and as required for the work. Provide “Parabolt” by the Molly Company, “Phillips Red-Head”, or “Burke” products. The Contractor is responsible for ensuring that all required anchorage not specified in the Project documents is installed per current building code and applicable ICC report requirements.

2.5 REINFORCING MATERIALS

A. Reinforcing Bar (rebar): ASTM A615 and as follows below>

Stirrups and Ties Grade 60 (Grade 40 may be used for #3 and smaller)

All other Uses Grade 60

B. Steel Wire: ASTM A82, plain, cold-drawn, steel.

C. Welded Wire Fabric (WWF): ASTM A185, welded steel wire fabric.

D. Supports for Reinforcement

Provide supports for reinforcement including bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars, and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise specified. Wood, brick, concrete blocks, and other devices will not be acceptable. For slabs-on-grade, use supports with sand plates or horizontal runners where wetted base materials will not support chair legs. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are hot-dip galvanized, after fabrication, or plastic protected or stainless steel protected.

E. Fiber Reinforcement – Collated polypropylene fiber, 3/4-inch, manufactured from 100 percent virgin homopolymer polypropylene, hydrophobic, in compliance with ASTM C116.

2.6 CONCRETE MATERIALS

A. Portland Cement

ASTM C150, Type II, unless otherwise acceptable to Engineer. Use only one brand of cement throughout the Project, unless otherwise acceptable to the Engineer. The use of ground granulated blast furnace slag is not allowed.

B. Aggregates

ASTM C33 and as herein specified. Provide aggregates from a single source for all exposed concrete.

Local aggregates not complying with ASTM C33, but which have shown by special test or actual service to produce concrete of adequate strength and durability, may be used when acceptable to the Engineer.

1. Fine Aggregate - Clean, sharp, natural sand free from loam, clay, lumps, or other deleterious substances. Dune sand, bank-run sand and manufactured sand are not acceptable.

2. Coarse Aggregate - Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:

    a. Crushed stone processed from natural rock or stone.

b. Washed gravel, either natural or crushed. Use of pit or bank run gravel is not permitted.

c. Maximum Aggregate Size - Not larger than one-fifth of the narrowest dimensions between sides of forms, one-third of the depth of slabs, nor three-fourths of the minimum clear space between individual reinforcing bars or bundles of bars.

3. These limitations may be waived if, in the judgment of the Engineer, workability and methods of consolidation are such that concrete can be placed without honeycomb or voids.

4. In general, it is desired that normal commercial mixes using 1-1/2-inch or 3/4-inch maximum aggregate size be used.

5. Aggregate for exposed aggregate concrete shall consist of selected aggregate of washed clean river gravel in color range of medium to dark in browns and grays; material uniformly sized 5/8-inch to 3/4-inch.

C. Water: Clean, fresh, drinkable.

D. Air Entraining Admixture: ASTM C260.

E. Water-Reducing Admixture: ASTM C494, Type A.

F. Set-Control Admixtures: ASTM C494, as follows:

1. Type B, Retarding

2. Type C, Accelerating

3. Type D, Water-reducing and Retarding

4. Type E, Water-reducing and Accelerating

Calcium chloride will not be permitted in concrete, unless otherwise authorized in writing by the Engineer.

2.7 RELATED MATERIALS

A. Waterstops

Provide flat, dumbbell type, or centerbulb type waterstops at construction joints and other joints as shown. Size to suit joints or as shown. Provide PVC waterstops complying with Corps of Engineer's CRD-C 572. Waterstops to be Greenstreak 701 or equal. Split face waterstops will not be acceptable under any circumstances.

B. Bituminous and Fiber Joint Filler

Provide resilient and non-extruding type pre-molded bituminous impregnated fiberboard units complying with ASTM D1751, FS HH-F-341, Type 1 and AASHTO M 213. Provide one of the following products:

1. Elastite; Philip Carey/Celotex

2. Flexcell; Celotex Corp.

3. Crane Fiber 1390; W.R. Grace & Co.

4. Fibre; W.R. Meadows, Inc.

5. Tex-Lite; J & P Petroleum Prod. Inc.

6. Sonoflex; Sonneborn/Contech, Inc.

C. Joint Sealing Compound: See Section 07 92 00, Sealants and Caulking

D. Moisture Barrier

Provide moisture barrier cover over all prepared base material. Use only materials that are resistant to decay when tested in accordance with ASTM E154. The moisture barrier consists of heavy Kraft papers laminated together with glass fiber reinforcement and overcoated with black polyethylene on each side. Provide Moistop, St. Regis, or equal.

E. Form Ties (for forms other than wall forms)

Factory-fabricated, adjustable-length, removable or snap off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal. Unless otherwise shown, provide ties so portion remaining within concrete after removal is at least 1-1/2 inches inside concrete. Unless otherwise shown, provide form ties, which will not leave holes larger than 1-inch in diameter in concrete surface.

F. Concrete Curing Materials

Acrylic curing and sealing compound - Water emulsion acrylic curing and sealing compound formulated of acrylic polymers of water-based carrier. W.R. Meadows, Inc. VOCOMP-20 or equal.

G. Epoxy Adhesive

Provide Sikadur-31 Hi-Mod Gel or Sikadur-32 Hi-Mod for application to wire-brushed and prepared existing concrete to be mated to new concrete. Apply per Manufacturer's recommendations.

H. Chemical-Hardener Finish: Provide Hornolith from Tamms Industries or equal.

I. Non-slip Aggregate Finish

Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non-slip finish with emery aggregate containing not less than 40 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof and non-glazing, and is unaffected by freezing, moisture and cleaning materials.

J. Non-shrink Grout: See Section 03 60 00, Grouting.

2.8 PROPORTIONING NORMAL CONCRETE

A. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the Project for each class of concrete required, complying with ACI 211.1. All measurements shall be by weight. All concrete admixtures will either be by the same supplier to insure compatibility. If different suppliers are used, a memorandum from EACH admixture supplier will be provided stating the compatibility of their product with the other supplier's products.

B. The slump shall be between 2 inches and 4 inches when tested in accordance with ASTM Specifications C 143. Variations in the slump range may be allowed by the Engineer if admixtures, such as water reducers or superplasticizers, are utilized in the concrete mix. Regardless of the measured slump, the maximum allowable water-cement ratios as specified here-in, shall be strictly adhered to.

C. Compressive Strength, Water and Cement Content

Notwithstanding what has been stated here-before, and unless shown otherwise on the Drawings, the concrete shall meet the following requirements. All concrete except as noted otherwise on the drawings shall have 4,000 pounds per square inch (psi) 28-day compressive strength. The maximum water content per 94-pound sack of cement is 4.5 gallons. The minimum cement content for the 4,000-psi mix is 6.0 sacks (94-pound sack of cement per cubic yard of concrete). Up to a maximum of 15 percent of cementatious material may be fly ash in accordance with ASTM C618. The use ground granulated blast furnace slag is not allowed.

D. Retarding Densifiers

1. All concrete (as defined in 2.9 below) used for wall construction shall also contain DARATARD-17, as manufactured by Grace Const. Products, Cambridge, MA or MBL-82, as manufactured by Master Builders, Cleveland, OH in the amounts recommended by the Additive Manufacturer whenever the air temperature during the pour exceeds 85 degrees Fahrenheit (F).

2. To be considered as equal, any alternate product offered for consideration shall contain no calcium chloride and shall be compatible with air-entrained cements and air-entraining admixtures conforming to the applicable ASTM, AASHTO, ANSI and Federal specifications.

3. Contractor shall certify that admixtures do not contain calcium chlorides or other corrosive materials.

E. Air-Entraining Agents

1. All concrete that that is specified to be air entrained or that may be exposed to freeze/thaw action either during construction or the service life of the structure must be air entrained. Sufficient air-entraining agent shall be used to provide total air content of 5 percent, +/- 1 percent.

2. Air-entraining agents shall meet ASTM C 260, ASTM C 233 and ASTM C 457.

3. The maximum total volumetric air content of the concrete before placement shall be 6 percent plus or minus one percent as determined by ASTM C 173 or ASTM 231.

4. Subject to these Specifications, consideration will be given to the following products: PROTEX “AES,” GRACE “DAREX AEA,” MASTER BUILDERS “MB-AE10,” or SIKA CHEMICAL “AER.”

F. Water Reducing Admixtures

1. In addition to air-entrainment, approved water reducing additives, which do not affect the ultimate performance of any steel in any way, may be added to maintain the maximum water content below that specified herein. Water reducing additives shall conform to ASTM C 494, Type A or D.

2. The use of water reducing additives shall not permit a reduction in the minimum specified cement content or in the specified amount of air-entrainment.

3. Admixtures shall contain no calcium chloride, tri-ethanolamine or fly ash. All admixtures shall be from the same manufacturer.

4. Superplasticizers, if allowed by the Engineer, shall conform to ASTM C 494, Type F or G, batch plant added using second or third generation only.

5. Set control admixtures if allowed by the Engineer, shall conform to ASTM C 494, Type B (retarding) or Type C (accelerating).

G. Fiber reinforcement admixture shall be included in the ready-mix concrete design used for filling and channeling the wet well chambers. Fibers shall be used in strict accordance with the Manufacturer’s directions.

2.9 CONCRETE MIXING

Ready-Mix Concrete - Comply with the requirements of ASTM C94, and as herein specified. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required. When the air temperature is between 85 degrees F and 90 degrees F, reduce the mixing and delivery time from 1-1/2 hours to 75 minutes, and when the air temperature is above 90 degrees F, reduce the mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 FORMS

A. Design, erect, support, brace, and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by the concrete structure. Construct formworks so concrete members and structures are of correct size, shape, alignment, elevation, and position.

B. Design formworks to be readily removable without impact shock, or damage to cast-in-place concrete surfaces and adjacent materials.

C. Construct forms complying with ACI 347, to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required

in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

D. Fabricate forms for easy removal without hammering or prying against the concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

E. Erect falsework and support; brace and maintain it to safely support vertical, lateral, and asymmetrical loads applied until such loads can be supported by in-place concrete structures.

Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Provide trussed supports when adequate foundations for shores and struts cannot be secured.

Support form facing materials by structural members spaced sufficiently close to prevent deflection. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities and within allowable tolerances.

F. Forms for Exposed Concrete

Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Do not splinter forms by driving ties through improperly prepared holes. Do not use metal cover plates for patching holes or defects in forms. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersections. Use extra studs, walers, and bracing to prevent bowing of forms between studs and to avoid bowed appearance in concrete. Do not use narrow strips of form material, which will produce bow. Assemble forms so they may be readily removed without damage to exposed concrete surfaces. Form molding shapes, recesses and projections with smooth-finish materials, and install in forms with sealed joints to prevent displacement.

Corner Treatment - Form exposed corners of beams and columns to produce square, smooth, solid, unbroken lines, except as otherwise indicated.

G. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings of forms at inconspicuous locations.

H. Chamfer exposed corners and edges, reveals and drips as shown using wood, metal, PVC or rubber strips fabricated to produce uniform smooth lines and tight edge joints.

I. Provisions for Other Trades - Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such ties. Accurately place and securely support items built into forms.

J. Cleaning and Tightening - Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms after concrete placement if required to eliminate mortar leaks.

3.2 PLACING REINFORCEMENT

Detail and place according to ACI Manual SP-66. Unless otherwise noted, minimum cover shall be 1-1/2 inches for No. 5 and smaller bars, 2 inches for No. 6 and larger bars and 3 inches when poured against earth. Unless otherwise noted, bend all horizontals reinforcing a minimum of 2 feet at corners and wall intersections.

A. Clean reinforcement of loose rust and mill scale, earth, ice and other materials which reduce or destroy bond with concrete.

B. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

C. Place reinforcement to obtain at least the minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Do not place reinforcing bars more than 2 inches beyond the last leg of continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

D. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh plus 2 inches, and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.3 JOINTS

A. Construction Joints - Locate and install construction joints, which are not shown on the drawings, so as not to impair the strength and appearance of the structure, as acceptable to the Engineer.

B. Place construction joints perpendicular to the main reinforcement. Continue all reinforcement across construction joints. Unless otherwise specified, reinforcement shall be lapped in accordance with ACI Standards.

C. Waterstops - Provide waterstops in construction joints as shown on the drawings. Install waterstops to form a continuous diaphragm in each joint. Make provisions to support and protect waterstops during the progress of the work. Fabricate field joints in waterstops in accordance with Manufacturer’s printed instructions. Protect waterstop material from damage where it protrudes from any joint.

D. Isolation Joints in Slabs-on-Ground - Construct isolation joints in slabs-on-ground at all points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

E. Control Joints in Slabs-on-Ground - Construct control joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/4-inch wide by one-fifth to one-fourth of the slab depth, unless otherwise shown.

1. Form control joints by inserting a pre-molded hardboard or fiberboard strip into the fresh concrete until the top surface of the strip is flush with the slab surface. After the concrete has cured, remove inserts and clean groove of loose debris.

2. Joint sealant material shall be as specified above.

3.4 INSTALLATION OF EMBEDDED ITEMS

A. General - Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of the items to be attached thereto.

B. Edge Forms and Screed Strips for Slabs - Set edge forms or bulkheads and intermediate screed strips for slabs to obtain the required elevations and contours in the finished slab surface. Provide and secure units sufficiently strong to support the types of screed strips by the use of strike-off templates or accepted compacting type screeds.

C. Cast in Place Reglets - Place in straight and continuous lines as detailed to enable flashing to be applied continuously without deviation at reglet joints more than 1/8-inch. Miter corners for continuous reglet joint where outside corners occur. At inside corners extend one section 1-inch past corner. Adequately anchor or secure reglets per Manufacturer's instructions prior to pouring and during construction to insure dimensional tolerances and alignment. Vibrate concrete to insure concrete cover adjacent to and around reglet. Visually inspect after pour and patch as required.

3.5 PREPARATION OF FORM SURFACES

Coat the contact surfaces of forms with a form-coating compound before reinforcement is placed. Thin formcoating compounds only with thinning agent of type, and in amount, and under conditions of the Form-coating Compound Manufacturer's directions. Use dissipating-type form oil at surfaces to receive cement plaster finish. Do not allow excess form-coating material to accumulate in the forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with Manufacturer's instructions. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3.6 CONCRETE PLACEMENT

A. Pre-Placement Inspection

1. Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts involved in ample time to permit the installation of their work; cooperate with other trades in setting such work as required. Notify Engineer in time for inspection prior to pouring.

2. Thoroughly wet wood forms immediately before placing concrete, as required where form coatings are not used.

3. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

4. Concrete Curbs and Paving - Do not place concrete until subbase is completed and approved by the Engineer as required to provide uniform dampened condition at the time concrete is placed. Moisten subbase as required to provide uniform dampened condition at the time concrete is placed.

B. Place concrete in compliance with the practices and recommendations of ACI 304 and as herein specified.

1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as herein specified. Perform concrete placing at such a rate that concrete, which is being integrated, with fresh concrete is still plastic. Deposit concrete as nearly as practicable to its final location to avoid segregation due to re-handling or flowing. Do not subject concrete to any procedure, which will cause segregation.

2. Screed concrete which is to receive other construction to the proper level to avoid excessive skimming or grouting.

3. Do not use concrete which becomes non-plastic and unworkable or does not meet the required quality control limits or which has been contaminated by foreign materials. Do not use re-tempered concrete. Remove rejected concrete from the Project Site and dispose of in an acceptable location. Do not use concrete whose allowable mixing time has been exceeded.

C. Concrete Conveying

1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practicable by methods, which will prevent segregation and loss of concrete mix materials.

2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, snow, ice, and other deleterious materials.

3. The Contractor shall provide traffic control on the narrow access roads to the work sites.

4. The Contractor shall not wash concrete trucks/chutes/equipment off at the Project Site unless plastic tarps and hay bales are employed to contain the concrete. The Contractor will be required to haul off-site all concrete contaminated soil.

D. Placing Concrete into Forms

1. Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

2. Do not interrupt successive placement; do not permit cold joints to occur.

3. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.

4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suit the type of concrete and Project conditions. Vibration of forms and reinforcing will not be permitted.

5. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.

6. Do not place concrete in supporting elements until the concrete previously placed in columns and walls is no longer plastic.

E. Placing Concrete Slabs

1. Deposit and consolidate concrete slabs in a continuous operation, within the limits of construction joints, until the placing of a panel or section is completed.

2. Consolidate concrete during placing operations using mechanical vibrating equipment so the concrete is thoroughly worked around reinforcement and other embedded items and into corners.

3. Consolidate concrete placed in beams and girders of supported slabs and against bulkheads of slabs on ground, as specified for formed concrete structures. Consolidate concrete in the remainder of slabs by vibrating bridge screeds, roller pipe screeds, or other acceptable methods. Limit the time of vibrating consolidation to prevent bringing an excess of fine aggregate to the surface.

4. Bring slab surfaces to the correct level with a straight edge and strike off. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations.

5. Maintain reinforcing steel in the proper position continuously during concrete placement operations.

F. Bonding

1. Roughen surfaces of set concrete at all joints except where bonding is obtained by use of concrete bonding agent, and clean surfaces of laitance, coatings, loose particles and foreign matter. Roughen surfaces in a manner to expose bonded aggregate uniformly and not to leave laitance, loose particles of aggregate or damaged concrete at the surface.

2. Prepare for bonding of fresh concrete to new concrete that has set but is not fully cured, as follows:

a. At joints between footings and walls or columns, and between walls or columns and beams or slabs they support, and elsewhere unless otherwise specified herein, dampen, but do not saturate, the roughened and cleaned surface of set concrete immediately before placing fresh concrete.

b. At joints in exposed work; at vertical joints in walls; at joints in girders, beams, supported slabs and other structural members; and at joints designed to contain liquids; dampen, but do not saturate the roughened and cleaned surface of set concrete and apply a liberal coating of neat cement grout.

c. Use neat cement grout consisting of equal parts Portland cement and fine aggregate by weight and not more than 6 gallons of water per sack of cement. Apply with a stiff broom or brush to a minimum thickness of 1/16-inch. Deposit fresh concrete before cement grout has attained its initial set.

d. In lieu of neat cement grout, bonding grout may be a commercial bonding agent. Apply to cleaned concrete surfaces in accordance with the printed instructions of the Bonding Material Manufacturer.

3. Prepare for bonding of fresh concrete to fully cured hardened concrete or existing concrete by using an epoxy-resin-bonding agent as follows:

a. Handle and store epoxy-resin adhesive binder in compliance with the Manufacturer's printed instructions, including safety precautions.

b. Mix the epoxy-resin adhesive binder in the proportions recommended by the Manufacturer, carefully following directions for safety of personnel.

c. Before depositing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and coat with epoxy-resin grout not less than 1/16-inch thick. Place fresh concrete while the epoxy-resin material is still tacky, without removing the in-place grout coat, and as directed by the Epoxy-resin Manufacturer.

G. Cold Weather Placing

1. Protect all concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.

2. When the air temperature has fallen to or is expected to fall below 40 degrees F, provide adequate means to maintain the temperature in the area where concrete is being placed at either 70 degrees F for 3 days or 50 degrees F for 5 days after placing. Provide temporary housing or coverings including tarpaulins or plastic film. Keep protections in place and intact at least 24 hours after artificial heat is discontinued. Keep concrete moist. Avoid rapid dry-out of concrete due to over-heating and avoid thermal shock due to sudden cooling or heating.

3. When air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 50 degrees F, and not more than 80 degrees F, at point of placement.

4. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel and adjacent concrete surfaces are entirely free of frost, snow and ice before placing concrete.

5. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

H. Hot Weather Placing

1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Mixing water may be chilled or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.

3. Cover reinforcing steel with water-soaked burlap if it becomes too hot so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

4. Wet forms thoroughly before placing concrete.

5. Do not use retarding admixtures unless otherwise accepted in mix designs.

3.7 FINISH OF FORMED SURFACES

A. Rough Form Finish

For formed concrete surfaces not exposed to view in the finish work or covered by other construction, unless otherwise shown or specified. This is the concrete surface having the texture imparted by the form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4-inch in height rubbed down or chipped off.

B. Smooth Form Finish

Provide as-cast smooth form finish for formed concrete surfaces that are to be exposed to view. Or that are to be covered with a coating material applied directly to the concrete, or a covering material bonded to the concrete such as waterproofing, damp proofing, painting or other similar system.

Produce smooth form finish by selecting form material to impart a smooth, hard, uniform texture and arranging them orderly and symmetrically with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed.

C. Curb Finishes

Curbs shall be screeded off accurately to true lines and planes or warped surfaces as indicated or directed. Finish smooth. Arises shall be true and straight or properly eased where curved

and neatly rounded with approved tool. Smooth trowel finish with corners rounded to 3/4-inch radius.

D. Grout Cleaned Finish (Sacked)

Provide grout cleaned finish to scheduled concrete surfaces which have received smooth form finish treatment, and to all exposed to view interior and exterior building surfaces, typical.

Combine one part Portland cement to 1-1/2 parts fine sand by volume and mix with water to the consistency of thick paint. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that final color of dry grout will closely match adjacent surfaces.

Thoroughly wet concrete surfaces and apply grout immediately to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

E. Related Unformed Surfaces

At tops of walls, horizontal offsets and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a texture matching the adjacent formed surfaces. Continue the final surface treatment of formed surfaces uniformly across the adjacent unformed surfaces, unless otherwise shown.

3.8 MONOLITHIC SLAB FINISHES

A. Float Finish

1. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing or sand bed terrazzo, and as otherwise shown on drawings or in schedules.

2. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently to permit the operation of a power-driven float, or both. Consolidate the surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Check and level the surface plane to a tolerance not exceeding 1/4-inch in 10 feet when tested with a 10-foot straightedge placed on the surface at not less than two different angles. Cut down high spots and fill at low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.

B. Trowel Finish

1. Apply trowel finish to monolithic slab surfaces that are to be exposed to view, unless otherwise shown, and slab surfaces that are to be covered with resilient flooring, paint, or other thin-film finish coating system.

2. After floating, begin the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.

3. Consolidate the concrete surface by the final hand troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8-inch in 10 feet when tested with a 10-foot straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.

C. Exposed Aggregate Finish

1. Screed to true plane, bullfloat surfaces, provide uniform double troweled finish. After troweling, let set until hard enough to wash without disturbing coarse aggregates. Simultaneously brush and spray with water to expose large aggregate and produce texture to match approved sample. Water cure or keep wet for 25 hours.

2. Scrub surface after 24 hours with a 1-part muriatic acid to 10-part water solution. Rinse thoroughly.

D. Broom Finish (Non-Slip)

1. Apply non-slip, broom finish to exterior concrete platforms, steps and ramps and elsewhere as shown on the drawings or in schedules.

2. Immediately after trowel finish, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route or in the direction of water flow. Use fiber-bristle broom unless otherwise directed. Coordinate the required final finish with the Engineer before application.

E. Chemical-Hardener Finish

1. Apply chemical curing-hardening compound or chemical-hardener to all interior concrete floors which will not receive applied finish materials. Mask adjacent work and surfaces to avoid over spray. Apply liquid chemical-hardener after complete curing and drying of the concrete surface.

2. Dilute the liquid hardener with water and apply in accordance with the Manufacturer's printed directions. Evenly apply each coat and allow for drying between coats in accordance with Manufacturer's printed directions.

3. After the final coat of chemical-hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

F. Non-slip Aggregate Finish

Apply non-slip aggregate finish to concrete stair treads, platforms, ramps, and elsewhere as shown on the drawings or in schedules.

After completion of float finishing and before starting trowel finish, uniformly spread 25 pounds of dampened non-slip aggregate per 100 square feet of surface. Tamp aggregate flush with surface using steel trowel, but do not force the non-slip aggregate particles below surface.

After broadcasting and tamping, apply trowel finish as herein specified. After curing, lightly work the surface with a steel wire brush, or an abrasive stone, and water to expose the non-slip aggregate.

3.9 SCHEDULE OF CONCRETE SURFACE FINISHES

Also see Section 09 90 00, Painting and Coating for protective coating requirements.

	Surface Description	Type	Finish Requirement
A.	Interior Horizontal Slabs	Slab	Trowel Finish
B.	Exterior Horizontal Slabs	Slab	Broom Finish (Non-Slip)
C.	Stair Treads, Platforms and Ramps	Slab	Non-Slip Aggregate
D.	Interior Vertical Surfaces (including Wet Well)	Formed	Smooth Form
E.	Exterior Vertical Surfaces Exposed to View	Formed	Smooth Form

3.10 CONCRETE CURING AND PROTECTION

A. General

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperature and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.

2. Start initial curing as soon as free moisture has disappeared from the concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.

3. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures. Avoid rapid drying at the end of the final curing period.

B. Curing Methods

Perform curing of concrete by moist curing, by moisture-retaining cover curing, by membrane curing, or by combinations thereof, as herein specified. Provide the curing methods indicated as follows:

1. For concrete floor slabs provide moisture curing, moisture cover curing, or liquid membrane/chemical curing-hardening curing. If liquid membrane curing is used, it must be compatible with concrete hardening compounds to be applied later.

2. For other concrete work, provide moisture curing or moisture cover curing. Do not use liquid membrane or chemical curing-hardening curing on any concrete work to receive any applied finishes.

3. For curing, use only water that is free of impurities, which could etch or discolor exposed, natural concrete surfaces.

4. Provide moisture curing by any of the following methods:

    a. Keeping the surface of the concrete continuously wet by covering with water.

    b. Continuous water-fog spray.

    c. Covering the concrete surface with the specified absorptive cover thoroughly saturated with water and keeping the absorptive cover continuously wet. Place absorptive cover so as to provide coverage of the concrete surfaces and edges with a 4-inch lap over adjacent absorptive covers.

5. Provide moisture-cover curing as follows - Cover the concrete surfaces with the specified moisture-retaining cover for curing concrete placed in the widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during the curing period using cover material and waterproof tape.

6. Provide liquid membrane curing as follows:

    a. Apply the specified membrane-forming curing compound to damp concrete surfaces as soon as the water film has disappeared. Apply uniformly in a coat continuous operation by power spray equipment in accordance with the Manufacturer's directions. Recoat areas, which are subjected to heavy rainfall within 3 hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period.

    b. Do not use membrane-curing compounds on surfaces, which are to be covered with a coating material applied directly to the concrete or with a covering material bonded to the concrete. Such as other concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to the Engineer.

7. Curing Formed Surfaces - Cure formed concrete surfaces, including the undersides of girders, beams, supported slabs, and other similar surfaces by moist curing with the forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

8. Curing Unformed Surfaces

    a. Initially cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by moist curing, whenever possible.

    b. Final cure unformed surfaces, unless otherwise specified, by any of the methods specified above, as applicable.

    c. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise acceptable to the Engineer.

9. Provide liquid curing-hardening compound as follows:

    a. Apply to horizontal surfaces when concrete is dry to touch by means of power spray, hand spray or hair broom in accordance with Manufacturer's directions.

C. Temperature of Concrete during Curing

1. When the atmospheric temperature is 40 degrees F and below, maintain the concrete temperature between 50 degrees F and 70 degrees F continuously throughout the curing period. When necessary, make arrangements before concrete placing for heating, covering, insulation, or housing as required to maintain the specified temperature and moisture conditions continuously for the concrete curing period. Provide cold weather protections complying with the requirements of ACI 306.

2. When the atmospheric temperature is 80 degrees F, and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation wind breaks or shading, and for fog spraying, wet sprinkling, or moisture-retaining covering. Protect the concrete continuously for the concrete curing period. Provide hot weather protections complying with the requirements of ACI 305.

3. Maintain concrete temperature as uniformly as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete, which exceed 5 degrees F in any 1-hour and 50 degrees Ft in any 24-hour period.

D. Protection from Mechanical Injury - During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling-In - Fill-in holes and openings in concrete structures for the passage of work by other trades, unless otherwise shown or directed, after the work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide all other miscellaneous concrete filling shown or required to complete the work.

B. Curbs - Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations - Provide machine and equipment bases and foundations as shown on the drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of the Manufacturer furnishing the machines and equipment.

3.12 REMOVAL OF SHORES AND FORMS

A. Remove shores and re-shore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate re-shoring to safely support the work without excessive stress or deflection.

Keep re-shores in place a minimum of 15 days after placing upper tier, and longer if required, until the concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

B. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulative curing at not less than 50 degrees F for 24 hours after placing concrete. Providing the concrete is sufficiently hard to not be damaged by form removal operations and provided curing and protection operations are maintained.

C. Formwork supporting weight of concrete, such as beam soffits, joints, slabs, and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in place concrete by testing field-cured specimens representative of concrete location or members.

D. Form facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

E. Re-Use of Forms

Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use “patched” forms for exposed concrete surfaces, except as acceptable to the Architect.

No forming material will be allowed to be built permanently into exposed visible surfaces.

3.13 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas

1. Repair and patch defective areas with cement mortar immediately after removal of forms but only when directed by the Engineer.

2. Cut out honeycomb, rock pockets, voids over 1/2-inch diameter, and holes left by tie rods and bolts down to solid concrete but, in no case, to a depth of less than 1-inch. Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water and brush-coat the area to be patched with neat cement grout. Proprietary patching compounds may be used when acceptable to the Engineer.

3. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, the patching mortar will match the color of the surrounding concrete. Provide test areas at inconspicuous location to verify mixture and color match before

proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.

4. Fill holes extending through concrete by means of a plunger type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure complete filling.

B. Repair of Formed Surfaces

1. Repair exposed-to-view formed concrete surfaces that contain defects, which adversely affect the appearance of the finish. Remove and replace the concrete having defective surfaces if the defects cannot be repaired to the satisfaction of the Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolt; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.

2. Repair concealed formed concrete surfaces that contain defects that adversely affect the durability of the concrete. If defects cannot be repaired, remove and replace the concrete having defective surfaces. Surface defects, as such, include cracks in excess of 0.01-inch wide, cracks or any width and other surface deficiencies which penetrate to the reinforcement or completely through non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls except minor breakage at corners.

C. Repair of Unformed Surfaces

1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.

2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.

3. Repair finished unformed surfaces that contain defects, which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01-inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, pop outs, honeycomb, rock pockets, and other objectionable conditions.

4. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so those repairs can be made without damage to adjacent areas.

5. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to the Engineer.

6. Repair defective areas, except random cracks and single holes not exceeding 1-inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with a neat cement grout coating or use concrete bonding agent. Place patching

concrete before grout takes its initial set. Mix patching concrete of the same material to provide concrete of the same type or class as the original adjacent concrete. Place, compact, and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

7. Repair isolated random cracks and single holes not over 1-inch in diameter by the dry-pack method. Groove the top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen all cleaned concrete surfaces and brush with a neat cement grout coating. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.

8. For repair of existing unformed surfaces, mechanically remove all lose concrete as required to expose sound aggregate. Clean concrete surfaces to achieve a contaminate free, open textured surface. Square cut or undercut perimeter to minimum depth as specified by the Repair Mortar Manufacturer. Remove all loose concrete around the exposed steel and hand tool or blast clean all portions of rebar with visible rust to near white metal finish. If half of the diameter of the reinforcing steel is exposed, chip out behind the reinforcing to a 1/2-inch minimum depth. Splice new reinforcing steel to existing where corrosion has depleted the cross-section area by 25 percent. Apply a corrosion inhibitor/primer/bonding agent to all exposed rebar and other steel components and to concrete surfaces to be repaired per Manufacturer's requirements, such as Sika Armatec 110. Apply a polymer-modified, cement-based, repair mortar, trowel applied as specified by the Manufacturer, such as Sika MonoTop 615.

9. Repair methods not specified above may be used subject to the acceptance of the Engineer.

3.14 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. The Contractor will engage a special inspector/testing laboratory to perform all tests and to submit test reports to the Engineer and the Owner.

B. Concrete shall be sampled and tested for quality control during the placement of concrete, as follows:

1. Sampling Fresh Concrete - ASTM C172, except modified for slump to comply with ASTM C94.

2. Slump - ASTM 143; one test for each concrete load at point of discharge; and one for each set of compressive strength test specimens.

3. Air Content - ASTM C231, pressure method; one for each set of compressive strength test specimens.

4. Compression Test Specimen - ASTM C31; one set of four standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

5. Concrete Temperature - Test hourly when air temperature is 40 degrees F and below, and when 80 degrees F and above; and each time a set of compression test specimens is made.

6. Compressive Strength Tests - ASTM C39; one set for each 100 cubic yards or fraction thereof, of each concrete class placed in any 1 day or for each 5,000 square feet of surface area placed; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

    a. When the frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

    b. When the total quantity of a given class of concrete is less than 50 cubic yards, the strength tests may be waived by the Engineer if, in the Engineer's judgment, adequate evidence of satisfactory strength is provided.

    c. If required by the building official, perform strength tests of cylinders cured under field conditions. Field cured cylinders shall be taken and molded at the same time and from the same samples as the laboratory cured test cylinders. When the strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

C. Report test results in writing to the Engineer and the Owner on the same day that tests are made. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of Contractor, name of concrete supplier and truck number, name of concrete testing service, concrete type and class, location of concrete batch in the structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

D. Additional tests - The testing service will make additional tests of in-place concrete when test results indicate the specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Engineer. The testing service shall conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

END OF SECTION

SECTION 03 60 00 - GROUTING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes all work necessary to form, mix, place, cure, repair, finish, and do all other work as required to produce finished grout, in accordance with the requirements of the Contract Documents.

B. Work covered in this Section includes:

1. Grouting
2. Removal of loose and spalling grout and concrete
3. Anchoring, patching, grouting, and sealing

C. Related Sections:

1. Section 03 11 00 – Concrete Work

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Specifications, codes, and standards shall be as specified in Section 03 11 00, Concrete Work and as referred to herein.

B. Commercial Standards:

1. CRD-C 621, Corps of Engineers Specification for Non-Shrink Grout
2. ASTM C109, “Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50-mm Cube Specimens)”
3. ASTM C531, “Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes”
4. ASTM C579, “Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes”
5. ASTM C827, “Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures”

1.3 SUBMITTALS

A. Certified Test Results: Verifying the compressive strength, shrinkage, and expansion requirements specified herein.

B. Manufacturer's Literature: Containing instructions and recommendations on the mixing, handling, placement, and appropriate uses for each type of non-shrink and epoxy grout used in the work.

1.4 QUALITY ASSURANCE

Field Tests

A. Compression test specimens will be taken during construction from the first placement of each type of grout, and at intervals thereafter as selected by the Engineer to ensure continued compliance with these specifications. The specimens will be made by the Engineer or its representative.

B. Compression tests and fabrication of specimens for cement grout and non-shrink grout will be performed as specified in ASTM C 109 at intervals during construction as selected by the Engineer. A set of three specimens will be made for testing at 7 days, 28 days, and each additional time period as appropriate.

C. All grout, already placed, which fails to meet the requirements of these specifications, is subject to removal and replacement at the cost of the Contractor.

D. The cost of all laboratory tests on grout shall be borne by the Contractor and the Contractor shall obtain the specimens for testing. The Contractor shall also be charged for the cost of any additional tests and investigation on work performed which does not meet the specifications. The Contractor shall supply all materials necessary for fabricating the test specimens.

PART 2 PRODUCTS

2.1 PREPACKAGED GROUTS

A. Non-shrink grout: This type of grout is to be used wherever grout is required in the Contract Documents unless another type is specifically referenced.

B. Non-shrink grout shall be a prepackaged, inorganic, non-gas-liberating, non-metallic, non-corrosive, non-chloride, cement-based grout requiring only the addition of water. Manufacturer's instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation of each class of non-shrink grout specified herein shall be that recommended by the Manufacturer for the particular application.

C. Class A non-shrink grouts shall have minimum 28-day compressive strength of 5,000 pounds per square inch (psi); shall have no shrinkage (0.0 percent) and a maximum 4.0 percent expansion in the plastic state when tested in accordance with ASTM C827; and shall have no shrinkage (0.0 percent) and a maximum of 0.2 percent expansion in the hardened state when tested in accordance with CRDC 621.

D. Class B non-shrink grouts shall have minimum 28-day compressive strength of 5,000 psi and shall meet the requirements of CRD C621.

E. Application

1. Class A non-shrink grout shall be used for the repair of all holes and defects in concrete members which are water bearing or in contact with soil or other fill material, grouting under all equipment base plates, and at all locations where grout is specified in the contract documents; except, for those applications for Class B non-shrink grout specified

herein. Class A non-shrink grout may be used in place of Class B non-shrink grout for all applications.

2. Class B non-shrink grout shall be used or the repair of all holes and defects in concrete members which are not water-bearing and not in contact with soil or other fill material, grouting under all base plates for structural steel members, and grouting railing posts in place.

2.2 CONSISTENCY

A. The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of that consistency; the type of grout to be used shall be as specified herein for the particular application.

B. The slump for topping grout and concrete fill shall be adjusted to match placement and finishing conditions but shall not exceed 4 inches.

2.3 MEASUREMENT OF INGREDIENTS

A. Measurements for cement grout shall be made accurately by volume using containers approved by the Engineer. Shovel measurement shall not be allowed.

B. Prepackaged grouts shall have ingredients measured by means recommended by the Manufacturer.

PART 3 EXECUTION

3.1 GENERAL

A. All surface preparation, curing, and protection of cement grout shall be as specified by the Manufacturer. The finish of the grout surface shall match that of the adjacent concrete.

B. The Manufacturer of Class A non-shrink grout shall provide on-site technical assistance upon request.

C. Base concrete or masonry must have attained its design strength before grout is placed, unless authorized by the Engineer.

3.2 GROUTING PROCEDURES

Prepackage Grouts: All mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution of prepackaged grouts shall be done according to the instructions and recommendations of the Manufacturer.

END OF SECTION

DIVISION 09 - FINISHES

SECTION 09 90 00 - PAINTING AND COATING

PART 1 GENERAL

1.1 THE REQUIREMENT

A. Work under this Section shall include the protective coating of all specified surfaces including all surface preparation, pretreatment, coating application, touch-up of factory coated surfaces, protection of surfaces not to be coated, cleanup, and appurtenant work, all in accordance with the requirements of the Contract Documents.

B. This specification is applicable to coated pipe, steel, concrete, and other surfaces listed in the coating schedule at the end of this section.

C. The Coating System Schedules summarize the surfaces to be coated, the required surface preparation, and the coating systems to be applied. Coating notes on the drawings are used to show exceptions to the schedules, to show or extend the limits of coating systems, or to clarify or show details for application of the coating systems.

D. Related Work Specified in Other Sections -- Shop coatings and/or factory finishes on fabricated or manufactured equipment may be specified in other divisions. Some items with factory finishes, or corrosion resistant finishes may be scheduled or directed to be painted by the Engineer to unify a wall finish or color scheme, at the Engineer's discretion.

E. Exclusions -- Do not coat the following surfaces unless specified or directed elsewhere: Stainless steel, aluminum, copper, brass, bronze, and other corrosion-resistant material (except for valve bodies and piping); Electrical switch-gear and motor control centers having factory finish; Fencing; Multiple coated factory finished baked enamel or porcelain products; Concealed areas such as ducts, piping, conduits, and items specified elsewhere for special linings and coatings.

F. Damaged Factory Finish -- If directed by the Engineer, refinish the entire exposed surfaces of equipment chipped, scratched, or otherwise damaged in shipment or installation.

G. All coating coming in contact with potable water shall be NSF approved.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Comply with the provisions of the following codes, specifications, and standards, except as otherwise shown or specified.

1. "Architectural Specification Manual" by the Painting and Decorating Contractors of America (PDCA), 333 Taylor Avenue North, Seattle, Washington 98109.

2. "Systems and Specifications" - Volume 2 of Steel Structures Painting Council (SSPC).

3. NSF International (NSF) Standard No. 61.

4. NSF International (NSF) Standard No. 600 – Health Effects Evaluation and Criteria for Chemicals in Drinking Water (Effective beginning January 1, 2023)

B. References herein to "NACE" shall mean the published standards of the National Association of Corrosion Engineers, P.O. Box 986, Katy, TX 77450.

C. Pipe Coating Commercial Standards

ANSI/AWWA C105	Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
ANSI/AWWA C203	Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied.
ANSI/AWWA C205	Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4-inch and Larger - Shop Applied
ANSI/AWWA C209	Cold Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Pipelines.
ANSI/AWWA C210	Liquid Epoxy Coating for Exterior and Interior of Steel Pipe.
ANSI/AWWA C213	Fusion Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.
ANSI/AWWA C214	Tape Coating systems for the Exterior of Steel Water Pipelines.

D. Federal Specifications

DOD-P-23236A(SH)	Military Specification, Paint Coating Systems, Steel Ship Tank, Fuel and Saltwater Ballast.

1.3 CONTRACTOR SUBMITTALS

A. Coating Materials List -- The Contractor shall provide a coating materials list which indicates the Manufacturer and the coating number, keyed to the coating systems herein. The amount of copies to submit shall be as specified within Section 01 10 00, Summary of Work.

B. Coating Manufacturer's and Applicator Information -- For each coating system to be used the Contractor shall submit, the following listed data.

1. Manufacturer's data sheet for each product used, including statements on the suitability of the material for the intended use.

2. Manufacturer's instructions and recommendations on surface preparation and application.

3. Colors available for each product and each coat.

4. Compatibility of shop and field applied coatings (where applicable).

5. Material safety data sheet (MSDS) for each product used.

6. The Manufacturer’s recommended products and procedures for field coating repairs and field preparation of field cut pipe ends.

7. The name of the proposed coating applicator shop along with certification that the applicator shop is qualified and equipped to apply the coatings systems as specified.

8. Certificate -- Submit Manufacturer's certificate of compliance with the specifications and standards signed by a representative in the Manufacturer's employ.

9. Samples -- Provide painted surface areas at the job for approval of main color selections or submit sample on 12-inch sample of substrate using required finish system at Engineer's discretion.

1.4 QUALITY ASSURANCE

A. Painter Qualifications -- The Painting/Coating Contractor must be capable of performing the various items of work as specified. The Painting/Coating Contractor shall furnish a statement covering experience on similar work, a list of machinery, plant, and other equipment available for the proposed work, and a financial statement, including a complete statement of the Painter/Coating Contractor's financial ability and experience in performing similar painting and coating work. The Painting/Coating Contractor shall have a minimum of 5 years practical experience and a successful history in the application of the specified products to concrete/steel surfaces. Upon request, the Painting/Coating Contractor shall substantiate this requirement by furnishing a list of references, which shall include jobs of similar nature.

B. The Contractor shall give the Engineer a minimum of 3 days advance notice of the start of any field surface preparation work of coating application work, and a minimum of 7 days advance notice of the start of any shop surface preparation work.

C. All such work shall be performed only in the presence of the Engineer unless the Engineer has granted prior approval to perform such work in its absence.

D. Inspection by the Engineer, or the waiver of inspection of any particular portion of the work, shall not relieve the Contractor of its responsibility to perform the work in accordance with these Specifications.

E. Surface Preparation -- Evaluation of blast cleaned surface preparation work will be based upon comparison of the blasted surfaces with the standard samples available from the NACE, using NACE standard TM-01-70.

F. Scaffolding shall be erected and moved to locations where requested by the Engineer to facilitate inspection. Additional illumination shall be provided by the Contractor to cover all areas to be inspected.

G. Paint Products -- No request for substitution shall be approved which decreases the film thickness designated or the number of coats to be applied, or which offers a change from the generic type of coating specified. Painting shall be done at such times as the Contractor and Engineer may agree upon in order that dust-free and neat work be obtained. All painting shall be in strict accordance with the Manufacturer's instructions and shall be performed in a manner satisfactory to the Engineer.

H. Manufacturer's Representative -- Require Coating Manufacturer's representative to be at job site when the first day's coating application is in progress and periodically during progress of the work.

I. Labels -- Deliver to the job site in the original sealed containers with Manufacturer's name, product name, type of product, Manufacturer's specification or catalog number or federal specification number, and instructions for reducing where applicable.

J. Colors -- Colors will be selected from Manufacturer's standard colors as reviewed by Engineer and approved by the Owner. Colors for special coatings that are limited in their availability and color selection will be chosen on the basis of Manufacturer's standard colors, provided that the Manufacturer's product line represents a color range comparable to similar products of other manufacturers.

K. Flame Spread -- Provide paint materials which will result in a Class II finish for all coated surfaces in exit corridors, and a Class III finish for all other interior rooms or areas.

L. Film Thickness Testing -- On ferrous metals, the dry film coating thickness shall be measured in accordance with the SSPC "Paint Application Specification No. 2" using a magnetic-type dry film thickness gauge such as Mikrotest model FM, Elcometer model 111/1EZ, or equal. Each coat shall be tested for the correct thickness. No measurements shall be made until at least 8 hours after application of the coating. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using wet film gauge readings and destructive film thickness tests.

1.5 DELIVERY, HANDLING, AND STORAGE

A. Deliver in labeled containers as specified above and store in a locked room accessible for inspection. Comply with fire and health regulations.

B. Provide adequate heat and forced mechanical ventilation for health, safety, and drying requirements. Use explosion proof equipment. Provide face masks.

C. Protect adjacent surfaces with suitable masking and drop cloths as required. Remove cloths or waste from the Project daily.

D. Apply to surfaces under recommended environmental conditions and within the limitations established by the Material Manufacturer. Do not apply coating in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or to damp or wet surfaces, unless otherwise permitted by the Coating Manufacturer's printed instructions. Coating application may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the Paint Manufacturer during application and drying periods.

1.6 PROTECTION

A. Follow all safety recommendations of Manufacturer regarding ventilation and danger from explosion or breathing paint fumes or skin exposure, and all applicable O.S.H.A. and other regulations.

B. Protect surface adjacent to work being coated from overspray, drips, or other damage.

1.7 EXTRA STOCK

Provide one gallon of each type and color, fully labeled, at completion of job.

PART 2 PRODUCTS

2.1 GENERAL

A. Definitions -- The terms "paint," "coatings," or "finishes" as used herein, shall include surface treatments, emulsions, enamels, paints, epoxy resins, tape, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pretreatment, primer, intermediate coat, or finish coat. The term "DFT" means minimum dry film thickness.

B. General -- Coating materials shall be sealed in containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, Manufacturer's directions, and name of Manufacturer, all of which shall be plainly legible at the time of use.

C. The Contractor shall use coating materials suitable for the intended use and recommended by their Manufacturer for the intended service.

D. Compatibility -- In any coating system only compatible materials from a single manufacturer shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to the approval of the Engineer, a barrier coat shall be applied between existing prime coat and subsequent field coats to ensure compatibility.

E. Colors -- All colors and shades of colors of all coatings shall be as selected or specified by the Engineer. Each coat shall be of a slightly different shade, to facilitate inspection of surface coverage of each coat. Finish colors shall be as selected from the Manufacturer's standard color samples by the Engineer. Color pigments shall be lead free.

F. Protective Coating Materials -- Products shall be standard products produced by recognized manufacturers who are regularly engaged in production of such materials for essentially identical service conditions. Where requested, the Contractor shall provide the Engineer with the names of not less than 10 successful applications of the proposed Manufacturer's products demonstrating compliance with this specification requirement.

G. Substitute or "Or-Equal" Submittals -- Unless otherwise specified, materials are from the catalogs of the companies listed herein. Materials by other manufacturers are acceptable provided that they are established as being compatible with and of equal quality to the coatings of the companies listed. The Contractor shall provide satisfactory documentation from the firm manufacturing the proposed substitute or "or equal" material that said material meets the specified requirements and is equivalent or better than the listed materials.

H. The cost of all testing and analyzing of the proposed substitute materials that may be required by the Engineer shall be paid by the Contractor. If the proposed substitution requires changes in the contract work, the Contractor shall bear all such costs involved and the costs of allied trades affected by the substitution.

2.2 INDUSTRIAL COATING SYSTEMS

A. General

Provide and apply the industrial coatings systems which follow as listed in the coating schedule, as required by these specifications, and as directed by the Engineer. Coat all existing and new

exposed interior or exterior surfaces and submerged and intermittently submerged surfaces as indicated, except as specifically excluded in Part 1 of this section or on the drawings or finish schedules. Coating System Numbers listed below shall be used as the Coating System code letter, and shall be used on any coating submittals or correspondence.

B. Industrial coating systems shall be as follows

1. Coating System 100

   a. Location -- Exposed, unprimed, non-galvanized, nonsubmerged metal surfaces, both interior and exterior including piping, and structural steel.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Apply prime coat and topcoat, 4.0-6.0 mils each coat of Tnemec Series 66-2 Hi-Build Epoxoline, or equal. Color as selected by Owner.

2. Coating System 101

   a. Location -- Exposed metal surfaces, shop primed, both interior and exterior including piping, railings, ladders, steel doors, and any other metal items not otherwise specified.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Apply shop prime coat 3.0 mils DFT Tnemec Series 90-97 Tneme-Zinc, one coat 4.0 - 6.0 mils DFT Tnemec Series 66 Hi-Build Epoxoline, and 3.0 - 4.0 mils DFT of Tnemec Series 175 Endura Shield, or equal. Color as selected by Owner.

3. Coating System 102

   a. Location -- Unprimed or non-galvanized, continuously or intermittently submerged metal items, both interior and exterior including piping, structural steel, and all other metal items not otherwise specified.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Prime, intermediate and topcoat, 4.0-6.0 mils each coat of Tnemec Series 22 / FC22, or equal. Color as selected by Owner.

4. Coating System 103

   a. Location -- Vertical concrete walls, exterior, below finish grade, not exposed to view.

   b. Surface Preparation – Surface should be free of oil, grease, dirt, laitance and loose material. Dry surfaces must be dampened with water and kept damp until application.

   c. Paint System – Apply MasterSeal 610 and 614 waterborne emulsified-asphalt damp proofing compound, or equal. Apply a prime coat of MasterSeal 610 asphalt emulsion, cut 20% by volume with clean water. Allow prime coat to dry tacky to touch and apply one coat of MasterSeal 614 by trowel. Fill in all crevices and grooves, making sure the coating is continuous and free from breaks and pinholes. Carry coating over exposed

top and outside edge of footing. Spread around all joints, grooves, and slots and into all chases, corners, reveals and soffits. Bring the coating to finished grade. All to set and backfill as described.

d. Backfilling – Place backfill at last 24-48 hours after application but within 7 days. Do not rupture or damage the film or displace the coating. Some situations may require protection board.

5. Coating System 104

a. Location – Non-submerged, exposed to view, PVC piping.

b. Surface Preparation -- As specified herein.

c. Coating System -- Apply one coat, 4.0-6.0 mils Tnemec Series 66-2 Hi-Build Epoxoline, or equal. Color as selected by Owner.

2.3 SPECIAL PIPE AND SEVERE SERVICE COATING SYSTEMS

A. General

The following coatings are for buried pipe and surfaces used in severe service conditions. The Manufacturers' products listed in this paragraph are materials which satisfy the material descriptions of this paragraph and have a documented successful record for long term submerged or severe service conditions. Proposed substitute products will be considered as indicated within the paragraph entitled " ‘Or-Equal’ Clause” in Section 01 10 00, Summary of Work.

B. Special pipe and severe service coating systems shall be as follows

1. Coating System 200 -- Cement Mortar Coating

a. Location -- Exterior surfaces of buried steel pipe and fittings, non-galvanized.

b. Surface Preparation - As specified herein.

c. Coating System -- A 1-1/2-inch minimum thickness mortar coating reinforced with 3/4-inch galvanized welded wire fabric shall be provided. The cement mortar shall contain no less than 1-part Type V cement to 3 parts sand. The cement mortar shall be cured by a curing compound meeting the requirements of "Liquid Membrane-Forming Compounds for Curing Concrete" ASTM C 309-81, Type II, white pigmented, or by enclosure in an 8-mil thick polyethylene sheet with all joints and edges lapped by at least 6 inches. At the Engineer's discretion, the hot applied coal tar epoxy coating may be used as the curing membrane for the mortar coating.

2. Coating System 201 -- Hot Applied Coal Tar Epoxy Coating

a. Location -- Exterior surface of concrete pipe and cement-mortar coated pipe and fittings.

b. Surface Preparation -- As specified herein.

c. Coating System -- The hot applied coal tar epoxy shall be a solvent free 100 percent solids coal tar epoxy chemically compatible with hydrating cement and suitable for application on moist surfaces of freshly placed cement mortar or concrete and properly prepared cured surfaces. The coal tar epoxy coating material shall be Amercoat 1972B or equal. The finish coal tar epoxy coating shall have a minimum DFT of 26 mils.

3. Coating System 202 -- Coal-Tar Epoxy Coating System

   a. Location -- Exterior surface of buried steel pipe, fittings, and other ferrous surfaces.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- High build, two-component amine or polyamide cured coal-tar epoxy shall have a solids content of at least 68 percent by volume, suitable as a long-term coating of buried surfaces, and conforming to AWWA C210. Prime coats are for use as a shop primer only. Prime coat shall be omitted when both surface preparation and coating are to be performed in the field. The coal-tar epoxy coating system shall include:

      1) Prime coat (DFT = 1-1/2 mils), Amercoat 83HS, Tnemec P66, or equal.

      2) Finish coats (Two or more, DFT = 18 mils), Amercoat 78 HB, Tnemec 46 H-413, or equal.

      3) Total system DFT = 19-1/2 mils.

4. Coating System 203 -- Fusion Bonded Epoxy

   a. Location -- Ferrous surfaces of sleeve couplings, steel pipe, and fittings.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- The coating material shall be a 100 percent powder epoxy applied in accordance with the ANSI/AWWA C213 "AWWA Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines". The coating shall be applied using the fluidized bed process.

      1) Liquid Epoxy -- For field repairs, the use of a liquid epoxy will be permitted, applied in not less than three coats to provide a DFT 16 mils. The liquid epoxy shall be a 100 percent solids epoxy recommended by the Powder Epoxy Manufacturer.

      2) Coating (DFT = 16 mils), Scotchkote 203, or equal.

      3) Total system DFT = 16 mils.

5. Coating System 204 -- Hot, Coal-Tar Enamel

   a. Location -- Exterior surfaces of buried steel pipe and fittings, non-galvanized.

   b. Surface Preparation - As specified herein

c. Coating System -- Coal-Tar Enamel materials and procedures shall be in accordance with ANSI/AWWA C203. This system shall consist of a primer layer, coal-tar enamel layer, coal-tar saturated non-asbestos felt outer wrap, and a finish coat. Total system DFT = 188 mils.

6. Coating System 205 -- Hot Applied Tape

   a. Location -- Exterior surfaces of buried steel pipe and fittings, non-galvanized.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Tape coating materials and procedures shall be in accordance with ANSI/AWWA C203. This system shall consist of a cold-applied liquid primer and heated coal-tar base tape. Total system DFT = 50 mils.

7. Coating System 206 -- Cold Applied Tape

   a. Location -- Exterior surfaces of buried steel pipe and fittings, non-galvanized.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Tape coating materials and procedures shall be in accordance with ANSI/AWWA C209. Prefabricated tape shall be Type II. The system shall consist of a primer layer, inner layer tape of 35 mils, and an outer layer tape of 35 mils. Total system DFT = 70 mils.

8. Coating System 207 -- PVC Tape

   a. Location -- Small galvanized steel pipe and fittings.

   b. Surface Preparation -- As specified herein.

   c. Coating System -- Prior to wrapping pipe with PVC tape, the pipe and fittings shall be primed using a primer recommended by the PVC Tape Manufacturer. After being primed, the pipe shall be wrapped with a 20-mil adhesive PVC tape, half lapped for a total thickness of 40 mils.

9. Coating System 208 -- Mastic

   a. Location -- Pipe and fitting joints, and general buried surface coating repair and touch up.

   b. Surface Preparation - As specified herein.

   c. Coating System -- Mastic shall be a one-part solvent drying heavy bodied thixotropic synthetic elastomeric coating with chemically inert resins and fillers and an average viscosity of 650,000 CPS at 77 degrees Fahrenheit (F), thereby requiring generous applications by hand or trowel. Total coat thickness shall be 30 mils, minimum. Mastic shall be Protecto Wrap 160 H or equal and be fully compatible with pipeline coating systems.

10. Coating System 209 -- Polyethylene Encasement

a. Location -- Ductile iron, steel and concrete cylinder pipe and fittings

b. Surface Preparation -- None required.

c. Coating System -- Except as otherwise specified, application of polyethylene encasement shall be in accordance with ANSI/AWWA C105 using Method C.

11. Coating System 210 – Wax Tape

a. Location – Buried ductile iron and steel pipe fittings and couplings where specified.

b. Surface Preparation – As specified herein

c. Coating System -- Except as otherwise specified, application of wax tape installation shall be in accordance with ANSI/AWWA C217.

12. Coating System 211 – Amine Cured Epoxy

a. Location – Sanitary sewer manhole and wet well interior concrete surfaces where shown.

b. Surface Preparation – Per manufacturer's recommendations.

c. Coating System – Solvent-free 100% solids, ultra-high build two-component epoxy coating system, thixotropic in nature and filled with select fillers to minimize permeability and provide sag resistance with high physical strengths and broad range of chemical resistance. Coating shall be meet these requirements:

Parameter	Requirement
Product Type	Amine cured epoxy
Color	Light Blue
Solids Content (vol %)	100
Mix Ratio	3:1
Compressive Strength, psi	18,000
Tensile Strength, psi	7,600
Tensile Elongation, %	1.50
Flexural Modulus, Type D	88
Bond Strength – Concrete	>Tensile Strength of Concrete
Chemical Resistance	
Sever Municipal Sewer	All types of service
Successful Pass	Sanitation District of LA County Coating Evaluation Study or SSPWC 210.2.3.3

d. Coating system shall be applied by a certified applicator of the epoxy coating manufacturer and according to manufacturer specifications.

e. Coating system shall be Raven 405 or approved equal. The coating shall be applied with minimum thickness of 120 mils.

2.4 ARCHITECTURAL COATING SYSTEMS

A. General

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or topcoat.

Fungus Control: Submit evidence for all paints attesting the passing of Federal Test Method Standard No. 141, Method 6271.1 showing no fungus growth or other approved test results.

Apply to surfaces under recommended environmental conditions and within the limitations established by the Material Manufacturer. Acrylics require 60 degrees F and above temperature and below 50 percent relative humidity. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F and 90 degrees F unless otherwise permitted by the Paint Manufacturer's printed instructions.

B. Architectural coating systems shall be as follows

1. Coating System 300

    a. Location -- Vertical, exterior concrete masonry unit walls exposed to view.

    b. Surface Preparation -- As specified herein.

    c. Coating System -- Apply prime, intermediate and topcoat, 75 square foot per gallon (ft^2/gal), 100 ft^2/gal and 100 ft^2/gal respectively for each coat of Tnemec Series 156 Envirocrete or equal. Color as selected by Owner.

2. Paint System 301

    a. Location -- Vertical concrete exterior walls and flat concrete exterior roofs and slabs exposed to view.

    b. Surface Preparation -- As specified herein.

    c. Coating System -- Apply two coats 6.0-9.0 mils (100 ft^2/gal) each coat, Tnemec Series 156 Envirocrete, or equal. Color as selected by Owner.

3. Paint System 302

    a. Location -- Interior concrete masonry unit walls and interior and exterior wood walls, ceilings, and other wood surfaces not otherwise specified, exposed to view.

    b. Surface Preparation -- As specified herein.

    c. Coating System -- Prime as specified by Coating Manufacturer. Apply two coats 6.0 - 9.0 mils (100 ft^2/gal) each coat, Tnemec Series 156 Envirocrete, or equal. Color as selected by Owner.

4. Paint System 303

a. Location -- Wood surfaces not otherwise specified, exposed to view.

b. Surface Preparation -- As specified herein.

c. Coating System -- Apply an alkyd primer as recommended by the Manufacturer, 2 mils. Apply finish coats (two or more coats 6 mils total) of single component, water based acrylic latex coating, Tnemec Series 6, Carboline 3350 or equal. Total DFT = 8 mils. Color as selected by Owner.

5. Paint System 304

a. Location -- Interior drywall surfaces not otherwise specified, exposed to view.

b. Surface Preparation - As specified herein.

c. Coating System -- Apply two coats 2.0 - 3.0 mils each coat of single component, water based acrylic latex coating, Tnemec Series 6, Carboline 3350 or equal. Color as selected by Owner.

6. Paint System 305

a. Location -- Exterior brick surfaces not otherwise specified, exposed to view.

b. Surface Preparation -- Surfaces shall be cleaned with a Manufacturer's approved chemical cleaner and power washed. Surfaces shall be completely dry, free from efflorescence, oils, paint, and other contaminants before the coating system is applied. Coating system shall be applied according to the Manufacturer's published recommendations. A Manufacturer's representative shall be present during application of the coating system, if required by the Manufacturer's warranty.

c. Coating System -- Apply two coats of masonry water retardant material. The system shall be clear, non-staining, silane-modified-siloxane, Fabrishield 161, Rainstopper 1500, or equal. The selected coating system shall provide a minimum of a 5-year Manufacturer's warranty.

7. Paint System 306

a. Location -- Exterior siding, trim and related products, all comprised of fiber cement material with a factory installed primer.

b. Surface Preparation -- If cleaning is required, surface shall be cleaned in a manner approved by both the coating system manufacturer and the siding manufacturer. Under no circumstances shall fiber cement siding products be cleaned with high pressure water blasting, sand blasting, or acid washing as these techniques may damage the surface of the fiber cement. Low pressure water spray and a medium-stiff, nonmetallic bristle brush may be used for cleaning fiber cement products. Coating system shall be applied according to the coating system manufacturer's published recommendations. A manufacturer's representative shall be present during application of the coating system, if required by the manufacturer's warranty. Coating system must be applied within 180 days of installation of the factory primed siding

products, or less if the siding product manufacturer's warranty requires painting in less than 180 days.

c. Coating System -- Apply primer coat of high performance acrylic primer/sealer specifically engineered for high-performance protection of exterior, above-grade, cementitious surfaces and fiber cement siding. Apply topcoat of 100% acrylic latex, cross-linked. The system shall Sherwin Williams Loxon Concrete & Masonry Primer/Sealer and Sherwin Williams Emerald Exterior Acrylic, or approved equal. The selected coating system shall provide a minimum of a five-year manufacturer's warranty.

PART 3 EXECUTION

3.1 STORAGE, MIXING, AND THINNING OF MATERIALS

A. Manufacturer's Recommendations -- Unless otherwise specified herein, the Coating Manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protecting its coating materials, for preparation of surfaces for coating, and for all other procedures relative to coating shall be strictly observed.

B. All protective coating materials shall be used within the Manufacturer's recommended shelf life.

C. Storage and Mixing -- Coating materials shall be protected from exposure to cold weather, and shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Coatings of different manufacturers shall not be mixed together.

3.2 SURFACE PREPARATION STANDARDS

A. The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this specification.

1. Solvent Cleaning (SSPC-SP1) -- Removal of oil, grease, soil, salts, and other soluble contaminants by cleaning with solvent, vapor, alkali, emulsion, or steam.

2. Hand Tool Cleaning (SSPC-SP2) -- Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, by hand chipping, scraping, sanding, and wire brushing.

3. Power Tool Cleaning (SSPC-SP3) -- Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, by power tool chipping, descaling, sanding, wire brushing, and grinding.

4. White Metal Blast Cleaning (SSPC-SP5) -- Removal of all visible rust, oil, grease, soil, dust, mill scale, paint, oxides, corrosion products, and foreign matter by blast cleaning.

5. Commercial Blast Cleaning (SSPC-SP6) -- Removal of all visible oil, grease, soil, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except that staining shall be limited to no more than 33 percent of each square inch of surface area.

6. Brush-Off Blast Cleaning (SSPC-SP7) -- Removal of all visible oil, grease, soil, dust, loose mill scale, loose rust, and loose paint.

7. Near-White Blast Cleaning (SSPC-SP10) -- Removal of all visible oil, grease, soil, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except that staining shall be limited to no more than 5 percent of each square inch of surface area.

8. High- and Ultra High- Pressure Water Jetting (SSPC-SP12): Water jetting at high- or ultra-high-pressure to prepare a surface for recoating using pressure above 10,000 pounds per square inch (psi).

9. Surface Preparation of Concrete (SSPC-SP-13) - Surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems.

10. Industrial Blast Cleaning (SSPC-SP14): Blast cleaning to remove all visible oil, grease, dust, and dirt, when viewed without magnification

3.3 CORRECTIONS AND CLEANUP

At completion any damaged, de-laminated or defaced coated surfaces shall be touched up, restored, and left in first class condition. Any coated or finished surfaces damaged in fitting or erection shall be restored. If necessary, an entire wall shall be refinished rather than spot finished. Upon completion and prior to final acceptance, all equipment and unused materials accumulated in the coating process shall be removed from the site and any spillage, spatter spots or other misplaced coating material shall be removed in a manner which will not damage surfaces. Perform required patching, repair, and cleaning to the satisfaction of the Engineer. Cooperate and coordinate work with the work of other trades in the removal and replacement of hardware, fixtures, covers, switch plates, etc., as required for coating.

3.4 SURFACE PREPARATION

A. General

Prepare all surfaces scheduled to receive new coating systems, as required to provide for adequate bonding of the specified coating system to the substrate material. Request review of prepared surfaces by the Engineer prior to proceeding. For existing coated surfaces, hand wash with cleaner or product recommended by Coating Manufacturer to properly prepare existing surface and provide for bonding of coating specified to follow. Remove any loose, peeling or flaking coating, or mildewed areas. Surface preparation minimums shall be as follows:

1. Exposed metal items, non-submerged, unprimed, non-galvanized both interior and exterior, including piping, structural steel and all other metal items not otherwise specified, shall undergo surface preparation in accordance with SSPC-SP6, "Commercial Blast Cleaning".

2. Exposed metal items, shop primed, both interior and exterior including piping, steel doors, steel ladders to be painted, and railings, and all other metal items not otherwise specified, shall undergo surface preparation in accordance with SSPC-SP1, "Solvent Cleaning"; SSPC-SP2, "Hand Tool Cleaning"; and SSPC-SP3, "Power Tool Cleaning" as may be required to remove grease, loose, or peeling or chipped paint.

3. Metal items, unprimed or non-galvanized, continuously or intermittently submerged, both interior and exterior including piping, structural steel, and all other metal items not otherwise specified, shall undergo surface preparation in conformance with SSPC-SP10, "Near-White Blast Cleaning".

4. Stainless Steel – Non-submerged and submerged, exposed piping and fittings, both interior and exterior shall undergo surface preparation in accordance with SSPC-SP1, "Solvent Cleaning".

5. Polyvinyl Chloride (PVC) – Non-submerged, both interior and exterior, process piping and plumbing, shall be lightly sanded prior to application of the specified coating system to follow.

6. Non-submerged Concrete - Clean all concrete surfaces of dust, form oil, curing compounds, or other incompatible matter. Etch and prime if required by Manufacturer for specified coating products to follow. Allow minimum 28-day cure of concrete prior to application of coating systems.

7. Concrete Masonry Units -- Repair all breaks, cracks, and holes with concrete grout. The surface must be free of dirt, dust, loose sand, and other foreign matter. Brush clean. Allow minimum 28-day cure of concrete joint mortar and repair grout prior to application of coatings system.

8. Wood -- Wood surfaces shall be thoroughly cleaned and free of all foreign matter with cracks, nail holes, and other defects properly filled, smoothed, and sandpapered to fine finish. Wipe clean of dust.

9. Preparation of All Existing Coated Surfaces -- Removed rough and defective coating film from material surfaces to be painted. Touch up with approved primer. Clean all greasy or oily surfaces, to be painted, with benzine or mineral spirits or Rodda's Gresof before coating, or as recommended by Manufacturer. For walls, patch existing nicks and gouges, sand to match wall finish.

10. Sewer Manhole and Wet Well Interior Concrete – Clean all concrete surfaces of oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, and other contaminants. All concrete or mortar that is not sound or has been damaged by chemical exposure shall be removed to a sound concrete surface or replaced. Infiltration shall be stopped by using a material which is compatible with the repair materials and is suitable for top-coating with the epoxy coating system. Cementitious repair materials shall be troweled to provide a smooth surface with an average profile equivalent to coarse sandpaper to optimally receive the epoxy coating. No bug holes or honeycomb surfaces should remain. The repair materials shall be allowed to cure according to the manufacturer recommendations. Curing compounds should not be used unless approved for compatibility with the specified epoxy coating system.

3.5 PRIME COATING

A. Exposed Steel -- Prime coat all exposed steel in accordance with SSPC PS 13.01 for epoxy-polyamide coating systems. Prime coats shall be applied following completion of surface preparation requirements as specified in paragraph 3.4.A.1 above.

B. Galvanized Metal -- After surface preparation specified above, prime galvanized metal items receiving paints as specified with Tnemec Series 66 Hi-Build Epoxaline or equal, verifying with Manufacturer before application the compatibility with coatings specified to follow.

C. Shop Primed Metal -- Where indicated on the plans or coating schedule and following the surface preparation procedures specified in paragraph 3.4.A.2 above, the Contractor shall apply intermediate and topcoats of the specified paint system to shop primed metal. The Contractor shall verify with the Manufacturer(s) representative of the item(s) to be painted, before application, the compatibility of shop primers with the specified intermediate and topcoat coating systems.

D. Non-Shop Primed Metal and Piping -- Prime coat all exposed metal and piping, except stainless steel, received at job site following completion of surface preparation requirements as specified in Paragraph 3.4.A.1 above. Prime paint in accordance with SSPC PS No. 13.01 for epoxy-polyamide primers. Epoxy-polyamide primers shall conform to the standards set forth in SSPC Paint Specification No. 22.

E. Cast-In-Place Reinforced Concrete -- After surface preparation specified above, prime coat concrete as specified in the coating schedule found elsewhere in the specifications.

F. Concrete Masonry Units -- After surface preparation specified above, prime coat as specified in the coating schedule found elsewhere in the specifications.

G. Wood Surfaces -- Following surface preparation specified above, prime coat exterior exposed wood surfaces with appropriate coating system as specified in the painting schedule.

3.6 FIELD PRIME

Wherever shop priming has been damaged in transit or during construction, the damaged area shall be cleaned and touched up with field primer specified herein or returned to the shop for resurfacing and re-priming, at the Engineer’s discretion. Metal items delivered to the job site unprimed shall be cleaned and primed as specified herein.

3.7 APPLICATION

A. Thickness -- Apply coatings in strict conformance with the Manufacturer's application instructions. Apply each coat at the rate specified by the Manufacturer to achieve the dry mil thickness specified. If material must be diluted for application by spray gun, build up more coating to achieve the same thickness as undiluted material. Correct apparent deficiency of film thickness by the application of an additional coat.

B. Porous Surfaces -- Apply paint to porous surfaces as required by increasing the number of coats or decreasing the coverage as may be necessary to achieve a durable protective and decorative finish.

C. Blast cleaned ferrous metal surfaces shall be painted before any rusting or other deterioration of the surface occurs. Blast cleaning shall be limited to only those surfaces that can be coated in the same working day.

D. Coatings shall be applied in accordance with the Manufacturer's instructions and recommendations, and this Section, whichever has the most stringent requirements.

E. Special attention shall be given to edges, angles, weld seams, flanges, nuts and bolts, and other places where insufficient film thicknesses are likely to be present. Use stripe coating for these areas.

F. Special attention shall be given to materials which will be joined so closely that proper surface preparation and application are not possible. Such contact surfaces shall be coated prior to assembly or installation.

G. Ventilation -- Adequately ventilate enclosed rooms and spaces during painting and drying periods.

H. Drying Time -- Do not apply next coat of coat until each coat is dry. Test non-metallic surfaces with moisture meter. The Manufacturer's recommended drying time shall mean an interval under normal condition to be increased to allow for adverse weather or drying conditions. Coating Manufacturer's representative shall verify by cure testing, complete cure of coatings systems used for immersion service.

3.8 COATING SCHEDULE

Coating Schedule

Item	Location	Material	Coating System
Piping Coatings[1] (exterior surface of pipe)	Exposed and in Vaults	Ductile Iron	Coating System 101
Piping Coatings	Buried	Ductile Iron	Coating System 209 and Section 33 31 10
Vaults	Exterior (walls below grade)	Concrete	Coating System 103

Notes:

1. Pipe interior coatings (linings) shall be in accordance with applicable utility piping specifications.
2. Coating of exposed valves and couplings to be shop-applied fusion-bonded epoxy Finish coat shall be same coating system as adjacent piping to match in color, unless otherwise directed by the Engineer.
3. If a location and material are not specifically identified in the table, the coating systems specified in Section 2, Products, shall apply to the entire project as noted in the specifications for each coating system.

END OF SECTION

DIVISION 31 - EARTHWORK

SECTION 31 05 13 - SOILS FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes range of soil and subsoil materials intended to be referenced by other sections, generally for fill and grading purposes. Materials are indicated by "Type" to assist in referencing from other sections and on Drawing notes.

B. Section includes:

1. Subsoil materials
2. Topsoil materials

C. Related Sections

1. Section 31 05 16 - Aggregates for Earthwork
2. Section 31 10 00 – Site Clearing
3. Section 31 22 13 - Rough Grading
4. Section 31 23 16 – Excavation
5. Section 31 23 17 - Trenching
6. Section 31 23 18 – Rock Removal
7. Section 31 23 23 - Fill
8. Section 31 37 00 - Riprap

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

B. ASTM International (ASTM):

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
2. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
3. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Materials Source: Submit name of imported materials source.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Furnish materials of each type from same source throughout the Work.

B. Soil Testing:

1. Soil sampling and testing to be completed by an independent laboratory approved by the Engineer.

2. Frequency of testing shall be determined by the Engineer.

3. All soil testing shall be paid for by the Contractor.

C. Compaction Tests:

1. Maximum density at optimum moisture content determined by ASTM D698 (AASHTO T99).

2. In-place density in accordance with Nuclear Testing Method, ASTM D6938.

D. Soil Classification: All imported materials shall be classified in accordance with ASTM D2487.

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

A. Subsoil Type S1, Select Native Material:

1. Select earth obtained from on-site excavations approved for use by Engineer.

2. Graded.

3. Free of peat, humus, vegetative matter, organic matter, and rocks larger than 6 inches in diameter.

4. Processed as required to be placed in thickness as prescribed and at the optimum moisture content to obtain level of compaction required by these specifications.

B. Subsoil Type S2, Imported Fill Material:

1. Imported earth approved for use by Engineer.

2. Meeting the requirements of Subsoil Type S1.

2.2 TOPSOIL MATERIALS

A. Topsoil Type TS1, Select Native Topsoil Material:

1. Top 6 - 12 inches of existing soil containing organic matter.

2. Engineer decision shall be final as to determination of what material is topsoil quality.

3. Graded.

4. Free of roots, rocks larger than 1/2-inch subsoil, debris, large weeds, and foreign matter.

a. Screening: Single screened.

B. Topsoil Type TS2, Imported Topsoil Material:

1. Imported borrow.

2. Friable loam.

3. Reasonably free of roots, rocks larger than 1/2-inch, subsoil, debris, large weeds, and foreign matter.

a. Screening: Single screened.

4. Acidity range (pH) of 5-1/2 to 7-1/2.

5. Containing minimum of 4 percent and maximum of 25 percent inorganic matter.

2.3 SPOILS

A. All excess material not suitable or not required for backfill and grading shall be hauled off site and disposed of at a location provided by the Contractor and approved by the Engineer.

B. Make arrangements for disposal of the material at no additional cost to the Owner.

C. Landfill permit to be obtained by the Contractor and provided to Engineer prior to commencement of disposal.

2.4 SOURCE QUALITY CONTROL

A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698 (AASHTO T99).

B. When tests indicate materials do not meet specified requirements, change material, or vary compaction methods and retest. Additional testing shall be completed and paid for by the Contractor with no reimbursement by the Owner.

C. Furnish materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXCAVATION

A. Excavate material of every nature and description to the lines and grades as indicated on the Drawings and/or as required for construction of facilities.

B. Site within clearing limits shall be stripped of topsoil as required to obtain additional topsoil necessary to complete Work indicated in the Drawings or as specified.

C. When practical, do not excavate wet topsoil.

D. Stockpile excavated material meeting requirements for subsoil materials and topsoil materials.

E. Remove excess excavated subsoil and topsoil not intended for reuse from Site.

F. Remove excavated materials not meeting requirements for subsoil materials and topsoil materials from Site.

3.2 STOCKPILING

A. Stockpile soils at locations shown in the Drawings or at locations as approved by Engineer for redistribution as specified.

1. Site may not have sufficient area to stockpile excavated material that will be required for fill later in the Project. If additional stockpile area is required to complete the Project on schedule, arrange off-site stockpile areas.

2. No additional payments will be made for stockpiling excavated materials off-site.

B. Stockpile in sufficient quantities to meet Project schedule and requirements.

C. Separate differing materials with dividers or stockpile apart to prevent mixing.

D. Prevent intermixing of soil types or contamination.

E. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

1. Grade surface of stockpiles to prevent ponding of water.

2. Cover stockpiles to minimize the infiltration of water.

F. Stockpile unsuitable and/or hazardous materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 31 05 16 - AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes a range of coarse and fine aggregate materials intended to be referenced by other Sections, generally for fill and grading purposes. Materials are indicated by "Type" to assist in referencing from other Sections and in Drawing notes.

B. Section Includes:

1. Coarse aggregate materials
2. Fine aggregate materials

C. Related Sections

1. Section 31 05 13 - Soils for Earthwork
2. Section 31 23 17 - Trenching
3. Section 31 23 19 - Dewatering
4. Section 32 11 23 - Aggregate Base Courses
5. Section 33 11 10 – Water Utility Distribution and Transmission Piping
6. Section 33 11 10.30 – HDPE Water Utility Piping

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses

2. AASHTO T27 - Sieve Analysis of Fine and Coarse Aggregates

3. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

4. AASHTO TP61 - Standard Method of Test for Determining the Percentage of Fracture in Coarse Aggregate

B. ASTM International (ASTM):

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)

4. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

5. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Materials Source: Submit name of imported materials suppliers.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

D. Results of aggregate sieve analysis and standard proctor tests for all granular material.

1.4 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.

B. Aggregate Testing:

1. Aggregate sampling and testing to be completed by an independent laboratory approved by the ENGINEER.

2. The frequency of testing shall be determined by the ENGINEER.

3. All aggregate testing shall be paid for by the CONTRACTOR.

C. Compaction Tests:

1. Maximum density at optimum moisture content determined by ASTM D698 (AASHTO T99).

2. In-place density in accordance with Nuclear Testing Method, ASTM D6938.

D. Aggregate Classification: All imported materials shall be classified in accordance with ASTM D2487.

PART 2 PRODUCTS

2.1 COARSE AGGREGATE MATERIALS

A. Coarse Aggregate Type A1, Dense-Graded Aggregate: Crushed rock with ¾-inch-0, 1-inch-0, 1-1/2-inch-0, 2-inch-0 and 2-1/2-inch-0 gradation as shown in the Drawings and meeting the requirements provided below.

1. Grading - Dense-graded base aggregate shall be crushed rock, including sand. Uniformly grade the aggregates from coarse to fine.

2. Sieve analysis shall be determined according to AASHTO T27.

3. The aggregates shall conform to one of the grading requirements Table 31 05 16-A below.

Table 31 05 16-A
Grading Requirements for Dense-Graded Aggregate
Separated Sizes
Percent Passing (by weight)

Sieve Size	2-1/2" - 0	2" - 0	1-1/2" - 0	1" - 0	3/4" - 0
3”	100				
2-1/2”	95 - 100	100			
2”	-	95 - 100	100		
1-1/2"	-	-	95 - 100	100	
1-1/4”	55 - 75	-	-	-	
1”	-	55 - 75	-	90 - 100	100
3/4"	-	-	55 - 75	-	90 - 100
1/2"	-	-	-	55 - 75	-
3/8”	-	-	-	-	55 - 75
1/4"	30 - 45	30 - 45	35 - 50	40 - 55	40 - 60
No. 4*	-	-	-	-	-
No. 10	[1]	[1]	[1]	[1]	[1]

[1] Of the fraction passing the 1/4-inch sieve, 40 percent to 60 percent shall pass the No. 10 sieve.
* Report percent passing sieve when no grading requirements are listed.

B. Coarse Aggregate Type A2, Granular Drain Backfill Material: Crushed or uncrushed rock or gravel as shown in the Drawings.

1. Material shall be clean and free draining.
2. Sieve analysis shall be according to AASHTO T27.
3. Grading: Meeting the gradation requirements provided in Table 31 05 16-B below.

Table 31 05 16-B
Grading Requirements for Granular Drain Backfill Material
Separated Sizes
Percent Passing (by weight)

Sieve Size	Separated Sizes 1-1/2-inch – 3/4-inch	Separated Sizes 3/4-inch – 1/2-inch
2-inch	100	
1-1/2-inch	90 - 100	
1-inch	20 - 55	100
3/4-inch	0 - 15	85 - 100
1/2-inch	-	0 - 15
3/8-inch	0 - 5	-

2.2 SAND

A. Sand: Sand material shall consist of granular material, naturally produced, or produced from crushed gravel, or dredge sand that is reasonably free of organic material, mica, clay, fly ash, and other deleterious material, meeting the gradations of Table 31 05 16-C below.

Table 31 05 16-C
Grading Requirements for Sand
Separated Sizes
Percent Passing (by weight)

Sieve Size	Coarse Sand	Medium Sand	Fine Sand
1-inch	100	100	100
3/8-inch	95 - 100	95 - 100	-
#4	80 - 100	70 - 95	90 - 100
#30	10 - 30	10 - 45	-
#100	-	2 - 10	2 - 10
#200	0 - 8	0 - 7	0 - 4
Sand Equivalent	50 min.	50 min.	50 in.

2.3 SOURCE QUALITY CONTROL

A. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136 and ASTM D698 (AASHTO T99).

B. Sand - Testing and Analysis: Perform in accordance with ASTM C136 and ASTM D698 (AASHTO T99).

C. When tests indicate materials do not meet specified requirements, change material and retest. Additional testing shall be completed and paid for by the CONTRACTOR with no reimbursement by the OWNER.

PART 3 EXECUTION

3.1 STOCKPILING

A. Stockpile materials imported to site as shown in the Drawings or at locations as approved by ENGINEER for redistribution as specified.

B. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.

C. Prevent intermixing of aggregate types or contamination.

D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

1. Grade surface of stockpiles to prevent ponding of water.
2. Cover stockpiles to minimize the infiltration of water.

3.2 STOCKPILE CLEANUP

A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 31 10 00 - SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes clearing site of incidental paving and curbs, debris, grass, trees, and other plant life in preparation for excavation work.

B. Related Sections:

1. Section 01 56 39 – Temporary Tree and Plant Protection
2. Section 02 41 00 - Demolition
3. Section 31 22 13 - Rough Grading
4. Section 31 23 18 - Rock Removal

1.2 DEFINITIONS

A. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.

B. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2-inch caliper to a depth of 12 inches below subgrade.

C. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.

D. Limits of Disturbance: Work area boundary as shown on the Plans.

E. Root Wad: Tree stump and root mass including all roots greater than 1-inch diameter.

F. Stripping: Removal of topsoil remaining after applicable scalping is completed.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Clearing, Grubbing, and Stripping Plan: Drawings clearly showing proposed limits to clearing, grubbing, and stripping activities at Site.

1. Drawings delineate initial trees to be removed. After potholing of the existing waterline and proposed waterline alignment is verified, CONTRACTOR shall revise tree removal plan and submit to ENGINEER for approval.
2. After ENGINEER approves the revised tree removal plan, the CONTRACTOR shall incorporate to the Clearing, Grubbing, and Stripping Plan.

C. Certification or disposal permit for landfill and/or waste disposal site.

D. A copy of written permission of private property owners, with copy of fill permit for said private property, as may be required for disposal of materials.

1.4 QUALITY ASSURANCE

A. Existing Conditions: Determine the extent of Work required and limitations before proceeding with Work.

B. Obtain Engineer's approval of staked clearing, grubbing, and stripping limits prior to commencing clearing, grubbing, and stripping.

C. Conform to applicable local, state, and federal codes for environmental requirements and disposal of debris,

1. Burning on Project Site will not be permitted.

2. Use of herbicides will not be permitted.

D. Permits: The Contractor is responsible for obtaining all necessary permits required for completion of the Work described in this Section.

E. Protection of Persons and Property: Meet all federal, state, and local safety requirements for the protection of laborers, other persons, and property in the vicinity of the work and requirements of the General Provisions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Existing Materials: All materials, equipment, miscellaneous items, and debris involved, occurring or resulting from demolition, clearing, and grubbing work shall become the property of the Contractor at the place of origin, except as otherwise indicated in the Drawings or specifications.

B. Wound Paint: Emulsified asphalt formulated for use on damaged plant tissues.

PART 3 EXECUTION

3.1 GENERAL

A. Clear, grub, and strip areas needed for waste disposal, borrow, or Site improvements within limits shown in approved Clearing, Grubbing, and Stripping Plan.

B. Remain within the property lines at all times.

C. Do not injure or deface vegetation or structures that are not designated for removal.

3.2 EXAMINATION

A. Verify existing plant life designated to remain is tagged or identified.

B. Identify waste and salvage areas for placing removed materials.

3.3 PREPARATION

A. Carefully coordinate the work of this Section with all other work and construction.

B. Call Oregon Utility Notification Center at 1-800-332-2344, not less than three working days before performing Work.

C. Request underground utilities to be located and marked within and surrounding construction areas.

1. Disconnect or arrange for disconnection of utilities (if any) affected by required work.

2. Keep all active utilities intact and in continuous operations.

D. Prepare Site only after:

1. Erosion and sediment controls are in place.

a. Limit areas exposed uncontrolled to erosion during installation of temporary erosion and sediment controls and in compliance with Oregon Erosion and Sediment Control Manual and ESC Permits.

2. Tree and vegetation protection is installed.

a. Protect existing site improvements, trees, and shrubs to remain to preclude damage during construction.

b. Follow the provisions set forth in 01 56 39, Temporary Tree and Plant Protection for all temporary tree and plant protection measures.

3. Temporary fencing is installed along the Limits of Disturbance.

4. Notification of utility agencies; disconnect or arrange for disconnection of utilities (if any) affected by required work. Keep all active utilities intact and in continuous operation.

3.4 PROTECTION

A. Utilities: Locate, identify, and protect utilities located by utilities and indicated in the Drawings to remain from damage.

B. Survey control: Protect benchmarks, survey control points, and existing structures from damage or displacement.

C. Preservation and Trimming of Trees, Shrubs, and Other Vegetation:

1. Follow the provisions set forth in 01 56 39, Temporary Tree and Plant Protection.

D. Landscaped Areas:

1. When any portion of the Work crosses private property or landscaped areas, excavate topsoil separately and pile it on the opposite side of the trench from the subsoil.

2. Conduct Work in a manner that will restore original conditions as nearly as practicable.

3. Remove and replace any trees, shrubs, plants, sod, or other vegetative material as needed to complete Work.

4. All shrubs or plants shall be balled by experienced workers, carefully handled and watered, and replaced in their original positions without damage. Sod shall be handled in a similar manner.

5. Wherever sod cannot be saved and restored, the ground must be reseeded and cared for until a stand of grass is reestablished.

6. Plants or shrubs killed or destroyed shall be replaced and paid for by the Contractor.

7. It is the intent of this paragraph that the Contractor shall leave the surface and plantings in substantially the same conditions as before the Work is undertaken.

E. Miscellaneous Site Features: Protect all existing miscellaneous site features from damage by excavating equipment and vehicular traffic, including but not limited to existing structures, fences, mailboxes, sidewalks, paving, and curbs.

F. Repair and Replacement:

1. Damaged items, including but not restricted to those noted above, shall be repaired or replaced with new materials as required to restore damaged items or surfaces to a condition equal to and matching that existing prior to damage or start of work of this contract.

2. Any damage to existing facilities or utilities to remain as caused by the Contractor's operations shall be repaired at the Contractor's expense.

3.5 LIMITS

A. As follows, but not to extend beyond Limits of Disturbance and within the approved disturbance limits:

1. Excavation: 5 feet beyond top of cut slopes.

2. Trench Excavation: 6 feet from trench centerline, regardless of actual trench width.

3. Fill:

a. Clearing and Grubbing: 5 feet beyond toe of permanent fill.

b. Stripping: 2 feet beyond toe of permanent fill.

4. Structures: 15 feet outside of new structures.

5. Roadways: Clearing, grubbing, scalping, and stripping 5 feet from roadway shoulders.

6. Other Areas: As shown.

B. Remove rubbish, trash, and junk from entire area within the Limits of Disturbance as material is generated. Stockpiling shall not be permitted without written approval of Owner.

3.6 CLEARING AND GRUBBING

A. Clear and grub areas within limits shown in approved Clearing, Grubbing, and Stripping Plan.

B. Except in areas to be excavated, all holes resulting from the clearing and grubbing operations shall be backfilled and compacted in accordance with the applicable sections of these Specifications.

C. Clearing:

1. Remove trees, saplings, snags, stumps, shrubs, brush, vines, grasses, weeds, and other vegetative growth within the clearing limits shown in the Drawings, except those trees and shrubs noted to remain in the Drawings or as directed by the Engineer.

2. Clearing shall be performed in such a manner as to remove all evidence of the presence of vegetative growth from the surface of the Project Site and shall be inclusive of sticks and branches of thickness or diameter greater than 3/8-inch and of grasses, weeds, exceeding 12 inches in height except as otherwise indicated.

3. Clear undergrowth and deadwood, without disturbing subsoil.

D. Grubbing: Clear areas required for access to site and execution of Work and remove all stumps, root wads, and roots over 1-inch diameter to the following depths:

1. Future Structures and Building Areas	24 Inches
2. Roads and Parking Areas	18 Inches
3. All other Areas	12 Inches

3.7 TREE REMOVAL

A. Exercise care in cutting, felling, trimming, and handling of those trees shown for removal to prevent damage to neighboring trees and structures to remain.

B. No trees may be removed unless approved and permitted by the OWNER.

C. Do not top trees unless otherwise specified or approved by Owner in writing.

D. Refer to Section 01 56 39, Temporary Tree and Plant Protection for tree protection requirements.

E. Salable logs or timber shall be salvaged and transported to L&C Tree Farms LLC Staging Area or as otherwise directed by OWNER.

3.8 REMOVAL AND DISPOSAL

A. Native vegetation may be mulched and used on Site.

B. Asphalt and Gravel Surfaces:

1. Asphalt, concrete, and gravel surfaces designated for removal shall be done to full depth.

2. Asphalt, concrete, and gravel removed at Site may be reused at Site where shown in the Drawings or following approval of the Engineer.

3. Haul removed asphalt, concrete, and gravel which is unsuitable for reuse or that exceeds quantity required.

C. Remove debris, rock, abandoned piping, and extracted plant life from Site.

D. Remove from the Site all debris, materials, equipment, and items found thereon and materials and debris resulting from the Work, except as otherwise indicated.

1. All existing improvements designated on the Drawings or specified to be removed including but not limited to structures, pipelines, walls, footings, foundations, slabs, pavements, curbs, fencing, and similar structures occurring above, at, or below existing ground surface shall be included in the Work.

2. Unless otherwise specified, any resulting voids shall be thoroughly cracked out for drainage and backfilled with suitable excavated or imported material compacted to the density of the adjacent soil.

E. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

F. Do not burn or bury materials on site. Leave site in clean condition.

G. Removal: All material resulting from demolition, clearing, and grubbing, and trimming operations shall be removed from the Site and disposed of in a lawful manner. Materials placed on property of private property owners shall be by written permission only.

H. Cleanup: During and upon completion of work, promptly remove all unused tools and equipment, surplus materials, and debris.

I. Adjacent areas shall be returned to their existing condition prior to the start of Work.

3.9 CLEANUP

A. During the time Work is in progress, make every effort to maintain the Site in a neat and orderly condition.

B. All refuse, broken pipe, excess fill material, cribbing, and debris shall be removed as soon as practicable.

C. Should the Work not be maintained in a satisfactory condition, the Owner may cause the work to stop until the cleanup of the Work has been done to the satisfaction of the Engineer.

D. The Work will not be considered complete, or the final payment certificate issued until all rubbish, unused material, or equipment shall have been removed and the premises left in a condition satisfactory to the Owner and the Engineer.

END OF SECTION

SECTION 31 22 13 - ROUGH GRADING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes rough grading and filling associated with contouring of Site in preparation for building excavation and subsequent site work.

B. Section Includes:

1. Excavating topsoil
2. Excavating subsoil
3. Cutting, grading, filling, and rough contouring of Site

C. Related Sections:

1. Section 01 45 00 - Quality Control
2. Section 31 05 13 - Soils for Earthwork
3. Section 31 05 16 - Aggregates for Earthwork
4. Section 31 10 00 - Site Clearing
5. Section 31 23 16 - Excavation
6. Section 31 23 17 - Trenching
7. Section 31 23 18 - Rock Removal
8. Section 31 23 23 - Fill

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

B. ASTM International (ASTM):

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
3. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
4. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head)

5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Soils for Earthwork: As specified in Section 31 05 13, Soils for Earthwork.

C. Aggregates for Earthwork: As specified in Section 31 05 16, Aggregates for Earthwork.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ASTM C136, ASTM D2419, and ASTM D2434.

PART 2 PRODUCTS

2.1 MATERIALS

A. Subsoil Fill: Types S1 and S2 as specified in Section 31 05 13, Soils for Earthwork.

B. Topsoil: As specified in Section 31 05 13, Soils for Earthwork.

1. Type TS1, Select Native Topsoil Material, as may be available.

2. TS2, Imported Topsoil Material, as may be required.

C. Structural Fill: Type A1, Dense-Graded Aggregate as specified in Section 31 05 16, Aggregates for Earthwork. Size of aggregate as shown in the Drawings.

D. Granular Fill: Type A2, Granular Drain Backfill Material as specified in Section 31 05 16, Aggregates for Earthwork. Size of aggregate as shown in the Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify survey benchmark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

A. Call Oregon Utility Notification Center at 1-800-332-2344 not less than 3 working days before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

2. Notify Engineer of any potential conflicts resulting from utility locations and the Drawings.

3. Notify utility company to remove and relocate utilities, as may be necessary.

B. Identify required lines, levels, contours, and datum.

C. See Section 31 10 00, Site Clearing for additional requirements in protection of existing utilities, survey control, plant life, and landscaped areas in coordination with the Work of this Section.

3.3 TOPSOIL EXCAVATION

A. Excavate and stockpile topsoil as specified in Section 31 05 13, Soils for Earthwork.

3.4 SUBSOIL EXCAVATION

A. Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded as shown in the Drawings.

B. When practical, do not excavate wet subsoil. When wet subsoil must be excavated and is to be reused on site for the Work, process wet material to obtain optimum moisture content.

C. Stockpile excavated material in area designated onsite in accordance with Section 31 05 13, Soils for Earthwork.

D. When excavating through roots, perform Work by hand and cut roots with sharp axe.

E. Benching Slopes: Horizontally bench existing slopes greater than 1:2 to key placed fill material to slope to provide firm bearing.

F. Stability: Replace damaged or displaced subsoil as specified for fill.

3.5 FILLING

A. General:

1. Grading and filling operations shall not take place when weather conditions and moisture content of fill materials prevent the attainment of specified density.

2. Vertical curves or roundings at abrupt changes in slope shall be established as approved by Engineer.

3. Bring all graded areas to a relatively smooth, even grade and slope by blading or dragging. Remove high spots and fill depressions.

B. Fill areas to contours and elevations shown in the Drawings with unfrozen materials.

C. Topsoil Fill:

1. Scarify prepared subgrade to depth of 4 inches immediately prior to placing topsoil.

2. Place topsoil in areas to be seeded to depths indicated in the Drawings, minimum depth of 6 inches.

3. Place topsoil material loose; do not compact, do not place in wet or muddy conditions.

D. Place material in continuous layers as follows:

1. Subsoil Fill: Maximum 8 inches compacted depth.

2. Structural Fill: Maximum 12 inches compacted depth.

3. Granular Fill: Maximum 12 inches compacted depth.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Slope grade away from building minimum 2 percent slope for minimum distance of 10 feet, unless noted otherwise.

G. Make grade changes gradual. Blend slope into level areas.

H. Repair or replace items indicated in the Drawings to remain which are damaged by excavation or filling. All costs shall be borne by the Contractor.

3.6 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 1/10 from required elevation.

3.7 FIELD QUALITY CONTROL

A. Perform laboratory material tests in accordance with AASHTO T99.

B. Perform in place compaction tests in accordance with the following:

1. Density Tests: ASTM D2922

2. Moisture Tests: ASTM D3017

C. Frequency and location of testing is dependent upon type of material placed. See Section 01 45 00, Quality Control for testing requirements.

D. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest at the sole expense of the Contractor.

END OF SECTION

SECTION 31 23 16 – EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes excavation required for building foundations, site structures, or under slabs-on-grade or paving. Excavating for utilities outside building is included in Section 31 23 17, Trenching.

B. Section Includes:

1. Excavating for building foundations
2. Excavating for paving, roads, and parking areas
3. Excavating for slabs-on-grade
4. Excavating for site structures
5. Excavating for landscaping

C. Related Sections:

1. Section 01 45 00 - Quality Control
2. Section 02 41 00 - Demolition
3. Section 31 05 13 - Soils for Earthwork
4. Section 31 05 16 - Aggregates for Earthwork
5. Section 31 10 00 - Site Clearing
6. Section 31 22 13 - Rough Grading
7. Section 31 23 17 - Trenching
8. Section 31 23 18 - Rock Removal
9. Section 31 23 19 - Dewatering
10. Section 31 23 23 - Fill
11. Section 31 50 00 - Excavation Support and Protection
12. Section 33 11 10 - Water Utility Distribution and Transmission Piping.
13. Section 33 11 10.30 – HDPE Water Utility Piping

1.2 DEFINITIONS

A. Common Excavation: All excavation required for Work, regardless of the type, character, composition, or condition of the material encountered. Common Excavation shall further include all debris, junk, broken concrete, and all other material. All excavation shall be classified as Common Excavation, unless provided as Rock for under Section 31 23 18, Rock Removal below.

B. Common Material: All soils, aggregate, debris, junk, broken concrete, and miscellaneous material encountered in Common Excavation, excluding rock as defined below.

C. Concrete Excavation: The removal of pieces of concrete larger than 1 cubic yard in volume that requires drilling, splitting and breaking methods, or a necessitating a trench width increase of 18 inches or more than the width of the preceding 10 feet of trench. Concrete excavation includes materials composed of Portland cement that are not identified other than manholes, structures, sewer pipe, or other appurtenances.

D. Exploratory Excavation: The removal and replacement of material from locations shown on the Drawings, or as directed for the purpose of investigating underground conditions and identifying potential utility conflict between existing and proposed utilities.

E. Overbreak: Material beyond and outside of the slope limits established by the Owner's Representative, which becomes displaced or loosened during excavation and is excavated.

F. Pothole Excavation: Pothole excavation is the removal and replacement of all materials via coring, vacuum extraction, or similar method, not classified as exploratory excavation, for the purposes of locating an underground utility and to investigate underground conditions.

G. Rock Removal: As defined in Section 31 23 18, Rock Removal.

H. Spoils: Excavated materials from Site unsuitable for use as fill or not required for backfill and grading.

I. Unsuitable Materials: See Spoils.

1.3 REFERENCES

A. Local utility standards when working within 24 inches of utility lines.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Excavation support plan and utility protection plan as specified in Section 31 50 00, Excavation Support and Protection.

1.5 QUALITY ASSURANCE

A. Allowable Tolerances: Final grades shall be plus or minus 0.1-foot.

B. Provide adequate survey control to avoid unauthorized over-excavation.

C. Weather Limitations:

1. Material excavated when frozen or when air temperature is less than 32 degrees Fahrenheit (F) shall not be used as fill or backfill until material completely thaws.

2. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.6 NOT USED

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Prior to commencing work in this Section, become familiar with site conditions. In the event discrepancies are found, notify the Engineer as to the nature and extent of the differing conditions.

B. Call Oregon Utility Notification Center at 1-800-332-2344 not less than 3 working days before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

2. Coordinate with and notify utility companies should it be necessary to remove or relocate facilities.

C. Identify required lines, levels, contours, and datum.

D. See Section 31 10 00, Site Clearing for additional requirements in protection of existing utilities, survey control, plant life, and landscaped areas in coordination with Work in this Section.

3.2 SITE CONDITIONS

A. Quantity Survey: The Contractor shall be responsible for calculations for quantities and volume of cut and fill from existing site grades to finish grades established under this contract as indicated in the Drawings or specified and shall include the cost for all earthwork in the total basic bid.

B. Dust Control: Must meet all federal, state, and local requirements. Protect persons and property from damage and discomfort caused by dust. Water surfaces as necessary and when directed by Engineer to quell dust.

C. Soil Control: Soil shall not be permitted to accumulate on surrounding streets or sidewalks nor to be washed into sewers.

3.3 EXISTING UNDERGROUND UTILITIES

A. Protect active utilities encountered, located or otherwise, and notify persons or agencies owning same.

B. Remove inactive or abandoned utilities from within the project grading limits in accordance with Section 33 11 50, Existing Pipe Abandonment.

C. For sewer and other miscellaneous drainage facilities, fill and plug pipes as follows:

1. General:

a. Remove all structures to a minimum of 3 feet below subgrade, unless otherwise noted.

b. Cover top surface of all abandoned structures with two sheets of nonwoven geotextile, extended at least 1-foot beyond the outside walls of the abandoned manhole, sump, or basin.

c. Plug all abandoned pipes with permanent plugs as specified in Section 33 05 50, Existing Pipe Abandonment.

2. Sumps:

a. Remove existing sediment, soil, and water. Properly dispose of these materials in accordance with the requirements of these specifications.

b. Remove top cone and first solid concrete section to a depth of approximately 8 to 10 feet below ground.

c. Fill sump with CLSM.

d. Backfill remaining voids for facilities within existing or proposed roadways with approved materials meeting the requirements of Section 32 11 23, Aggregate Base Courses.

3. Salvaging Manhole Frames, Covers, and Grates:

a. Remove manhole frames, covers, and grates scheduled for salvage and store in approved location.

b. Frames, grates, and covers meeting Specifications may be salvaged from structures to be adjusted and may be reused in the Work if of suitable size and condition.

c. Replace, at no additional cost to the Owner, all items damaged or lost by the Contractor with similar items that are comparable in all respects with those they are to replace, and which are adequate for the intended purpose.

d. Clean salvaged components to be reused of foreign material by methods that will not harm the components.

4. Existing Manhole Frames and Covers: Manhole frames and covers removed by the Contractor are the property of the Owner. Notify the Engineer a minimum of 48 hours before removal to arrange for pickup of the removed frames and covers, if not reused.

3.4 PRESERVATION OF EXISTING IMPROVEMENT

A. Protect adjacent existing structures which may be damaged by excavation work.

1. Conduct operations in such a manner that existing street facilities, utilities, railroad tracks, structures, and other improvements, which are to remain in place, will not be damaged. Furnish and install cribbing and shoring or whatever means necessary to support material around existing facilities, or to support the facilities themselves, and maintain such supports until no longer needed.

2. Open slopes shall not be cut within 5 feet of any existing spread footings unless approved by the Engineer.

3. Do not interfere with 45 degree bearing splay of foundations unless approved by the Engineer

4. Excavated material shall not be placed adjacent to existing or proposed structures.

3.5 EXCAVATION

A. General:

1. Method of excavation shall be the Contractor's option, but care shall be exercised as final grade is approached to leave it in undisturbed condition.

2. If the final grade for supporting structures is disturbed, it shall be restored to requirements of these Specifications and satisfaction of the Engineer at no additional cost to Owner.

3. The Contractor is advised that footings should be poured as soon as possible to minimize unfavorable final grade conditions from developing.

4. Provide all measures to ensure public safety.

B. Control of Water:

1. Provide and maintain equipment to remove and dispose of water during the course of the work of this Section and keep excavations dry and free of frost or ice.

2. Bearing surfaces that become softened by water or frost must be re-excavated to solid bearing at Contractor's expense and backfilled with compacted crushed rock at Contractor's expense.

3. Grade top perimeter of excavation to prevent surface water from draining into excavation.

4. See additional requirements in Section 31 23 19, Dewatering.

C. Frozen Ground: Frost protection shall be provided for all structural excavation work. Foundation work shall not be placed on frozen ground.

D. Excavate material of every nature and description to the lines and grades as indicated in the Drawings and/or as required for construction of the facility.

1. Allow for forms, shoring, working space, granular base, topsoil, and similar items, wherever applicable.

2. Trim excavations to neat lines. Remove loose matter and lumped subsoil.

E. Excavated Materials: Soils excavated at Site will be treated and used as one of two general categories of material as provided below.

1. Fill:

a. Subsoil Type S1, Select Native Fill, as approved for use by Engineer.

2. Spoils:

a. Ensure there is sufficient suitable material available to complete embankments and other required fillings prior to disposing of any excavated materials.

b. Make arrangements for disposal of spoils and include as part of contract work in preparing of project bids.

c. Landfill permit or written permission from private property owner to be obtained by the Contractor and provided to the Engineer.

F. Shoring:

1. As specified in Section 31 50 00, Excavation Support and Protection.

G. Slope existing banks with machine to angle of repose or less until shored.

1. Shape, trim, and finish cut slopes to conform to lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.

2. Protection of excavation side slopes:

a. Use excavation methods that will not shatter or loosen excavation slopes.

b. Where practical, excavate materials without previous loosening and in limited layers or thickness to avoid breaking the material back of the established slope line.

c. Avoid overbreaks. Overbreak is incidental to the Work, except in cases where the Owner's Representative determines that such overbreak was unavoidable.

d. Excavation in rock or rocky cuts:

1) Once completed, thoroughly test the slopes with bars or other approved means to remove all loose, detached, broken, or otherwise unstable material.

2) Remove jutting points. Scale slopes using mine scaling rods or other approved methods to remove loose or overhanging materials and provide a safe, trim, neat, and stable condition.

3) Dispose of the materials removed under this subparagraph in the same manner as other excavated material.

e. Remove all exposed roots, debris, and all stones more than 3 inches in size which are loose or could become loosened.

3. Construct slopes free of all exposed roots.

4. Construct slopes free of unstable rock and loose stones exceeding 3 inches in diameter.

5. Round tops of cut slopes in soil to not less than a 6-foot radius, provided such rounding does not extend off-site, outside of easements, outside of rights-of-way, or adversely impacts existing facilities, adjacent property, or completed Work.

6. Trim all surfaces neatly and smoothly.

H. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 31 23 17, Trenching and Section 31 23 23, Fill.

I. Notify Engineer of unexpected subsurface conditions.

J. Over-excavation for Unsuitable Foundation Conditions:

1. Cross-sectional dimensions and depths of excavations shown in the Drawings shall be subject to such changes as may be found necessary by the Engineer to secure foundations free from soft, weathered, shattered, and loose material or other objectionable materials.

2. Unsuitable materials encountered shall be removed and replaced with Coarse Aggregate Type A1, 2-1/2-inch – 0 gradation, as specified in Table 31 05 16-A of Section 31 05 16, Aggregates for Earthwork. All material placed shall be compacted to 95 percent of maximum dry density.

3. Unsuitable materials shall be removed and replaced only as directed in writing by Engineer.

K. Rock Removal:

1. Remove boulders and rock up to 1/2 cubic yard measured by volume per the requirements of this Section.

2. Remove larger boulders and rock material as specified in Section 31 23 18, Rock Removal.

3. Concrete removal, as defined herein, shall be treated as Rock Removal.

L. Stockpile excavated material in area(s) designated on or off site in accordance with Section 31 05 13, Soils for Earthwork.

3.6 FIELD QUALITY CONTROL

A. Perform excavation and controlled fill operations in accordance with the requirements of this Section.

B. Coordinate the visual inspection and approval of all bearing surfaces by Engineer before installing subsequent work.

3.7 PROTECTION

A. Prevent displacement or loose soil from falling into excavation; maintain soil stability and store excavated materials at a distance from top of excavation.

B. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

SECTION 31 23 17 - TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the requirements for excavation and backfill of all utilities, including installation of pipe bedding, pipe zone backfill, trench backfill, and related Work as shown on the Drawings and as specified.

B. Section includes:

1. Excavating trenches for pipe, utility vaults, and other utilities.
2. Compacted fill from top of utility bedding to final grades.
3. Trench and utility vault backfilling and compaction.

C. Related Sections:

1. Section 01 45 00 - Quality Control
2. Section 03 11 00 – Concrete Work
3. Section 31 05 13 - Soils for Earthwork
4. Section 31 05 16 - Aggregates for Earthwork
5. Section 31 10 00 - Site Clearing
6. Section 31 22 13 - Rough Grading
7. Section 31 23 16 - Excavation
8. Section 31 23 18 - Rock Removal
9. Section 31 23 23 - Fill
10. Section 31 23 24 - Flowable Fill
11. Section 31 37 00 - Riprap
12. Section 33 11 10 - Water Utility Distribution and Transmission Piping
13. Section 33 11 10.30 – HDPE Water Utility Piping

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

B. ASTM International (ASTM):

1. ASTM C403 - Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance

2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

4. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

5. D4832, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

1.3 DEFINITIONS

A. Controlled Low Strength Material (CLSM): Also referred to as Flowable Fill. Lean cement concrete fill. A self-compacting, cementitious material.

B. Flexible Pipe: For the purposes of these Specifications, tubing between 1/2-inch and 4-inch diameter constructed of polyvinyl chloride (PVC) and high-density polyethylene (HDPE) are considered flexible pipes. HDPE piping 4 inches in diameter and larger is also considered flexible pipe.

C. Geosynthetics: Geotextiles, geogrids, geomembranes, and drainage composite materials.

D. Imported Material: Materials obtained from sources offsite, suitable for specified use.

E. Lift: Loose (uncompacted) layer of material.

F. Obstructions: Items which may be encountered during utility and vault trenching which do not require replacement.

G. Optimum Moisture Content:

1. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.

2. Determine field moisture content on basis of fraction passing 3/4-inch sieve.

H. Pipe Bedding: Trench backfill zone for full trench width which extends from the bottom outside surface of the pipe to a minimum of 6 inches below the bottom outside surface of pipe, conduit, cable, or duct bank to the trench foundation so as to uniformly support the barrel of the pipe.

I. Pipe Zone: Trench backfill zone for full trench width which extends from the bottom outside surface of the pipe to a minimum of 12 inches above the top outside surface of pipe, conduit, cable, or duct bank.

J. Pipe Bedding, Pipe Zone, and Trench Backfill Classifications:

1. Class A: Backfill with suitable native or imported material that is approved to meet the characteristics required for the specific surface loading or other criteria of the backfill zone.

2. Class B: Backfill with imported granular material consisting of gravel or crushed rock meeting the requirements of this Section and Coarse Aggregate Type A1 as specified in Section 31 05 16, Aggregates for Earthwork; typical designated size shall be 1-inch-0 or 3/4-inch-0.

3. Class C: Backfill with Fine Sand, as specified in Section 31 05 16, Aggregates for Earthwork.

4. Class D: Backfill with approved pit run or bar run material, well-graded from coarse to fine; maximum dimension shall be 3 inches.

5. Class E: Backfill with CLSM. See Section 31 23 24, Flowable Fill.

K. Pothole Excavations: Removal and replacement of all materials via coring, vacuum extraction, or similar method for the purposes of locating an underground utility and to investigate underground conditions.

L. Prepared Trench Bottom: The bottom of the trench on which the pipe bedding is to lie, and which provides support for the pipe.

M. Relative Compaction: Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM Standards.

N. Rigid Pipe: For the purposes of these Specifications, pipe constructed of PVC, ductile iron, steel, concrete, and clay pipes are considered rigid pipes.

O. Sewer, Pipes, and Mains: Conduits of circular or other geometric shapes, used to convey liquids or gases, or other material.

P. Trench Backfill: Trench backfill zone for full trench width extending from the top of the pipe zone to pavement base rock, ground surface, or other surface material.

Q. Trench Stabilization: Removal of unsuitable material in the bottom of a trench and replacement with specified material for support of a pipe, main, conduit, structure, or appurtenances.

R. Utility: Any buried pipe, duct, conduit, or cable.

S. Well-Graded: A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

1.4 SUBMITTALS

A. Section 01 33 00, Submittal Procedures: Requirements for submittals.

B. Excavation support plan and utility protection plan as specified in Section 31 50 00, Excavation Support and Protection.

C. Product Data:

1. Geotextile fabric, indicating fabric and construction
2. Marking tapes
3. Tracer wire
4. Connectors for tracer wire and/or marking tapes
5. Tracer wire locate boxes
6. Marker balls
7. Locator stations
8. Ground wires
9. Plastic or copper markers for service laterals.

D. Imported Materials:

1. Materials Source: Submit name and location of imported fill materials suppliers.
2. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
3. Submit results of aggregate sieve analysis and standard proctor test for granular material.

E. CLSM: Mix designs in accordance with Submittal requirements of Section 31 23 24, Flowable Fill.

F. Concrete: Mix designs in accordance with Submittal requirements of Section 03 11 00, Concrete Work.

1.5 QUALITY ASSURANCE

A. Subsoil and topsoil fill materials: In accordance with Quality Assurance requirements stated in Section 31 05 13, Soils for Earthwork.

B. Aggregate fill materials: In accordance with Quality Assurance requirements stated in Section 31 05 16, Aggregates for Earthwork.

C. CLSM:

1. In-place testing: In accordance with ASTM C403.
2. Compressive testing: In accordance with ASTM D4832.

D. Allowable Tolerances: Final grades shall be plus or minus 0.1-foot.

1.6 NOT USED

1.7 COORDINATION

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

B. Coordinate trenching and utility installation work with other work at utility construction location occurring near or adjacent to specified herein.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Subsoil Fill: Type S1, Select Native Material as specified in Section 31 05 13, Soils for Earthwork.

B. Imported Granular Fill: Coarse Aggregate Type A1, Dense-Graded Aggregate with gradation as shown in the Drawings and specified in Section 31 05 16, Aggregates for Earthwork.

C. Concrete:

1. Lean concrete as specified in Section 31 23 24, Flowable Fill, with compressive strength of 100 pounds per square inch (psi).

2. Structural concrete as specified in Section 03 11 00, Concrete Work with compressive strength of 3,000 psi.

D. Drain Rock: Coarse Aggregate Type A2, Granular Drain Backfill Material with gradation as shown in the Drawings and specified in Section 31 05 16, Aggregates for Earthwork.

E. Sand: As specified in Section 31 05 16, Aggregates for Earthwork.

F. Trench Stabilization Material: Coarse Aggregate Type A1, Dense-Graded Aggregate, 2-1/2-inch - 0 gradation as specified in Section 31 05 16, Aggregates for Earthwork.

2.2 MARKING TAPE

A. Detectable:

1. Solid aluminum foil, visible on unprinted side, encased in protective high visibility, inert polyethylene plastic jacket.

2. Foil Thickness: Minimum 0.35 mils.

3. Laminate Thickness: Minimum 5 mils.

4. Width: 6 inches.

5. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.

6. Joining Clips: Tin or nickel-coated furnished by Tape Manufacturer.

7. Manufacturers and Products:

    a. Reef Industries; Terra Tape, Sentry Line Detectable

    b. Mutual Industries; Detectable Tape

    c. Presco; Detectable Tape

B. Color: In accordance with APWA Uniform Color Code for Temporary Marking of Underground Facilities and as specified in NEMA Z535.1, Safety Color Code.

Color	Facility
Red	Electric power lines, cables, conduit, and lightning cables
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, oil, steam, petroleum, or gaseous materials
Green	Sewers and drain lines
Blue	Potable water
Purple	Reclaimed water, irrigation, and slurry lines

2.3 ELECTRONIC LOCATING MATERIALS

A. Marker Balls:

1. Exterior Material: High-density polyethylene.

2. Size: Maximum 4-1/2 inches in diameter.

3. Range: Locatable with standard electronic marker locating devices at depths up to 5 feet.

4. Field Type: Spherical RF field regardless of orientation.

5. Contain no floating or movable parts, and no batteries or active components.

6. Color: Provide colored marker balls per Article 2.03.B above.

7. Manufacturer and Product: Omni Marker Model 162 (green), Omni Marker Model 161 (blue), or equal.

B. Tracer Wire:

1. Direct burial No. 12 AWG solid, annealed copper-clad steel (CCS) high strength tracer wire.

2. Tensile Breaking Load: 380-pound average.

3. Jacket:

    a. High molecular weight high-density polyethylene complying with ASTM D1248, 30-volt rating.

    b. Color: Provide in colors per Article 2.03.B above.

4. Manufacturer and Product: Copperhead Industries; LLC, 12 CCS high strength reinforced tracer wire, or equal.

C. Tracer Wire Connectors:

1. Waterproof, corrosion proof and suitable for No. 12 AWG solid core wire.

2. Prefilled with silicone and suitable for use with low-voltage tracer lines of less than 50 volts.

3. Lug Connectors:

a. Waterproof plastic housing that encases the silicone prefilled lug terminals.

b. Manufacturer and Product: King Innovations; DryConnTM Direct Bury Lug or equal.

4. Twist Connectors:

a. Waterproof epoxy-filled packaging that encases the silicone prefilled twist connectors.

b. Manufacturer and Product: 3M Division; DBY Direct Bury Splice Kit 09053 connectors or equal.

D. Ground Wire: No. 12 AWG bare solid copper wire.

E. Locator Station:

1. Test Station:

a. Lexan® polycarbonate.

b. Color: Provide in colors per Article 2.03.B above.

2. Terminals suitable for No. 12 AWG leads.

3. Use single (two lead) locator stations with two terminals, one for ground wire and one for tracer wire, when only one tracer wire is terminated in manhole.

4. Use multi-lead locator stations with the appropriate number of terminals when 2 or more tracer wire leads are terminated in manhole.

5. Manufacturer and Product: Cott Manufacturing Company; FlangeFink® Cathodic Protection Test Station.

2.4 VISUAL IDENTIFICATION MATERIALS

A. Tracer Wire Locate Boxes:

1. Material: Polyolefin.

2. Cover:

a. Color: Provide in colors per Article 2.03.B above.

b. Provide box cover identification marking for facility type such as “Sewer Locate Wire”, as approved by Owner.

c. Locking type with a nominal 6-inch opening.

3. Manufacturer and Product: Carson Industries LLC; L Series Model 708 or equal.

B. Service Lateral Plastic or Copper Markers:

1. Service Lateral Plastic or Copper Markers: Use markers of the type that requires installation to be recessed below grade.

a. Material: Plastic or copper. In new concrete, use "new construction" markers; in existing concrete use "retrofit" markers and use adhesive recommended by the Manufacturer.

b. Plastic Pavement Markers:

1) UV stabilized and fade resistant.

2) Material: Meet or exceed a tensile strength of 3,500 psi, and meet test requirements as outlined in ASTM G53, Standard Practice for Light and Water Exposure of Nonmetallic Material.

3) Color: Provide in color per Article 2.03 B above with the words, "WARNING, BURIED [UTILITY TYPE], Call Before You Dig," molded to the top of marker.

a) Provide wording for specific facility as approved by Owner.

4) Manufacturer and Product: Rhino Marking and Protective Systems; A-TAG pavement markers or equal.

c. Copper Pavement Markers:

1) Material: Copper material chosen by Manufacturer.

2) Diameter: 1-5/32-inch.

3) Wording: Provide facility identification wording stamped on the top such as "Sewer Lateral" as approved by Owner.

4) Manufacturer and Product: Berntsen Concrete Marker; BP2-U or equal.

C. Service Lateral 2-inch by 4-inch Markers:

1. S4S Douglas fir, pressure-treated 2-inch by 4-inch lumber, utility grade or better.

2. Grade stamped by an American Lumber Standards certified inspection agency.

PART 3 EXECUTION

3.1 PREPARATION

A. Call Oregon Utility Notification Center at 1-800-332-2344 not less than three working days before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

2. Coordinate with and notify utility companies should it be necessary to remove or relocate facilities.

3. Maintain and protect above and below grade utilities indicated to remain.

B. Identify required lines, levels, contours, and datum locations.

C. Drawings and/or specifications cover and govern replacement and restoration of foreseeable damage.

D. The site of an open cut excavation shall be first cleared of all obstructions preparatory to excavation in accordance with Section 31 10 00, Site Clearing.

E. See Section 31 10 00, Site Clearing for additional requirements in protection of existing utilities, survey control, plant life, and landscaped areas in coordination with Work in this Section.

1. Intent of Drawings and Specifications is that all streets, structures, and utilities be left in condition equal to or better than original condition.

2. Where damage occurs, and cannot be repaired or replaced, the Contractor shall purchase and install new material, which is satisfactory to Owner.

F. Potholing / Exploratory Test Pits: Dig such exploratory test pits and perform potholing as may be necessary in advance of trenching to determine the exact location and elevation of subsurface structures, pipelines, duct banks, conduits, and other obstructions which are likely to be encountered or need to be connected to and shall make acceptable provision for their protection, support, and maintenance of their continued operation.

G. Paved or Surfaced Streets:

1. Wherever paved or surfaced streets are cut, saw wheel, or approved cutting devices shall be used.

2. Width of pavement cut shall be as shown in the Drawings.

3. Any cut or broken pavement shall be removed from site during excavation.

H. Traffic:

1. Maintain street traffic at all times as required by the Drawings and as specified herein.

2. Erect and maintain barricades, warning signs, traffic cones, and other safety devices during construction in accordance with the latest edition of Manual of Uniform Traffic Control Devices (MUTCD), Part 6, to protect the traveling public in any area applicable.

3. Provide flaggers as required during active work in roadway areas.

I. Operations shall be confined to rights-of-way and easements provided. Avoid encroachment on, or damage to, private property or existing utilities unless prior arrangements have been made with copy of said arrangement submitted to Engineer.

3.2 EASEMENTS

A. Where portions of the Work are located on private property, easements and permits will be obtained by the Owner. Easements shall provide for the use of property for construction purposes to the extent indicated on the easements.

B. Copies of these easements and permits will be available from the Owner for inspection by the Contractor. It shall be the Contractor's responsibility to determine the adequacy of the easement obtained in every case.

C. Confine construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owners for the additional area required and notify the Engineer with a copy of the written approval from property owners of any such conditions.

D. Any damage to private property, either inside or outside the limits of right-of-way or easements provided by the Owner, resulting from Work shall be the responsibility of the Contractor. Before the Engineer will authorize final payment, the Contractor will be required to furnish the Owner with written releases from property owners where the Contractor has obtained special agreements or easements or where the Contractor's operations, for any reason, have not been kept within the construction right-of-way obtained by the Owner.

3.3 PROTECTION

A. Existing Facilities:

1. It is the intent of these specifications that all streets, structure, and utilities be left in a condition equal to or better than original condition at the completion of the Project.

2. Where damage occurs, and cannot be repaired or replaced, the Contractor shall purchase and install new material to the satisfaction to the Engineer.

3. Drawings and/or specifications cover and govern replacement and restoration of foreseeable damage.

B. Removal of Water:

1. As specified in Section 31 23 19, Dewatering.

2. At all times during construction provide and maintain ample means and devices with which to remove promptly and dispose of properly all water entering the excavations or other parts of the Work.

3. Keep all excavations dry until the utilities or vaults to be placed therein are completed. In water bearing sand, well points and/or sheeting shall be supplied, together with pumps and other appurtenances of ample capacity to keep the excavation dry as specified.

4. Dispose of water from the Work in a suitable legal manner without damage to adjacent property or structures.

C. Trench Protection:

1. Provide the materials, labor, and equipment necessary to protect trenches at all times.

2. Trench protection shall provide safe working conditions in the trench and protect the Work, existing property, utilities, pavement, etc.

3. The method of protection shall be according to the Contractor's design.

4. The Contractor may elect to use a combination of shoring, overbreak, tunneling, boring, sliding trench shields, or other methods of accomplishing the work provided the method meets the approval of all applicable local, state, and federal safety codes.

5. Damages resulting from improper shoring, improper removal of shoring, or from failure to shore shall be the sole responsibility of the Contractor.

3.4 LINES AND GRADES

A. Trench excavation for piping, utility vaults, and other utilities shall be performed to the alignment and grade as indicated in the Drawings.

B. Where grades are not shown in the Drawings, utilities shall be laid to grade between control elevations shown.

C. Water mains shall be installed with a minimum cover of 36 inches.

D. The Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

E. Changes in the grade and horizontal alignment of the pipeline as shown in the Drawings or as provided elsewhere in the Specifications may be necessary due to unanticipated interferences or other reasons.

1. No additional compensation will be allowed the Contractor for changes in horizontal alignment.

2. No additional compensation will be allowed for changes in grade which require additional depth of trench excavation and backfill up to 2 feet from those shown in the Drawings.

F. Use laser-beam instrument with qualified operator to establish lines and grades.

3.5 OBSTRUCTIONS

A. Obstructions to the construction of the trench, such as tree roots, stumps, abandoned pilings, abandoned buildings and concrete structures, logs, rubbish, and debris of all types shall be removed without additional compensation from the Owner.

B. The Engineer may, if requested by the Contractor or Owner, make changes in the trench alignment to avoid major obstructions if such alignment changes can be made within the

perpetual easement and right-of-way and without adversely affecting the intended function of the facility or increasing costs to the Owner.

3.6 INTERFERING ROADWAYS AND STRUCTURES

A. Remove, replace and/or repair any damage done during trenching activities to fences, buildings, cultivated fields, drainage crossings, and any other properties without additional compensation from the Owner.

1. Replace or repair these structures to a condition as good as or better than their pre-construction condition prior to commencing work in the area.

B. Paved Roadways:

1. Where paved roadways are cut as part of trenching activities, Class D trench backfill will be required to the bottom of pavement base.

2. New pavement shall be equal to or better than the existing paved surface.

3. New surface shall not deviate by more than 1/4-inch from the existing finish elevation.

C. Existing Structures:

1. If existing structures are encountered as part of trenching activities which will prevent construction and are not adequately shown in the Drawings, the Contractor shall notify the Engineer before continuing with the Work.

2. The Engineer may make such field revisions to the utility alignment as necessary to avoid conflict with the existing conditions.

3. The cost of waiting or “down time” during such field revisions shall be borne by the Contractor without additional cost to the Owner or liability to the Engineer.

4. If the Contactor fails to so notify the Engineer when a conflict of this nature is encountered, but proceeds with construction despite this interference, the Contractor shall do so at the Contractor’s own risk with no additional payment.

3.7 TRENCHING

A. Excavate subsoil as required for construction of utilities to elevations shown in the Drawings.

B. Remove boulders and rock up to 1/2 cubic yard measured by volume per the requirements of this Section. Remove larger boulders and rock material as specified in Section 31 23 18, Rock Removal.

C. Open Trench Limit:

1. Do not advance open trench beyond the distance which will be backfilled and compacted the same day.

2. A maximum length of open trench shall not exceed 100 feet at any one time.

3. Temporary resurfacing shall be completed within 300 feet of the associated open trench limit for each main pipe laying operation.

4. Cover or backfill excavations at the end of each day.

5. If the trench is not backfilled at the end of each working day:

    a. Provide means to prevent caving of excavation sides, as necessary, during non-working hours.

    b. Cover the excavation with a system as needed to provide public safety and prevention of entry during non-working hours.

    c. Provide signed and stamped submittal of caving prevention system and cover system.

6. New trenching shall not be started when earlier trenches need backfilling, or the surfaces of streets or other areas need to be restored to a safe and proper condition.

D. Utility Crossings: Avoid horizontal and vertical conflicts with existing utilities.

1. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.

2. Vertical clearance between the new pipe and existing utilities shall be 12 inches minimum, unless otherwise noted on the Drawings.

3. Where existing utility lines are damaged or broken during trenching activities, the utility shall be repaired or replaced. For water or sewer bearing lines, care being taken to insure a smooth flow line and absolutely no leakage at the new joints.

4. All expenses involved in the repair or replacement of leaking or broken utility lines that have occurred due to the Contractor's operations shall be borne by the Contractor, and the amount thereof shall be absorbed in the unit prices of its bid.

E. Water Lines Crossing Sewer Lines: Whenever water lines cross sewer lines, the Contractor shall comply with local Health Department requirements.

1. Wherever possible, the bottom of the water line shall be 18 inches or more above the top of sewer pipe. One full length of the water line pipe shall be centered at the crossing.

2. For clearances less than 1-1/2 feet, the Contractor shall replace the existing sewer pipe with ductile iron or PVC of equal size, centered at the utility crossing, or shall encase existing sewer pipe with concrete for a minimum of 10 feet on both sides of crossing, as directed by the Engineer, at no additional cost to the Owner.

F. Excavate trenches to width and depth as indicated on Drawings. No additional payment will be provided for trenching activities beyond dimensions shown in the Drawings.

1. Excavation for trenches in which pipelines are to be installed shall provide adequate space for workers to place and joint the pipe properly and safely, but in every case the trench shall be kept to a minimum width.

2. The width of the pipe trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench shall not exceed 12 inches on either side of the pipe.

3. Excavation for utility vaults and other structures shall be wide enough to provide 18 inches between the structure surface and the sides of the excavation.

4. For pipe or utility vaults to have bedding material, excavate to a depth of 6 inches below the bottom of the pipe or utility vault. Care shall be taken not to excavate below depths required.

5. If over digging occurs, the trench bottom shall be filled to grade with compacted bedding material.

G. Remove water or materials that interfere with Work.

1. The trench at all times shall be kept free from water to facilitate fine grading, the proper laying and joining of pipe, and prevention of damage to completed joints.

2. Adequate pumping equipment shall be provided to handle and dispose of the water without damage to adjacent property.

3. Water in the trench shall not be allowed to flow through the pipe while construction work is in progress unless special permission to do so has been given by the Engineer.

4. An adequate screen shall be provided to prevent the entrance of objectionable material into the pipe.

5. Remove and dispose of existing abandoned sewer pipe, structures, and other facilities as necessary to construct the improvements.

a. Where the excavation activities require the removal of portions of an abandoned pipeline, masonry plugs shall be installed in the open ends of the pipe, unless otherwise noted in the Drawings or by the Engineer.

b. Coordinate with Engineer prior to plugging.

c. For plugs less than 36 inches in diameter, 8-inch-deep masonry units shall be used. For plugs in larger pipelines, 12-inch-deep masonry units shall be used.

6. The costs associated with the removal of water and materials noted above will be considered incidental to trench excavation and backfill.

H. Do not interfere with 45 degree bearing splay of foundations.

I. Over-excavation for Unsuitable Trench Foundation Conditions:

1. Cross-sectional dimensions and depths of excavations shown in the Drawings shall be subject to such changes as may be found necessary by the Engineer to secure foundations free from soft, weathered, shattered, and loose material or other objectionable materials.

2. Unsuitable materials shall be removed and replaced only as directed in writing by Engineer.

3. Unsuitable materials encountered shall be removed and replaced with Coarse Aggregate Type A1, 2-1/2-inch – 0 gradation, as specified in Table 31 05 16-A of Section 31 05 16, Aggregates for Earthwork. All material placed shall be compacted to 95 percent of maximum dry density.

4. Install nonwoven geotextile under trench stabilization material, over the soft or yielding excavated surface.

    a. Install the nonwoven geotextile ahead of placement of the trench stabilization material, continuously along the excavation bottom and centered on the pipe centerline.

    b. Use nonwoven geotextile width equal to the pipe diameter plus 2 feet.

    c. Place laps or splices in the geotextile in the direction of the pipe laying.

J. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

K. Excavated material shall be placed at locations and in such a manner that it does not create a hazard to pedestrian or vehicular traffic or interfere with the function of existing drainage facilities or system operation.

L. Remove excess subsoil not intended for reuse from site.

M. Stockpile excavated material in area designated on site in accordance with Section 31 05 13, Soils for Earthwork.

3.8 NOT USED

3.9 NOT USED

3.10 COMPACTION

A. Testing will be required to show specified densities of compacted backfill are being achieved by the Contractor's compaction methods.

B. Moisture Control:

1. Moisture condition backfill material to within 2 percent of optimum moisture content required for compaction throughout each lift of the fill.

2. Add moisture to granular backfill by sprinkling during compaction operation.

3. Compaction by ponding or jetting is not permitted.

C. Compact all materials and areas that are not accessible for in-place density testing, as determined by the Engineer, in place by whatever equipment and method is practicable or specified, and as approved by the Engineer.

1. Perform compaction at such moisture content as is required to produce well-filled, dense, and firm material in place that will show no appreciable deflection or reaction under the compacting equipment.

3.11 BEDDING

A. All utility vaults, potable water pipe 4-inch nominal diameter and over, all steel pipe, all concrete sewer pipe, all plastic pipe, all pipe under existing or future structures or roadways, and any and all utilities at a depth greater than 6 feet shall be laid in pipe bedding material.

B. Unless otherwise noted in the Drawings, pipe, or conduit of less than 4-inch diameter, outside structure lines and at a depth of less than 6 feet shall be bedded in native material properly shaped as specified below, all as detailed on the Drawings.

C. Compacted bedding material shall be placed the full width of the excavated trench to a depth as shown on the trench detail included in the Drawings.

1. In lieu of a detail, the depth shall be 6 inches.

D. Spread the bedding smoothly over entire width of trench to the proper grade so that the pipe is uniformly supported along the barrel.

E. Hand grade and compact each lift to provide a firm, unyielding surface along the entire pipe length. For rigid pipe, compact to at least 90 percent relative compaction.

F. Excavate bell holes at each joint to permit proper assembly and inspection of the joint.

G. Check grade and correct irregularities in bedding material.

H. Center pipes horizontally in trench width.

3.12 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen fill materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Maintain optimum moisture content of fill materials to attain required compaction density.

D. Place fill material, with the exception of CLSM, in continuous layers and compact in 6- to 8-inch lifts.

1. Prevent pipe from moving either horizontally or vertically during placement and compaction of pipe zone material.

2. Where trenches are under existing or future structures, paved areas, road shoulders, driveways, or sidewalks, or where designated on the Drawings or specified elsewhere in these specifications, the trench backfill shall be Class B or Class E and pipe zone backfill shall be Class B or Class E. Class B backfill shall be compacted to 95 percent of maximum density at optimum moisture content.

3. Where trenches are outside existing or future structures, paved areas, road shoulders, driveways, or sidewalks, or where designated on plans or specified elsewhere, the trench backfill shall be Class A and pipe zone backfill in these areas shall be Class B. For these locations, compaction of Class B backfill shall be to not less than 90 percent of maximum

density at optimum moisture content. Class B backfill shall be compacted to not less than 95 percent of maximum density at optimum moisture content.

E. Employ placement method that does not disturb or damage nearby or adjacent foundation perimeter drainage or utilities in trench.

F. Do not use power-driven impact compactors to compact pipe zone material.

G. Backfill Immediately: All trenches and excavations shall be backfilled immediately after pipe or conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible, unless otherwise directed by the Engineer.

H. Under no circumstances shall water be permitted to rise in open trenches after pipe has been placed.

I. Do not allow backfill material to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over the top of pipe.

J. Use hand compactors for compaction until at least 2 feet of backfill is placed over top of pipe. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by “walking in” and slicing material under haunches with a shovel to ensure that voids are completely filled before placing each succeeding lift.

K. Placement of Sand:

1. Place medium sand in lifts not exceeding 8 inches in uncompacted thickness.

2. Compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.

L. Placement of CLSM:

1. Discharge from truck-mounted drum-type mixer into trench.

2. Place in lifts not exceeding 2 feet in thickness.

3. No compaction of CLSM is allowed.

4. Use steel plates to protect the CLSM from traffic a minimum of 24 hours. After 24 hours, the CLSM may be paved, or opened to traffic until permanent surface restoration is completed if it has hardened sufficiently to prevent rutting.

M. New trenching shall not be started when earlier trenches need backfilling, or the surfaces of streets or other areas need to be restored to a safe and proper condition.

N. Do not leave trench open at end of working day.

3.13 MARKING TAPE INSTALLATION

A. Continuously install marking tape along centerline of all buried piping, install 24 inches below finished grade. Coordinate with piping installation drawings.

3.14 ELECTRONIC LOCATING FACILITY INSTALLATION

A. Marker Balls:

1. Install according to Manufacturer's recommendations and as shown or directed and according to the following requirements:

   a. Install marker balls directly above the pipe alignment at a depth no less than 3 feet and no more than 4-1/2 feet below final surface grade.

   b. Install marker balls during trench backfill operations by placing the marker ball in compacted backfill.

   c. Cover marker ball with a minimum of 6 inches of backfill and compact backfill before continuing trench backfill operations.

   d. Install markers balls with trenchless pipe installations by core-drilling hole of a minimal diameter needed to allow clearance for placement of marker ball. Backfill with approved trench backfill, pavement base and pavement, as applicable.

2. Water Marker Ball Locations: Install at locations as required by Sewer Marker Ball Locations specified herein.

3. Sewer Marker Ball Locations:

   a. Install marker balls directly above connection points, termination points and all fitting locations, and at a minimum spacing of 50 linear feet on sewers with a straight horizontal alignment.

   b. Install marker balls at a minimum spacing of 25 lineal feet directly above sewer mains installed on a radius.

   c. Install marker balls on new or reconstructed sewer service laterals, directly above the centerline of the end of the lateral at the curb, property line or other end of lateral location, as directed.

   d. Install marker balls directly above every alignment change along sewer mains and service laterals.

   e. Install marker balls directly above manholes for manholes with buried covers.

B. Tracer Wire and Terminal Appurtenances:

1. Tracer Wire:

   a. Install as shown or directed directly over the pipe centerline and on top of the pipe zone in all sewer trenches, including mainline sewers, service laterals and storm sewer inlet leads.

   b. Connect mainline and service lateral tracer wires using either an approved direct-bury lug connector or direct-bury twist connector.

c. Extend tracer wire to locator stations in manholes, locator boxes, storm inlets, or other visually identifiable terminal appurtenances, allowing for access with electronic locating equipment, as shown or directed and according to the following requirements:

2. Locator Stations:

   a. Install locator stations as shown within manholes.

   b. Mount locator station to manhole wall within 18 inches of manhole rim with two stainless steel expansion anchors.

   c. Drill a minimum 3/8-inch diameter hole through the manhole wall within 18 inches of the finish grade of the manhole rim.

   d. Extend the tracer wire from the pipe trench in one continuous piece up the outside of the manhole and through the hole and into a locator station and attach to one of the lugs in the locator station.

   e. When multiple tracer wires are terminated in manhole install a multi-lead locator station.

   f. Extend a ground wire from the locator station through a minimum 3/8-inch diameter hole in the manhole wall.

   g. Install ground wire approximately 3 feet deep and extend from the outside manhole wall a minimum of 3 feet horizontally in any direction.

   h. Seal all holes drilled in manhole walls with silicone sealant.

3. Storm Inlet Tracer Wire Termination: Terminate tracer wire inside inlet and directly over storm outlet pipe by placing tracer wire as follows:

   a. Drill a minimum 3/8-inch diameter hole through inlet wall to pass tracer wire through to inside inlet wall.

   b. Seal hole with silicon sealer or material approved by Engineer.

   c. Leave 6 inches of coiled tracer wire along inside of inlet wall approximately 3 inches below the inlet frame and grate or as directed by Engineer.

4. Service Lateral Tracer Wire Termination: Terminate tracer wire at ends of service laterals as shown or directed, as follows:

   a. Termination in Tracer Wire Locate Boxes: Extend the tracer wire in one continuous piece up vertically from the pipe trench and into the bottom of the locate box. Leave 18 inches of coiled tracer wire inside locate box.

   b. Termination at 2-inch by 4-inch Markers: Extend tracer wire in one continuous piece directly up service lateral 2-inch by 4-inch markers and leave 18 inches of tracer wire wrapped around the exposed top end of 2-inch by 4-inch marker.

3.15 VISUAL IDENTIFICATION FACILITIES

A. Tracer Wire Locate Boxes: Install tracer wire locate boxes directly over service laterals at property line, service boundary, or other location as shown or directed by the Engineer.

B. Service Lateral Plastic or Copper Markers:

1. Install plastic or copper markers in the concrete curb directly over the centerline of the service lateral, as shown or directed by the Engineer.

2. Either plastic or copper markers may be used.

3. If there is not suitable concrete curb for marker placement, then install a lateral cleanout as close to property line as practical at location approved by Engineer.

C. Service Lateral 2-inch by 4-inch Markers:

1. Place a 2-inch by 4-inch marker at the end of each new service lateral not connected to a building sewer.

2. Omit markers only as approved.

3. Block the capped or plugged service lateral end with a wood block against undisturbed earth and install the marker.

4. Extend the marker from the blocked service lateral invert to at least 12 inches above the existing or proposed finish ground surface.

5. Install marker in one piece. No splicing will be accepted.

6. Paint the exposed portion of the marker after its installation with quality quick drying enamel white paint for a storm only sewer and green paint for a sanitary or combined sewer.

7. After the paint has dried, use black, quick drying enamel, and neatly indicate the distance from the ground surface to the top of the service lateral in feet and inches.

8. Do not disturb the position and location of the marker during the backfilling operation.

9. If the marker is broken, moved out of location, or vertical alignment is changed during the backfilling operation, reopen the trench, and replace the marker.

3.16 FIELD QUALITY CONTROL

A. All testing and reporting shall be conducted and completed by an independent laboratory provided by the Contractor. All testing and reporting shall be the responsibility of the Contractor.

B. Perform laboratory material tests in accordance with ASTM D698 (AASHTO T99).

C. In-place compaction testing of pipeline backfill materials shall be performed at 2-foot elevation increments, one test per 200 lineal feet of pipeline trench as measured along pipe centerline.

1. The Engineer may reduce the frequency when satisfied with method of compaction.

2. The Engineer may direct testing at a higher frequency at no additional cost to the Owner upon failure to obtain specified densities or if the Contractor changes compaction equipment or methods of compaction.

3. The Engineer shall determine all test locations.

D. Perform in place compaction tests in accordance with the following:

1. Density Tests: ASTM D2922

2. Moisture Tests: ASTM D3017

E. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest at the sole expense of the Contractor.

3.17 SURFACE RESTORATION AND CLEANUP

A. Open Trenches: At the end of each workday, all open trenches shall be backfilled and all trenches within streets shall be temporarily paved or covered to the satisfaction of the Engineer and the local permitting agency.

1. Temporary paving shall be replaced with permanent street paving at the completion of construction within street rights-of-way, or sooner, if deemed necessary by the Engineer.

2. No gravel-filled trenches shall be left open within the street right-of-way at the end of the workday.

B. Topsoil:

1. Where trenches cross lawns, garden areas, pastures, cultivated fields, or other areas on which reasonable topsoil conditions exist, remove the topsoil to the specified depth and place the material in a stockpile.

2. Topsoil shall not be mixed with other excavated material.

3. After the trench has been backfilled, the topsoil shall be replaced.

C. Clean up and remove all excess materials, construction materials, debris from construction, etc. Replace or repair any fences, mailboxes, signs, landscaping, or other facilities removed or damaged during construction. Replace all lawns, topsoil, shrubbery, flowers, etc., damaged or removed during construction. The Contractor shall be responsible for seeing that lawns, shrubs, etc. remain alive and leave premises in condition equal to original condition before construction.

3.18 NOT USED

END OF SECTION

SECTION 31 23 18 - ROCK REMOVAL

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes removal of subsurface rock during excavation by mechanical method. The use of explosives for rock removal is not permitted for this Project.

B. Section Includes:

1. Removing identified and discovered rock during excavation.

2. Expansive tools to assist rock removal.

C. Related Sections:

1. Section 31 22 13 - Rough Grading

2. Section 31 23 16 - Excavation

3. Section 31 23 17 - Trenching

4. Section 31 23 23 - Fill

5. Section 31 37 00 - Riprap

1.2 NOT USED

1.3 DEFINITIONS

A. Common Excavation: All excavation required for Work, regardless of the type, character, composition, or condition of the material encountered. All excavation shall be classified as Common Excavation, unless provided for under Rock Removal below.

B. Common Material: All soils, aggregate, debris, junk, broken concrete, and miscellaneous material encountered in Common Excavation, excluding rock as defined below.

C. Rock: Solid mineral material, including boulders, solid bedrock, or ledge rock, with volume in excess of 1/2 cubic yard of solid material which, by actual demonstration, cannot be reasonably excavated with suitable machinery as defined herein. The Engineer may waive the requirements for actual demonstration if the material encountered is well-defined rock.

D. Rock Removal: Removal of rock as defined herein by systematic and continuous drilling, hammering, breaking, splitting, or other methods approved by the Engineer.

E. Suitable Machinery: A track-mounted hydraulic excavator of the 52,800- to 72,500-pound class equipped with a single shank ripper or similar approved equipment.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate proposed method of rock removal.

C. Equipment: Manufacturer information regarding pound class of machinery proposed for rock removal.

D. Survey Report: Submit survey report mapping extent and locations of rock encountered, to be used in calculating total volume of rock removal.

1.5 NOT USED

1.6 PROJECT CONDITIONS

A. Conduct survey of rock uncovered in excavation for structures or trenching for utilities prior to removal of material.

1.7 NOT USED

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions and note subsurface irregularities affecting Work of this section.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Engineer Approval for Rock Removal:

1. Prior to commencement of rock removal, expose all material anticipated to be rock by removing the common material above it and then notify the Engineer.

2. The Engineer, in association with the Contractor or the Contractor's representative, will measure the amount of material to be removed in an effort to reach a mutually agreeable volume for anticipated rock removal.

3. Prior to commencing the proposed rock removal, the Contractor must receive written approval by the Engineer stating the approximate volume of excepted rock removal to receive payment.

4. During rock removal activities, should it become apparent the previously agreed upon volume of rock removal will be exceeded, notify the Engineer immediately. Should the Contractor proceed with rock removal in excess of the previously agreed upon volume, the Contractor will do so at their own risk and expense.

3.3 ROCK REMOVAL BY MECHANICAL METHOD

A. Excavate and remove rock by mechanical method.

1. Use single shank ripper to fracture rock.

2. Drill holes and use expansive tools and wedges to fracture rock.

B. Cut away rock at bottom of excavation to form level bearing.

C. Remove shaled layers to provide sound and unshattered base for footings and foundations.

D. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

E. For vaults and other structures, excavate to the depth necessary to install the structure and to a maximum of 18 inches beyond the outside walls of the vault or structure.

F. Remove excavated materials from site.

G. Correct unauthorized rock removal associated with structural excavations in accordance with backfilling and compacting requirements of Section 31 23 16, Excavation and as directed by Engineer.

H. Correct unauthorized rock removal associated with utility work in accordance with backfilling and compacting requirements of Section 31 23 17, Trenching and as directed by Engineer.

I. If material which would be classified as rock as defined herein is mechanically removed with equipment of a larger size than specified as Suitable Machinery herein, it shall be understood that any added costs for the removal of rock by this method shall be included in the unit price for common excavation and not paid for under this pay item. If material which would be classified as rock as defined herein is mechanically removed without hammering, breaking, or splitting, it will be considered common excavation and not paid for under this pay item. If equipment larger than the suitable machinery as defined herein is brought on the Project Site for the sole purpose of rock removal without hammering, breaking, or splitting, then such excavation will be considered rock removal.

3.4 NOT USED

3.5 FIELD QUALITY CONTROL

A. Request visual inspection of foundation bearing surfaces by Engineer before installing subsequent work.

END OF SECTION

SECTION 31 23 19 – DEWATERING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes temporary dewatering and surface water control systems for open excavations and utility trenches.

B. Section includes:

1. Dewatering systems.
2. Surface water control systems.
3. System operation and maintenance.
4. Water disposal.

C. Related Sections:

1. Section 31 05 16 - Aggregates for Earthwork
2. Section 31 23 16 - Excavation
3. Section 31 23 17 - Trenching

1.2 SUBMITTALS

A. Dewatering Plan:

1. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment; methods; standby equipment and power supply; pollution control facilities; discharge locations to be utilized; and provisions for immediate temporary water supply as required by this Section.
2. Plan to be reviewed by the Engineer prior to the beginning of construction activities requiring dewatering. Review by the Engineer of the design shall not be construed as a detailed analysis of the adequacy of the dewatering system, nor shall any provisions of the above requirements be construed as relieving the Contractor of its overall responsibility and liability for the work.

1.3 DEFINITIONS

A. Dewatering includes the following:

1. Lowering of ground water table and intercepting horizontal water seepage to prevent ground water from entering excavations, trenches, tunnels, and /or shafts.
2. Reducing piezometric pressure within strata to prevent failure or heaving of excavations, trenches, tunnels, and /or shafts.

3. Disposing of removed water.

B. Surface Water Control: Removal of surface water within open excavations.

1.4 QUALITY CONTROL

A. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.

B. Provide all labor, materials, and equipment necessary to dewater trench and structure excavations, in accordance with the requirements of the Contract Documents.

C. Secure all necessary permits to complete the requirements of this Section.

D. Control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.

E. Where the critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement which may develop.

1. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor.

2. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 EQUIPMENT

Dewatering, where required, may include the use of well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment shall be maintained on the jobsite.

PART 3 EXECUTION

3.1 DEWATERING

A. Provide all equipment necessary for dewatering.

1. Have on hand, at all times, sufficient pumping equipment and machinery in good working condition.

2. Have available, at all times, competent workers for the operation of the pumping equipment.

3. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.

B. Dewatering for structures and pipelines shall commence when groundwater is first encountered and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.

C. Site Grading:

1. At all times, site grading shall promote drainage.

2. Surface runoff shall be diverted from excavations.

3. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.

D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.

E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock.

F. Maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.

G. Flotation shall be prevented by maintaining a positive and continuous removal of water. The Contractor shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.

H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means used to prevent pumping of fine sands or silts from the subsurface. A continual check shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.

I. Dispose of water from the work in a suitable manner without damage to the environment or adjacent property. No water shall be drained into work built or under construction without prior consent of the Engineer. Water shall be filtered using an approved method to remove sand and fine sized soil particles before disposal into any drainage system.

J. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.

END OF SECTION

SECTION 31 23 23 – FILL

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes backfilling required at site structures to subgrade elevations, fill under slabs-on-grade or pavement, and fill under landscaped areas. Backfilling for utilities within building proper is included within this section; backfilling for utilities outside building is included in Section 31 23 17, Trenching.

B. Section includes:

1. Backfilling site structures to subgrade elevations.
2. Fill under slabs-on-grade.
3. Fill under paving.
4. Fill for over-excavation.

C. Related Sections:

1. Section 03 11 00 – Concrete Work
2. Section 31 05 13 - Soils for Earthwork
3. Section 31 05 16 - Aggregates for Earthwork
4. Section 31 22 13 - Rough Grading
5. Section 31 23 16 - Excavation
6. Section 31 23 17 - Trenching
7. Section 31 23 24 - Flowable Fill
8. Section 33 11 10 - Water Utility Distribution and Transmission Piping
9. Section 33 11 10.30 – HDPE Water Utility Piping

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop.

B. ASTM International (ASTM):

1. ASTM C403 - Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance

2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).

3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

4. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

5. ASTM D4832 - Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.

1.3 DEFINITIONS

A. Controlled Low Strength Material (CLSM): Also referred to as Flowable Fill elsewhere in these Specifications. A self-compacted, cementitious material.

B. Imported Material: Materials obtained from sources offsite, suitable for specified use.

C. Lift: Loose (uncompacted) layer of material.

D. Optimum Moisture Content:

1. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.

2. Determine field moisture content on basis of fraction passing 3/4-inch sieve.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Imported Materials:

1. Materials Source: Submit name and location of imported fill materials suppliers.

2. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

3. Submit results of aggregate sieve analysis and standard proctor test for granular material.

C. CLSM: Mix designs in accordance with Submittal requirements of Section 31 23 24, Flowable Fill.

1.5 QUALITY ASSURANCE

A. Subsoil and topsoil fill materials: In accordance with Quality Assurance requirements stated in Section 31 05 13, Soils for Earthwork.

B. Aggregate fill materials: In accordance with Quality Assurance requirements stated in Section 31 05 16, Aggregates for Earthwork.

C. CLSM:

1. In-place testing: In accordance with ASTM C403.

2. Compressive testing: In accordance with ASTM D4832.

D. Allowable Tolerances: Final grades shall be plus or minus 0.1-foot.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Subsoil Fill: Type S2, Imported Fill Material, as specified in Section 31 05 13, Soils for Earthwork.

B. Imported Granular Fill: Coarse Aggregate Type A1, Dense-Graded Aggregate with gradation as shown in the Drawings and specified in Section 31 05 16, Aggregates for Earthwork.

C. Concrete:

1. Lean concrete as specified in Section 31 23 24, Flowable Fill, with compressive strength of 100 pounds per square inch (psi).

2. Structural concrete as specified in Section 03 11 00, Concrete Work. Compressive strength as required by the application or as noted in the Drawings.

D. Drain Rock: Coarse Aggregate Type A2, Granular Drain Backfill Material with gradation as shown in the Drawings and specified in Section 31 05 16, Aggregates for Earthwork.

E. Foundation Stabilization Material: Coarse Aggregate Type A1, Dense-Graded Aggregate, 2-1/2-inch - 0 gradation as specified in Section 31 05 16, Aggregates for Earthwork.

PART 3 EXECUTION

3.1 EXAMINATION

A. Prior to Work in this Section, become familiar with Site conditions. In the event discrepancies are found, notify Engineer as to the nature and extent of the differing conditions.

B. Verify sub-drainage, damp-proofing, or waterproofing installation has been inspected.

C. Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.

D. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 SITE CONDITIONS

A. Quantity Survey: The Contractor shall be responsible for calculations for quantities and volume of cut and fill from existing site grades to finish grades established under this contract as indicated in the Drawings or specified and shall include the cost for all earthwork in the total basic bid.

B. Dust Control: Must meet all federal, state, and local requirements. Protect persons and property from damage and discomfort caused by dust. Water surfaces as necessary and when directed by Engineer to quell dust.

C. Soil Control: Soil shall not be permitted to accumulate on surrounding streets or sidewalks nor to be washed into sewers.

D. See provisions for Work in Section 31 25 00, Erosion and Sediment Controls.

3.3 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Control of Water:

1. Excavated areas shall be kept free of water and frost.

2. Bearing surfaces which become softened by water or frost shall be re-excavated to solid bearing at Contractor's expense and backfilled with compacted crushed rock at Contractor's expense.

3. See Section 31 23 19, Dewatering for additional details.

C. Compact subgrade to density requirements for subsequent backfill materials.

D. Cut out soft areas of subgrade not capable of compaction in place and replace with specified granular fill material. See Article 3.5, Over-excavation for Unsuitable Foundation Conditions in Section 31 23 16, Excavation for additional details.

E. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

F. Subgrade to be approved by Engineer prior to placement of structures and commencement of backfill activities.

G. Do not allow or cause any work performed or installed to be covered up or enclosed prior to required tests and approvals. Should any Work be enclosed or covered up, uncover at Contractor's expense.

3.4 BACKFILLING

A. Backfill areas to contours and elevations shown in the Drawings with unfrozen materials.

B. Do not place materials when weather conditions and/or moisture content prevent attainment of specified density.

C. Maintain optimum moisture content of backfill materials to attain required compaction density.

D. Employ placement method that does not disturb or damage other work.

E. Mechanical tampers permitted in confined areas.

F. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

G. Foundation Base for Structures:

1. Bring excavation to required subgrade elevation shown in the Drawings.

2. Place foundation base material to required grade shown in the Drawings.

3. Place foundation base material in 6-inch lifts and compact to 95 percent maximum dry density.

4. Pump Station Wet Well:

a. Concrete Footings and Slabs: Place a 18-inch minimum layer of Coarse Aggregate Type A1, Dense-Graded Aggregate, maximum size of 2-1/2-inch and less than 7% passing the No. 200 sieve extending a minimum of 2-feet beyond the horizontal limits of the foundation to required grade under all concrete footings.

5. Foundations established near finished site grades:

a. Place a 12-inch-thick layer of Coarse Aggregate Type A1, Dense-Graded Aggregate, maximum size of 1-1/2-inch and less than 7% passing the No. 200 sieve in the bottom of footing excavations to minimize disturbance of silty foundation soils during wet weather.

b. Lightly compact material with a light-weight hand-operated vibratory plate compactor.

c. To provide uniform support, slabs should be underlain by a minimum 12-inch-thick granular base course consisting of Coarse Aggregate Type A1, Dense-Graded Aggregate, maximum size of 1-1/2-inch and less than 7% passing the No. 200 sieve.

d. The base course material should be installed in a single lift and compacted to at least 95 percent of the maximum dry density. See Drawings for details.

H. Backfill for Structures:

1. Prior to placing backfill, remove forms, temporary construction, and debris below grade.

2. Backfill shall not be placed against poured concrete until 28 days have passed from completion of original concrete pour, unless otherwise approved by Engineer.

3. Heavy compactors and large pieces of construction equipment shall be kept away from any embedded wall a distance of a least 5 feet in order to avoid the build-up of excessive lateral pressures.

a. Over-compaction of fill near walls should be avoided.

4. Compaction within 5 feet of the walls shall be accomplished using hand-operated vibratory plate compactors or tamping units.

5. The maximum particle size of granular material placed against buried structures shall be limited to no greater than 1-1/2-inch diameter.

6. Structural fill backfill material shall be brought up on all sides of the walls and footings in such a manner as to avoid adverse differential lateral earth pressures on the vertical surfaces.

7. Appropriate lift thickness will depend on the type of compaction equipment used and the type of material being placed. All material shall be compacted to at least 95 percent of the standard maximum dry density.

    a. For moderate- to heavy-weight compactors, a maximum loose lift thickness of 12 inches shall be used.

    b. For hand-operated or small compactors, a maximum loose lift thickness of 8 inches shall be used.

8. Particular care must be taken to avoid damage to the pipe connections to the structure.

9. Utility trench backfill within 10 feet of all structural perimeters shall meet the requirements for structural fill.

I. For areas receiving surface structures or existing paved areas to be constructed or replaced, such as roadways, driveways, parking lots, and sidewalks:

1. Place Coarse Aggregate Type A1, Dense-Graded Aggregate, 3/4-inch-0 gradation in 6-inch lifts.

2. Compact with vibratory equipment to 95 percent maximum density, unless otherwise specified or shown in the Drawings.

J. NOT USED

K. Slope grade away from building minimum 2 percent slope for minimum distance of 10 feet, unless noted otherwise in the Drawings.

L. Make gradual grade changes. Blend slope into level areas.

M. Remove surplus backfill materials from Site in accordance with Section 31 23 16, Excavation.

3.5 FIELD QUALITY CONTROL

A. All testing and reporting shall be conducted and completed by an independent laboratory provided by the Contractor. Initial testing will be paid for by the Contractor. Subsequent testing after failure of initial acceptance testing shall be paid by the Contractor.

B. Perform laboratory material tests in accordance with ASTM D698 (AASHTO T99).

C. In-place compaction testing for structural fill material shall be performed at 2-foot elevation increments in the fill material with at a minimum of one test per each 2,500 square feet of material placed. The Engineer shall be provided with the results of each compaction test at the time of testing.

D. Perform in place compaction tests in accordance with the following:

1. Density Tests: ASTM D2922.

2. Moisture Tests: ASTM D3017.

E. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest at the sole expense of the Contractor.

F. When testing of subgrade is not possible or feasible as detailed above, proof roll compacted fill surfaces under slabs-on-grade, pavers, paving, and as may be otherwise required by the Engineer.

3.6 PROTECTION OF FINISHED WORK

A. Reshape and re-compact fills subjected to vehicular traffic.

3.7 NOT USED

END OF SECTION

SECTION 31 23 24 - FLOWABLE FILL

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes flowable lean concrete mix used for structure backfill, utility bedding and backfill and other subgrade Site Work. Applications also include filling abandoned structures and utilities that remain in place.

B. Section Includes:

1. Structure backfill
2. Utility bedding
3. Utility backfill
4. Filling abandoned utilities

C. Related Sections:

1. Section 33 11 50 - Existing Pipe Abandonment
2. Section 31 23 16 - Excavation
3. Section 31 23 17 - Trenching
4. Section 31 23 23 - Fill
5. Section 33 11 10 - Water Utility Distribution and Transmission Piping
6. Section 33 31 10 - Sanitary Utility Sewerage Piping
7. Section 33 41 10 - Storm Utility Drainage Piping

1.2 DEFINITIONS

A. Flowable Fill: Also referred to as Controlled Low Strength Material (CLSM) elsewhere in the Specifications. Lean cement concrete fill.

B. Utility: Any buried pipe, duct, conduit, manhole, tank, or cable.

1.3 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM C33 - Standard Specification for Concrete Aggregates
2. ASTM C94 - Standard Specification for Ready-Mixed Concrete
3. ASTM C150 - Standard Specification for Portland Cement

4. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete
5. ASTM C403 - Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
6. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete
7. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
8. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
9. ASTM C1040 - Standard Test Methods for Density of Unhardened and Hardened Concrete in Place by Nuclear Methods
10. ASTM D4832 - Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Field Quality-Control Submittals:

1. Mix Design:
    a. Furnish flowable fill mix design for each specified strength.
    b. Furnish separate mix designs when admixtures are required for the following:
        1) Flowable fill Work during hot and cold weather.
        2) Air entrained flowable fill Work.
    c. Identify design mix ingredients, proportions, properties, admixtures, and tests.
2. Furnish test results to certify flowable fill mix design properties meet or exceed specified requirements.

D. Delivery Tickets:

1. Furnish duplicate delivery tickets indicating actual materials delivered to Project Site.

1.5 QUALITY ASSURANCE

A. In-place testing of Flowable Fill: In accordance with ASTM C403.

B. Compressive testing of Flowable Fill: In accordance with ASTM D4832.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Minimum Conditions: The following minimum conditions shall be met at time of flowable fill placement.

1. Do not install flowable fill during inclement weather.

2. Ambient temperature must be at least 34 degrees Fahrenheit (F) and rising.

3. Flowable fill shall be at 40 degrees F.

4. Subgrade on which flowable fill is to be placed shall be free of disturbed or soft material, debris, and water.

1.7 FIELD MEASUREMENTS

A. Verify field measurements before installing flowable fill to establish quantities required to complete the Work.

PART 2 PRODUCTS

2.1 FLOWABLE FILL

A. Flowable Fill:

1. Composed of cement, pozzolans, fine aggregate, water, and admixtures.

2. Low cement content.

3. Non-segregating, self-consolidating, free-flowing, and excavatable material which will result in a hardened, dense, non-settling fill.

4. Compressive strength at 28 days of 100 to 200 pounds per square inch (psi), if not otherwise shown in Drawings or specified.

2.2 MATERIALS

A. Portland Cement: ASTM C150, Type I – Normal.

B. Fine Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.3 ADMIXTURES

A. Air Entrainment: ASTM C260.

B. Chemical Admixture: ASTM C494.

C. Fly Ash: ASTM C618 Class C or F, obtained from residue of electric generating plant using ground or powdered coal.

2.4 MIXES

A. Mix and deliver flowable fill according to ASTM C94, Option C.

B. Flowable Fill Design Mix:

ITEM	PROPERTIES
Cement Content	75 to 100 lb/cu yd
Fly Ash Content	None
Water Content	As specified
Air Entrainment	5 to 35 percent
28-Day Compressive Strength	Maximum 200 psi.
Unit Mass (Wet)	100 to 125 pcf
Temperature, Minimum at Point of Delivery	50 degrees F

C. Provide water content in design mix to produce self-leveling, flowable fill material at time of placement.

D. Design mix air entrainment and unit mass are for laboratory design mix and source quality control only.

2.5 SOURCE QUALITY CONTROL

A. Test and analyze properties of flowable fill design mix and certify results for the following:

1. Design mix proportions by weight of each material.

2. Aggregate: ASTM C33 for material properties and gradation.

3. Properties of plastic flowable fill design mix including:

   a. Temperature

   b. Slump

   c. Air entrainment

   d. Wet unit mass

   e. Yield

   f. Cement factor

4. Properties of hardened flowable fill design mix including:

   a. Compressive strength at 1-day, 7 days, and 28 days. Report compressive strength of each specimen and average specimen compressive strength.

b. Unit mass for each specimen and average specimen unit mass at time of compressive strength testing.

B. Prepare delivery tickets containing the following information:

1. Project designation
2. Date
3. Time
4. Class and quantity of flowable fill
5. Actual batch proportions
6. Free moisture content of aggregate
7. Quantity of water withheld

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify excavation specified in Section 31 23 16, Excavation and trenching specified in Section 31 23 17, Trenching is complete.

B. Verify utility installation as specified in elsewhere in the specifications is complete and tested before placing flowable fill.

C. Verify excavation is dry and dewatering system is operating, as may be required, prior to placement of flowable fill.

3.2 PREPARATION

A. Support and restrain utilities to prevent movement and flotation during installation of flowable fill.

B. Protect structures and utilities from damage caused by hydraulic pressure of flowable fill before fill hardens.

C. Protect utilities and foundation drains to prevent intrusion of flowable fill.

3.3 INSTALLATION – FILL, BEDDING, AND BACKFILL

A. Place flowable fill by chute, pumping, or other methods as approved by Engineer.

B. Place flowable fill in lifts to prevent lateral pressures from exceeding structural capacity of structures and utilities.

C. Place flowable fill evenly on both sides of utilities to maintain alignment.

D. Place flowable fill to elevations indicated on Drawings without vibration or other means of compaction.

3.4 INSTALLATION – FILLING ABANDONED UTILITIES

A. As specified in Section 33 11 50, Existing Pipe Abandonment.

3.5 FIELD QUALITY CONTROL

A. Perform inspection and testing according to ASTM C94.

1. Take samples for tests for every 100 cubic yards of flowable fill, or fraction thereof, installed each day.

2. Sample, prepare, and test four compressive strength test cylinders according to ASTM D4832. Test one specimen at 3 days, one at 7 days, and two at 28 days.

3. Measure temperature at point of delivery when samples are prepared.

B. Further construction proceeding upon placed flowable fill will be permitted only after initial set is attained, as measured by ASTM C 403.

1. Perform in place penetration (density) tests using handheld penetrometer to measure penetration resistance of hardened flowable fill.

2. Perform tests at locations as directed by Engineer.

C. Defective Flowable Fill: The Engineer reserves the right to reject all flowable fill failing to meet the following test requirements or flowable fill delivered without the following documentation.

1. Test Requirements:

a. Minimum temperature at point of delivery.

b. Compressive strength requirements for each type of fill.

2. Documentation: Duplicate delivery tickets.

D. No traffic or construction equipment shall be allowed on flowable fill for a least 24 hours after placement.

3.6 CLEANING

A. Remove spilled and excess flowable fill from Project Site.

B. Restore facilities and Site areas damaged or contaminated by flowable fill installation to existing condition before installation.

END OF SECTION

SECTION 31 50 00 - EXCAVATION SUPPORT AND PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes shoring and support systems of all types necessary to protect existing utility facilities and new utility facilities.

B. The Contractor is responsible for the selection and design of excavation support systems and the design of utility support systems in conformance with Federal, State, and City requirements and the minimum design criteria specified herein.

C. Temporary shoring is to be installed for protection of the existing trees to remain, structures to remain, buried utilities to remain, adjacent roadways and walkways, and surrounding properties.

D. Care must be taken during the planning and construction of earth support systems to minimize settlements and displacements of the shoring system itself and to surrounding properties.

E. Related Sections:

1. Section 31 23 16, Excavation
2. Section 31 23 17, Trenching
3. Section 31 23 19, Dewatering
4. Section 31 23 23, Fill
5. Section 33 11 10, Water Utility Distribution and Transmission Piping.

1.2 DESIGN CRITERIA

A. Design excavation support systems and all components to support the earth pressures, unrelieved hydrostatic pressures, utility loads, equipment, traffic, railroad, and construction loads including impact, and other surcharge loads in such manner as will allow the safe and expeditious construction of the permanent structures to minimize ground movement or settlement, and to prevent damage to adjacent structures, roadways, railroads, and utilities.

B. Design support members to resist the maximum loads expected to occur during the excavation and support removal stages.

C. Design system so that water seepage is minimized. Provide dewatering and positive means for preventing sloughing and containing material behind lagging.

D. Design system to prevent sloughing and to contain running sand and silt behind the lagging.

E. Vertical support capacity shall be provided for wall systems and internal bracing elements for loads due to vertical force components and live loads on any portion of the system.

F. Design calculations and shop drawings of all excavation support systems.

1. Calculations and shop drawings shall be made and stamped by a registered Professional Civil or Structural Engineer experienced in the design of excavation support systems in the State of Oregon.

2. Comply with the applicable requirements of OSHA and the Oregon equivalent Structural Specialty Code with respect to excavation and construction.

1.3 SUBMITTALS

A. Section 01 33 00, Submittals - Submittal Procedures: Requirements for submittals.

B. Excavation Support Systems

1. Plans and details for trench and excavation support systems.

a. Calculations and shop drawings shall be made and stamped by an State of Oregon-registered Professional Engineer experienced in the design of excavation support systems and shall comply with the applicable requirements of OSHA and the Oregon equivalent Structural Specialty Code with respect to excavation and construction.

1) Arrangement, size, and details for individual excavation support systems.

2) Construction methods and sequencing to be used for the installation and removal of individual excavation support systems.

b. Provide plans, details, and calculations for Engineer review prior to the beginning of construction activities requiring such systems.

c. Review by the Engineer of the submitted design shall not be construed as a detailed analysis of the adequacy of the support system, nor shall any provisions of the above requirements be construed as relieving overall responsibility and liability for the work.

2. Provide plans, details, and calculations for trench and excavation support systems as required to obtain all necessary construction permits.

3. No excavations shall be started until the submittal review is complete and proper permits are obtained.

C. Excavation Plan

1. Designed to prevent damage to existing and surrounding properties.

D. Contingency Plan

1. Provide alternative procedures to be implemented if the excavation support systems are found to perform unfavorably or if obstructions are encountered in the installation of excavation support systems.

2. Contingency plan is to demonstrate a preparedness to mitigate the effects of movement or settlement.

3. The following minimum requirements for a contingency plan are:

a. Measures to be taken in order to protect existing facilities and neighboring properties from additional settlement or movement.

b. Identification of all material, manpower, equipment, and other items to be available and onsite at all times while excavations and dewatering activities are ongoing and reasonably after the work has been completed.

E. Site Conditions Survey

1. Videotape surveys, photographs, and other data significant in noting the pre-construction conditions of the existing Project Site, as well as the pre-construction conditions of the neighboring properties and their existing structures.

2. Provide to the Owner for record purposes prior to, but not more than 3 weeks before, commencement of any construction activities.

3. A complete set of all photographs and survey data of the post-construction conditions shall be completed and submitted prior to final inspection by the Owner and Engineer.

1.4 QUALITY ASSURANCE

A. Contractor is solely responsible for quality assurance of temporary shoring.

B. At each excavation support system location, provide the following:

1. Continual verification system is planned, executed, and maintained in accordance with applicable codes, regulations, and good construction practice.

2. Systematic observation of suitability of shoring materials.

3. Installation, excavation, settlement, and lateral deflection monitoring.

4. Groundwater control.

5. Adjacent construction activities.

6. Other factors, as necessary.

1.5 CONTRACTOR QUALIFICATIONS

A. The work of this Section shall be done by a firm specializing in this type of work. The firm shall:

1. Regularly and presently perform shoring installation as one of their principal services.

2. Have technical qualifications, experience, training, and facilities to properly install shoring.

3. Provide the services of a supervising engineer, registered in the State, with at least 5 years of experience in the design and construction of shoring walls.

4. A foreman or superintendent experienced in the installation and removal shoring walls shall be present while this work is performed.

1.6 PERMITTING

A. Secure all permits necessary to complete the requirements of this Section.

PART 2 PRODUCTS

2.1 GENERAL

A. Materials and equipment shall be safe and in good condition and shall conform to local, state, and federal codes.

PART 3 EXECUTION

3.1 GENERAL

A. Provide sheeting, shoring, and other protection and support systems wherever required, in accordance with current local, state, and federal laws, codes, and ordinances.

B. The Contractor is solely responsible for excavation protection and worker safety.

C. The Contractor shall be solely responsible for the protection of existing utilities and structures. Under no circumstance shall work threaten the integrity (physical and operational) of these utilities and/or structures.

3.2 EXCAVATION SUPPORT SYSTEMS

A. The excavation support systems shall not disturb the state of soil adjacent to the trench or excavation and below the excavation bottom.

B. Water control measures shall be provided at all times in accordance with the requirements specified in Section 31 23 19, Dewatering.

C. The support system shall extend below the main excavation bottom elevation to a depth adequate to prevent hydrostatic uplift, seepage and piping, and lateral movement and to adequately support applied vertical loads.

D. Damage to existing utilities or structures during installation of excavation support system shall be avoided. If damage occurs, it shall be repaired at no cost to the Owner and to the satisfaction of the utility owner.

E. A company representative from the excavation support system shall be onsite during initial setup of the system. Install excavation support system in strict conformance with the representative's recommendations.

3.3 CONTINGENCY PLAN IMPLEMENTATION

A. Excess movements or settlements: Work shall be stopped immediately and the causes of excess or detrimental movements evaluated if:

1. Damage is noted to existing site features or surrounding properties.

2. Shoring wall movements exceed the limits specified herein or per submitted calculations.

B. Immediately notify the Engineer and begin the implementation of the approved contingency plan to mitigate the effects of settlement or movement occurred.

3.4 REMOVAL OF SUPPORT SYSTEMS

A. Removal of excavation support systems shall be performed in a manner that does not disturb or damage adjacent new or existing structures or utilities.

B. Fill all voids immediately with specified backfill material.

C. All damage to property resulting from removal shall be promptly repaired at no cost to the Owner. The Engineer shall be the sole judge as to the extent and determination of the methods and materials for repair.

3.5 NOT USED

END OF SECTION

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 32 11 23 - AGGREGATE BASE COURSES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes construction of an aggregate subbase and base course for placement under asphalt or concrete paving, unit paving, or placed and left exposed.

B. Section Includes:

1. Aggregate subbase
2. Aggregate base course

C. Related Sections:

1. Section 31 22 13 - Rough Grading
2. Section 31 23 17 - Trenching
3. Section 31 23 23 - Fill
4. Section 31 05 16 - Aggregates for Earthwork
5. Section 32 12 16 - Asphalt Concrete Pavement

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications
2. T11, Standard Method of Test for Materials Finer Than 75μm (No. 200) Sieve in Mineral Aggregates by Washing
3. T27, Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates
4. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

B. ASTM International (ASTM):

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
2. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

4. ASTM D2940 - Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports

5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

1.3 DEFINITIONS

A. Completed Course: Compacted, unyielding, free from irregularities and standing water, with smooth, tight, even surface, true to grade, line, and cross-section.

B. Completed Lift: Compacted with uniform cross-section thickness.

C. Keystone: Fine aggregate used to aid in binding of loose surface stone.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit data for geotextile fabric and herbicide.

C. Materials Source: Submit name of aggregate materials suppliers.

D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.

PART 2 PRODUCTS

2.1 SHOULDER AGGREGATE

A. Of the size shown on the Plans.

B. Coarse Aggregate: Type A1, Dense-Graded Aggregate as specified in Section 32 05 16, Aggregates for Earthwork.

2.2 DENSE-GRADED BASE AGGREGATES

A. Of the size shown on the Plans.

B. Coarse Aggregate: Type A1, Dense-Graded Aggregate as specified in Section 32 05 16, Aggregates for Earthwork.

2.3 OPEN-GRADED BASE AGGREGATES

A. Of the size shown on the Plans.

B. Coarse Aggregate: Type A2, Granular Drain Backfill Material as specified in Section 32 05 16, Aggregates for Earthwork.

2.4 SOURCE QUALITY CONTROL

A. Perform tests necessary to locate acceptable source of materials meeting specified requirements.

B. Final approval of aggregate material will be based on test results of installed materials.

C. Should separation of coarse from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

2.5 EQUIPMENT

A. Compaction Equipment: Adequate in design and number to provide compaction and to obtain specified density for each layer.

2.6 ACCESSORIES

A. Geotextile Fabric: AASHTO M288; non-woven, polypropylene.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

A. Obtain Engineer's acceptance of subgrade before placing base course or surfacing material.

B. Verify compacted substrate is dry and ready to support paving and imposed loads.

1. Proof roll substrate with equipment approved by the Engineer in minimum two perpendicular passes to identify soft spots.

2. Remove soft substrate and replace with compacted fill as specified in Section 31 23 23.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place base course or surfacing materials in snow or on soft, muddy, or frozen subgrade.

3.3 HAULING AND SPREADING

A. Hauling Materials:

1. Do not haul over surfacing in process of construction.

2. Loads: Of uniform capacity.

3. Maintain consistent gradation of material delivered; loads of widely varying gradations will be cause for rejection.

B. Spreading Materials:

1. Distribute material to provide required density, depth, grade, and dimensions with allowance for subsequent lifts.

2. Produce even distribution of material on prepared surface without segregation.

3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

4. Maintain consistent gradation of material. Widely varying gradation will be cause for rejection.

3.4 CONSTRUCTION OF COURSES

A. Untreated Aggregate Base Course:

1. If the required compacted depth of the base course exceeds 6 inches, construct it in two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches.

2. Completed Course Total Thickness: As shown on the Plans, 8-inch minimum.

3. Spread lift on preceding course to required cross-section. Place each layer in spreads as wide as practical and to the full width of the course before a succeeding layer is placed.

4. Lightly blade and roll surface until thoroughly compacted.

5. Add keystone to achieve compaction and as required when aggregate does not compact readily due to lack of fines or natural cementing properties, as follows:

a. Use 3/4-inch leveling course or surfacing material as keystone.

b. Spread evenly on top of base course, using spreader boxes or chip spreaders.

c. Roll surface until keystone is worked into interstices of base course without excessive displacement.

d. Continue operation until course has become thoroughly keyed, compacted, and will not creep or move under roller.

6. Blade or broom surface to maintain true line, grade, and cross-section.

B. Gravel Surfacing and Leveling Course:

1. Place shoulder aggregates in a single layer, or two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer shall not exceed 9 inches.

2. Spread on preceding course in accordance with cross-section shown.

3. Blade lightly and roll surface until material is thoroughly compacted.

4. Complete Total Thickness: As shown on the Plans, 8-inch minimum.

3.5 ROLLING AND COMPACTION

A. Commence compaction of each layer of base immediately after spreading operations and continue until density of 95 percent of maximum density has been achieved as determined by AASHTO T99.

B. Roll each layer of material until there is no appreciable reaction or yielding under the compactor before succeeding layer is applied.

C. Shape and maintain the surface of each layer during compaction operations. Commence rolling at outer edges and continue toward center; do not roll center of road first.

D. Apply water as needed to obtain specified densities.

E. Place and compact each lift to the required density before succeeding lift is placed.

F. Surface Defects: Remedy by loosening and rerolling. Reroll entire area, including surrounding surface, until thoroughly compacted.

G. Finished surface shall be true to grade and crown before proceeding with surfacing.

3.6 SURFACE TOLERANCES

A. Blade or otherwise work surfacing as necessary to maintain grade and cross-section at all times, and to keep surface smooth and thoroughly compacted.

B. Finished Surface of Untreated Aggregate: Within plus or minus 0.04-foot of grade shown at any individual point.

C. Overall Average: Within plus or minus 0.04-foot from crown and grade specified.

3.7 FIELD QUALITY CONTROL

A. Quality control testing shall be performed by an independent testing laboratory provided by the Owner.

B. Refer to table below for minimum sampling and testing requirements for aggregate base course and surfacing. The Owner reserves the right to complete additional testing.

Property	Test Method	Frequency	Sampling Point
Gradation	AASHTO T11 and AASHTO T27	One sample every 500 tons but at least every 4 hours of production	Roadbed after processing
Moisture Density (Maximum Density)	AASHTO T99	One test for every aggregate grading produced	Production output or stockpile
In-Place Density and Moisture Content	AASHTO T310	One for each 500 ton but at least every 10,000 square feet of area	In-place completed, compacted area

3.8 CLEANING

A. Remove excess material from the Work area. Clean stockpile and staging areas of all excess aggregate. Restore per Specifications as applicable.

END OF SECTION

SECTION 32 12 16 - ASPHALT CONCRETE PAVEMENT

PART 1 GENERAL

1.1 SCOPE

This section includes the construction of asphalt concrete pavement.

1.2 REFERENCE STANDARDS

A. References herein to "AASHTO" shall mean Association of American State Highway Transportation Officials.

B. Standard Specifications: Where the term "Standard Specifications" is used, such reference shall mean the current edition of the Oregon Department of Transportation (ODOT) Standard Specifications for Highway Construction. Where reference is made to a specific part of the Standard Specifications, such applicable part shall be considered as part of this section of the Specifications. In case of a conflict in the requirements of the Standard Specifications and the requirements stated herein, the requirements herein shall prevail.

1.3 DEFINITIONS

A. Maximum Density Test (MDT): Theoretical maximum density of the bituminous mixture determined by multiplying the theoretical maximum specific gravity, determined by ASTM D2041 (Rice), by 62.4 pounds per cubic foot.

1.4 SUBMITTALS

A. Aggregate Qualification Tests: In accordance with Standard Specifications Section 00640 for aggregate used in aggregate base.

B. Aggregate Qualification Tests: In accordance with Standard Specifications Section 00745 for aggregate used in asphalt concrete.

C. Job mix formula shall be an approved job mix formula. Submit formula, supplier, and product identification to the Engineer 30 days prior to start.

1. Definite percentage for:

    a. Each sieve fraction.

    b. New asphalt cement.

    c. Recycled asphalt pavement.

2. Temperature of completed mix when discharged from mixer.

3. Character and quantity of anti-strip and recycling agents.

1.5 QUALITY ASSURANCE

A. All testing to determine compliance with the specifications shall be performed by an independent testing laboratory contracted by the Contractor and approved by the Engineer. All testing costs shall be borne by the Contractor.

B. A minimum of five nuclear densometer readings shall be taken in random locations within every test area. Each test area shall not exceed 200 tons of asphalt; however, smaller areas may be designated by the Engineer.

C. The surface smoothness of the new asphalt concrete pavement shall be such that when a 10-foot straightedge is laid longitudinally across the paved area in any direction, the new pavement shall not deviate from the straightedge more than 1/8-inch. Surface drainage shall be maintained. Additionally, paving must conform to the design grade and crown and contain no abrupt edges, low or high areas or any other imperfections as determined by the Engineer. Pavement construction not meeting these requirements will be repaired by grinding the existing pavement to a 1-1/2-inch depth and replacing with Level 3, 1/2-inch dense graded Asphaltic Concrete the full width at no cost to Owner.

1.6 PRE-PAVING CONFERENCE

A. Any supervisory personnel of the Contractor and any subcontractors who are to be involved in the paving work shall meet with the Engineer, at a time mutually agreed upon, to discuss methods of accomplishing all phases of the paving work.

B. The Contractor shall be prepared to review the size and type of equipment to be used and the anticipated rate of placement to determine equipment needs.

PART 2 PRODUCTS

2.1 AGGREGATE MATERIAL

A. Aggregate Base for Dense Graded Asphalt Concrete: The aggregate material shall be a clean, well-graded crushed base aggregate conforming to the Standard Specifications. Base course shall be 1-1/2-inch minus aggregate and leveling course shall be 3/4-inch minus aggregate.

2.2 ASPHALT CONCRETE PAVEMENT

A. Dense Graded Hot Mix Asphalt Concrete

1. Use Level 3, 1/2-inch-dense graded, PG 70-22 HMAC. Conform to the requirements as specified in Section 00745 of the Standard Specifications. Conform to the requirements as specified in Section 00745 of the Standard Specification.

2. Asphaltic concrete pavement delivered to the site shall be accompanied by a ticket with the approved "job mix formula" number shown. Loads without tickets identifying the job mix formula will not be accepted.

3. Percent of recycled asphalt pavement used in new asphalt pavement shall not exceed 30 percent. Recycled asphalt pavement may not be used in top wearing course unless otherwise approved by the Engineer.

B. Tack Coat

In accordance with Standard Specifications. Use AR 4000, AC-20 asphalt, or CSS-1 emulsified asphalt C.

C. Seal and Cover Coat

Asphalt material shall be CRS-2 cationic emulsified asphalt. Cover stone shall conform to size 1/4-inch #10 aggregate in the Standard Specifications.

D. Subgrade Geotextile

1. Dense Graded AC Mix-For subgrade separation using dense graded asphalt concrete, use subgrade geotextile with Certification Level B as specified in Section 02320 of the Standard Specifications.

E. Subgrade Stabilization

In the event that unstable materials are encountered during excavation, the additional excavation and installation of geotextile fabric and 12 inches of rock substructure will be required, as directed. Conform to the requirements as specified in Section 00331 of the Standard Specifications. For subgrade separation, use subgrade geotextile with Certification Level B as specified in Section 02320 of the Standard Specifications.

PART 3 EXECUTION

3.1 AGGREGATE PAVEMENT BASE

A. Place pavement base to the depth shown on the plans or as specified in all cases, pavement base shall be compacted to a minimum depth of 6 inches. Bring the top of the pavement base to a smooth, even grade at a distance below finished grade equivalent to the required pavement depth.

B. Compact the pavement base with mechanical vibratory or impact tampers to a density of not less than 95 percent of the maximum density, as determined by AASHTO T-99.

C. Obtain the Engineer's acceptance of the subgrade before beginning construction of the aggregate base course.

D. When, in the judgment of the Engineer, the weather is such that satisfactory results cannot be secured, suspend operations. Place no aggregate base course in snow or in soft, muddy, or frozen subgrade.

E. If the required compacted depth of aggregate base course exceeds 6 inches, construct in two or more lifts of approximately equal thickness. Maximum compacted thickness of any one lift shall not exceed 6 inches. Compact each layer to the specified density before a succeeding lift is placed.

3.2 ASPHALT CONCRETE PAVEMENT

A. Construct asphalt concrete pavement in accordance with Section 00745 of the Standard Specifications.

B. Conform to the requirements for prime coat and tack coat in the Standard Specifications. Tack coat all edges of existing pavement, manhole and clean out frames, inlet boxes, and like items. When rate is not specified, asphalt will be applied at the rate of 0.1-gallon per square yard.

C. Obtain the Engineer's acceptance of the aggregate base course before beginning construction of the asphalt concrete wearing course.

D. Hot mix asphalt shall be placed on dry, prepared surfaces, when air temperature in the shade of 40 degrees Fahrenheit (F) or warmer, unless otherwise authorized by the Engineer.

E. Placing asphalt pavement during rain or other adverse weather conditions will not be permitted unless otherwise authorized by the Engineer, except that asphalt mix in transit at the time these adverse conditions occur may be placed provided it is of proper temperature, the mix has been covered during transit, and it is placed on a foundation free from mud or free-standing water.

F. Correct any defects in material and workmanship, as directed, when determined detrimental by the Engineer. These include segregation of materials, non-uniform texture, and fouled surfaces preventing full bond between successive spreads of mixture. The corrections or replacement of defective material or workmanship shall be at the Contractor's expense.

G. Compact the bituminous mixture to at least 92 percent of the Theoretical Maximum Density.

H. The finished surface of each course of layer of mixture shall be of uniform texture, smooth, and free of defects and shall closely parallel that specified for the top surface finished grade. Remove and replace boils and slicks immediately with suitable materials.

I. The surface of each layer when tested with a Contractor-furnished 10-foot straightedge shall not vary from the testing edge by more than 0.02-foot for underlying courses of pavements and 0.015-foot for finished top courses or wearing courses of pavements. At no point shall the finished top of the wearing course vary more than 0.03-foot from the specified finished grade.

J. Lift thickness shall be as shown on the drawings or specified, but not to exceed 3 inches.

K. Do not place asphalt concrete pavement on emulsified asphalt (tack coat) until the asphalt separates from the water (breaks) but before it loses its tackiness.

L. Asphalt and sand seal edges where new asphalt concrete meets existing pavement.

3.3 FIELD QUALITY CONTROL

A. Job mix will be sampled immediately behind the paving machine.

B. Temperature of the mix will be measured immediately behind the paver.

C. The theoretical maximum specific gravity of the bituminous mixture will be determined in accordance with ASTM D2041.

D. Properties of the job mix will be measured using ASTM D2041.

E. Density of the compacted job mix will be measured in accordance with ASTM D2922.

3.4 ADJUSTMENT OF EXISTING MANHOLE COVERS AND VALVE BOXES

Prior to placing asphalt concrete pavement, the Contractor shall make all necessary adjustments to existing manhole frames and covers, and valve box covers to ensure that the tops of the manhole covers or valve box lids are flush with the finished grade of the adjoining pavement or ground surface, and that valve boxes and PVC pipes are centered and plumb over operating nut valve.

END OF SECTION

SECTION 32 91 13 - SOIL PREPARATION

PART 1 GENERAL

1.1 SUMMARY

A. Furnish labor, material and equipment required for placement and amendment of topsoils for areas to be planted, and the establishment of finish grades as shown on the Drawings and as specified herein.

B. Coordinate work with installation of other site work including earthwork, irrigation, seeding, and planting.

1.2 DEFINITIONS

A. Finish Grade: Elevation of finished surface of amended topsoil soil.

B. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

C. Amended Topsoil: Native or imported topsoil or surface soil modified with organic soil amendments and organic fertilizers.

D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

E. Topsoil: See Part 2 – Products.

1.3 SUBMITTALS

A. Product Data. Include Material Safety Data Sheets (MSDS) where applicable: For the following:

1. Organic Fertilizers, including application rates.
2. Organic Soil Amendments.

B. Samples for Verification: For the following:

1. 1/2 cubic foot compost.

2. 1/2 cubic foot of each imported topsoil. Furnish one sample from each site from which soil is to be furnished.

C. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:

1. Manufacturer’s certified analysis for standard products.

2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

D. Qualification Data: For testing agencies.

E. Material Test Reports:

1. Soil Fertility and Agricultural Suitability Analyses and Recommendations Reports for the following:

a. Existing on-site topsoil: From three typical locations as selected by Owner's Representative, minimum 30 days prior to beginning soil preparation work.

b. Imported topsoil: Minimum 30 days prior to beginning soil preparation work.

c. Amended topsoils: Provide soil analyses and results for soil samples taken from 3 typical locations as selected by Owner's Representative, minimum 7 days after soil preparation work has been completed and prior to installing plants.

2. Compost Analysis: Provide analysis for one representative sample of compost minimum 30 days prior to compost being delivered to Project Site and an analysis for one representative sample of compost delivered to the Project Site.

3. Soil Compaction Test: Provide results of soil compaction tests minimum of 7 days prior to planting and seeding.

F. Delivery Slips: Provide delivery slips as proof of shipment of specified materials.

1.4 QUALITY ASSURANCE

A. Soil Fertility and Agricultural Suitability-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

1. Acceptable Soil Testing Laboratories are:

a. A & L Western Agricultural Laboratories, (503) 968-9225.
b. Western Laboratories, Inc, (800) 658-3858.

B. Soil Analyses: Furnish soil analyses by a qualified soil-testing laboratory stating:

1. Soil Composition: USDA particle size analysis indicating percentages of sand, silt and clay, and percent organic matter.

2. Macro and micronutrient fertility tests as determined by pH, salinity, nitrate nitrogen, ammonium nitrogen, phosphate phosphorous potassium, calcium, magnesium, soluble copper, zinc, manganese, iron, saturation extract boron and sodium analyses.

3. Sodium Absorption Ratio (SAR).

4. Recommendations by the soil testing lab for fertilizer and soil amendments in pounds per 1,000 square foot or tons per acre, as necessary to correct soil deficiencies.

C. Compost Testing Laboratory Qualifications: An independent laboratory, with the experience and capability to conduct the testing indicated following U.S. Composting Council Seal of Testing Assurance (STA) procedures, or equivalent.

1. Acceptable STA Compost Testing Laboratories are:

a. A & L Western Agricultural Laboratories, (503) 968-9225.
b. Control Laboratories, (831) 724-5422.

D. Compost Analysis: Provide documentation from supplier that compost has reached a monitored temperature of 140 degrees Fahrenheit for at least one week. Engage an independent soil testing laboratory to test representative sample(s) of compost and furnish compost analysis report for the following parameters:

1. Percent organic matter, percent moisture, percent inerts (foreign matter), pH, soluble salts, and particle size.

2. Nutrient content, including: Nitrogen (N), Phosphorus (P), Potassium (K), Calcium (Ca), and Magnesium (Mg) and Sulfur (S).

3. Trace Metals, including: Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni), and Zinc (Zn).

4. Maturity Indicator. Provide bio-assay results. Provide Carbon-Nitrogen ratio.

5. Stability Indicator: Provide respiration test results.

E. Request inspection and allow observation by Owner’s Representative of prepared soils before planting.

F. Soil Compaction Testing: Furnish soil compaction standard tests per ASTM 698. Request inspection and allow observation by Owner's Representative of prepared soils before planting.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver packaged materials in manufacturer's unopened containers fully identified by name, brand, type, weight and analysis.

B. Store and handle packaged materials to prevent damage and intrusion of foreign matter.

C. Store stockpiled topsoil in area designated by Owner’s Representative. Provide erosion control measures for stockpiled topsoil on site to prevent contamination of the soil. Refer to 31 23 16, Excavation for control of dust and erosion.

1.6 SOIL AMENDMENT BID QUANTITIES

A. Bid quantities and types of soil amendments shall be based upon those listed in this Section. Types of amendments required and quantities shall be adjusted as necessary based upon

actual results of soil fertility and agricultural suitability analyses and recommendations for on-site topsoils.

B. For bidding purposed only, calculate the following amounts per 6-inch lift of topsoil over 1000 square-feet of landscape area:

1. 25 lbs. Gypsum (Calcium sulfate)
2. 35 lbs. Calcium carbonate limestone
3. 35 lbs. Dolomite limestone
4. 6 cu-yds Compost

1.7 SITE CONDITIONS

A. Topsoil placement and soil preparation shall not take place during periods where saturated soil or surface water is present in work areas.

B. Work shall not take place when temperature is less than 32 degrees Fahrenheit, or when frozen soil exists on site.

1.8 COORDINATION

A. Coordinate soil preparation 32 91 13, Soil Preparation such that topsoil, soil amendments and fertilizers are incorporated into ground fill areas in specified lifts to specified depths below finish grade for both planting areas and lawn areas. Topsoils shall be amended per recommendations of the Soils Testing Laboratory.

B. Coordinate work with installation of other site work, including irrigation, seeding, and planting.

PART 2 PRODUCTS

2.1 TOPSOIL

A. Topsoil Definition: ASTM D 5268; natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles, conforming to USDA classification for Loam or Sandy Loam; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inches in any dimension; and free of weeds, roots, and other deleterious materials, with the following physical properties:

1. Organic Matter: 6 percent minimum.

2. Sodium Adsorption Ratio (SAR): less than 6.0.

3. Saturation Extract concentration for Boron: less than 1.0

4. pH range of from 6 to 8 (plus 0, minus 0.5).

5. Saturation Extract Conductivity: less than 4.0 dS/m @ 25 degrees Celsius as determined in a saturation extract.

6. Non-soil components: less than 1 percent by volume.

7. Heavy metal concentrations: below the USDA per year load limit.

8. Minimal weed seed.

    a. If regenerative noxious weeds (including, but not limited to, quack grass, nutsedge grass, and horsetail) are present in the soil, all resultant growth including roots shall be removed throughout one-year period after acceptance of work at no additional cost to Owner.

B. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth. Ensure no contamination of the soils occurs during earthwork and grading, and that the soil remains friable and free of debris.

1. Import Topsoil: Supplement on-site topsoil with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.2 ORGANIC SOIL AMENDMENTS

A. Compost: Well-decomposed, commercially manufactured, stable, and weed-free organic matter from agricultural, food, biosolids, or yard debris sources; pH range of 5.5 to 8.0; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and shall conform as follows:

1. Tested, at minimum, every six months for noxious weeds.

2. Organic matter source (feedstock): Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

3. Organic Matter Content: 60 to 80 percent of dry weight as determined by ash method.

4. Moisture Content: 35 to 55 percent by weight

5. Free of refuse (less than 1 percent by dry weight), plastics, contaminants or any material toxic to plant growth.

6. Processed to meet U.S. Composting Council's Seal of Testing Assurance Program, or equivalent.

7. Carbon to Nitrogen Ratio: 40 to 1 or lower.

8. Composted for a minimum of 9 months and reach a monitored temperature of 140 degrees Fahrenheit for at least one week.

2.3 FERTILIZER

A. Organic fertilizer composition and rate to be determined and adjusted based upon soil analysis report. For bidding purposes, assume: Walts Organic Fertilizer, Organic Garden Blend 6-2-5, or approved equal.

1. Application rate @ 20 pounds per 1000 square feet in all planting beds and seeded areas.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water- insoluble nitrogen, phosphorus, and potassium derived from natural organic sources in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

PART 3 EXECUTION

3.1 EXAMINATION OF SITE CONDITIONS

A. Examine for site conditions that will adversely affect execution, permanence, quality of work, and survival of plant material and grasses.

B. Verify that subgrades and slopes of lawn and planting areas are acceptable to Owner's Representative prior to commencing work of this Section.

C. Should the Contractor find any discrepancies between the Drawings and the physical conditions, inform the Owner's Representative immediately for clarification.

D. Begin Work required under this Section only after conditions are satisfactory.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, and existing lawns and exterior plants from damage caused by soil preparation operations.

B. Prepare soils at a time when moisture conditions will permit proper cultivation.

C. Remove stones over 1-inch diameter, sticks, roots, mortar, concrete, rubbish, debris, and all materials harmful to plant life, and legally dispose of them off Owner's property.

D. Remove as required to eradicate noxious weed growth and roots.

1. Achieve complete removal of all weeds within all areas receiving new plantings and lawn areas.

2. In planting beds, kill achieved by working soil is permissible for annual non-noxious broad-leaf type weeds.

E. Locate and securely mark or flag irrigation sprinkler heads, area drains, catch basins, clean outs, manholes, valve boxes, and other site improvements not extending above finish grade. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways in accordance with 31 23 16, Excavation.

3.3 SOIL PREPARATION FOR PLANTING AREAS

A. This article pertains to those shrub bed areas where mass plantings of trees, shrubs and ground cover plants are scheduled.

B. Prepare subgrades by excavating and removing soil, rock and other construction material to 12 inches below finish grade. Cross-rip subgrades to depth of 6 inches prior to placing topsoil.

C. Place topsoil to depth as noted on Plant Legend then place compost, soil amendments, and fertilizers as recommended in Agricultural Soil Suitability Report per 1,000 square feet and rototill thoroughly to a depth of 8 inches. Place remainder of topsoil, compost, soil amendments, and fertilizers as recommended in Agricultural Soil Suitability Report per 1,000 square feet and rototill thoroughly to a depth of 8 inches, allowing for compaction, natural settlement, and depth of specified mulch.

1. It is the Contractor’s option to set up a facility on-site for the preparation and amendment of topsoils, instead of preparing and amending the topsoils in place as indicated in the paragraph above.

2. Set up facility in location as directed by Owner's Representative.

D. Water lightly and allow planting mix to settle. Add additional material at mixture indicated in paragraph above to bring soil level to grades shown on the Drawings with allowance at pavement edges for mulch placement. Provide compaction to 85 percent relative density.

E. Meet lines, grades and elevations shown, after light rolling and natural settlement. Fine grade shrub and ground cover areas to smooth even surface with loose, uniformly fine texture. Rake and drag shrub and ground cover areas to remove ridges and fill depressions to obtain firmness and finish grades preparatory to receiving planting.

F. Remove stones over 1/2-inch in any dimension and sticks, roots, rubbish and other extraneous matter.

3.4 SOIL PREPARATION FOR PLANTING PITS OF TREES

A. This article pertains to tree planting when occurring on an individual basis.

1. Backfill Mix: Prepare backfill mix and place in planting pits as shown and specified.

2. Grade smooth to elevations shown.

3.5 SOIL PREPARATION UNDER EXISTING TREES

A. Remove vegetation not indicated to remain beneath canopy of existing trees. Take care not to disturb roots of existing trees.

B. Lightly rake areas and add amended topsoil to meet proposed grades.

3.6 FINE GRADING

A. Finish grade after full settlement including mulch, shall be 1 inch below tops of curbs, walks, or existing grades in shrub areas and 3/4 inch lower in lawn areas.

B. Slope all areas to prevent puddling and drain surface water toward catch basins, drains, curbs, or off-site as shown on Drawings.

C. Soil in all areas shall be thoroughly settled, with a smooth surface free of humps and hollows, and shall be firm enough to resist undesirable impressions when stepped upon.

D. Use levels, screens, drags, or any other equipment necessary to establish and verify grades and surfaces.

E. Finish grade lawn, grass and planting areas to smooth, even surface with loose, uniformly fine texture.

F. Roll, rake, and drag lawn areas, remove ridges and fill depressions with amended topsoil to obtain firmness and finish grades as indicated.

G. Notify Owner’s Representative 36 hours in advance to review fine grading of lawn, grass and planting areas. Finish grades shall be prepared to the satisfaction of the Owner's Representative prior to planting.

3.7 CLEAN-UP

A. Clean up excess materials and debris from project site upon completion of work or sooner if directed by the Owner's Representative.

B. Leave in neat and tidy condition daily.

3.8 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner’s property.

END OF SECTION

SECTION 32 91 21 - FINISH GRADING AND SEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Soil Preparation
2. Weed control
3. Fertilizing
4. Seeding
5. Mulching
6. Hydroseeding
7. Hydromulching
8. Erosion Control Blanket
9. Maintenance and Establishment Period

B. Related Sections:

1. Section 31 05 13 - Soils for Earthwork
2. Section 31 23 17 - Trenching

1.2 REFERENCES

A. ASTM International (ASTM):

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.
2. 7 USC 1551-1611 - Federal Seed Act.

1.3 DEFINITIONS

A. Certified Seed: A grass or legume seed named variety that has been reviewed and accepted into the State Certified Seed program. Currently certified seed is individually sold in bags with a Certification Tag.

B. Pure Live Seed (PLS): Is a measure used to describe the percentage of a quantity of seed that will germinate. PLS is obtained by multiplying the purity percentage by the percentage of total viable seed, then dividing by 100.

C. Establishment Period: A period when planting work has been performed and initially accepted, and there is a contract requirement to care for the planted areas in some way until the period ends.

D. Sensitive Areas: Defined areas such as wetlands, natural water and riparian resources, special environmental zones, or where certain activities are restricted such as the use of chemicals.

E. Weeds: Vegetative species other than specified species to be established in given area.

F. Invasive Plants: Any species that appears on the State of Oregon or Clatsop County current noxious weed list, plus known problem species including phalaris arundinacea, mentha pulegium, holcus lanatus, anthoxanthum odoratum. The last crop plants (if listed as non-native on United States Department of Agriculture (USDA) Plants Database) are considered invasive if it comprises more than 15 percent in any newly established vegetation.

G. Weed Control: Removal and prevent regrowth of specified weeds, weed parts, and weed seeds from area within the Project limit.

1.4 SUBMITTALS

A. Product Data: Submit data for seed mix, mulch, tackifier, erosion control blanket, soil amendment materials, pesticides, herbicides, and other accessories. The product should meet or exceeds all product requirements specified herein.

B. Grass Seeds Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1. Certification of seed analysis, germination rate, and inoculation. Include the year of production and date of packaging. Certify that each lot of seed has been tested by a testing laboratory certified in seed testing within 12 months of delivery date. Also include:

    a. Name and address of laboratory
    b. Date of test
    c. Lot number for each seed certified
    d. Test Results: Name, percentages of purity and of germination, and weed content for each seed mix.

C. Operation and Maintenance Data: Include maintenance instructions and weed control.

1.5 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

B. Pesticide shall not be used in this Project.

1.6 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum 3 years documented experience.

B. Installer: Company specializing in performing work of this section with minimum 2 years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver tackifier sealed containers showing weight, chemical analysis, and name of manufacturer.

1.8 MAINTENANCE SERVICE

A. Maintain seeded areas immediately after placement for 12 months from Date of Substantial Completion. Grass shall be well established and exhibits vigorous growing condition.

PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Suppliers:

1. Sunmark Seeds, Portland, OR
2. PT Lawn Seed, Portland, OR
3. NaturesSeed.com
4. Approved equal

B. Seed Mixes: The following are the functional categories of seed mixes that may be included on projects (a category may have multiple functions on a Project Site):

1. Temporary Seeding - To provide short-term erosion control of disturbed soils and slopes that are not at finished grade, and which will be exposed for 2 months or longer before being disturbed again, until permanent seeding is performed, or all potential for erosion is removed.

2. Permanent Seeding - The final seeding or only seeding performed for erosion control.

3. Lawn Seeding - Seeding for areas where finished turf appearance is desired.

4. Wildflower Seeding - Seeding to develop growth of wildflowers. The seed mix will typically contain grass or other plant seed to provide erosion control.

5. Plant Seeding - Seeding which typically includes more than just grass species, such as seeds of woody or herbaceous plants.

6. Water Quality Seeding - For use in water quality facilities such as swales or settling basins.

7. Wetland Seeding - To vegetate existing or constructed wetlands.

8. Native Plant Seeding - Seeding to restore native vegetation.

C. Types of Seed Mixes: Seed mixes, quantities, standards, and other information

1. Water Quality Seed Mix: Water quality facilities NW Native bio-filtration seed mix, salmon-friendly, will perform well in the bottom of drainage swales, storm water retention ponds, and bio-filtration swales. This mixture will range from the continuously wet lowlands, up into the riparian zone, offering erosion control and habitat development. Mix shall not contain Glyceria Botanical type.

Botanical Name	Common Name	PLS Lbs. per Acre
Elymus glaucus	Blue Wildrye	20
Festuca rubra rubra	Native Red Fescue	16.5
Deschampsia caespitosa	Tufted Hairgrass	6.1
Beckmania syzigachne	American Sloughgrass	0.9
TOTALS:		43.38

2. Roadside Seed Mix: Erosion control mix for vegetation along roadsides. It is also salt tolerant.

Botanical Name	Common Name	PLS Lbs. per Acre
Hordeum vulgare var Poco	Poco Barley	52.24
Hordeum brachyantherum	Meadow Barley	36.57
Bromus carinatus	California Brome	23.51

Festuca idahoensis romerii	Roemer's Fescue	7.18
Trifolium fragiferum	Strawberry Clover	5.22
Clarkia amonea	Farewell to Spring	1.96
Oenothera elata hookeri	Hooker's Evening Primrose	1.96
Deschampsia cespitosa	Tufted Hairgrass	1.31
Agrostis exerata	Spike Bentgrass	0.65
TOTALS:		130.6

2.2 ACCESSORIES

A. Straw Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Wood and Bark Mulching Material: Chipped wood and bark, sawdust, and ground wood mulch should be free of growth or germination inhibiting ingredients.

C. Compost: Commercially manufactured fine and medium compost materials.

D. Tackifier: Commercial tackifier containing no agent toxic to plant life and exhibits no growth or germination inhibiting factors at one of the following forms:

1. Liquid Stabilizer Emulsion - Tackifier with a base material of liquid containing not less than 55 percent total solids by weight. It should allow exchange of air and moisture to the seeds and have an effective life of 1 year or more.

2. Dry Powder Tackifier - Tackifier base consisting of one or more active hydrocolloids from natural plant sources, which hydrates in water and blends with other slurry materials, and upon application tacks the slurry particles to the Soil surface.

E. Fertilizer: Commercial grade; recommended for grass to eliminate deficiencies of topsoil and suitable for application with equipment designed for that purpose.

1. Deliver fertilizers in separate or mixture containers that have the percentage of total nitrogen, available phosphoric acid, and water-soluble potash (NPK) in the amounts specified. Label each container with a quality compliance certificate.

2. Application rate shall be determined by the soil conditions, as indicated in analysis to determine the proportions of Nitrogen percent, phosphoric acid percent, soluble potash percent.

F. Lime: Not Used.

G. Water: Clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of grass.

H. Erosion Control Blanket shall be open, flexible, and dimensionally stable network of fully-biodegradable, bonded, interlocking fibers. The blanket shall have a functional longevity of up to 12 months. Blanket fibers shall be turf green color or natural wood/straw color.

I. Pesticides/Herbicide: Not Used.

2.3 SOURCE QUALITY CONTROL – NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify permit requirements before starting work.

B. Planting Season: Plant seeds when growing conditions are conducive to seed germination and quick but thorough establishment of seedlings.

1. Depending on latitude and elevation in the Pacific Northwest, these conditions occur either in mid-August through early October or mid-April to late May.

2. Avoid planting seed during the heat of summer or in late fall to avoid freezes that kill sprouting grass seeds.

C. Weed Control Coordinator – Not Used.

D. Pesticide Applicator – Not Used.

3.2 SOIL PREPARATION

A. Prepare area for seeding in accordance with permits and as required for specified seed mixes.

Remove any matter detrimental or toxic to the growth of plants, including weeds, clods, rocks, or debris.

3.3 WEED CONTROL

A. Do not harm or disturb any vegetation that was planted as proposed on the planting plans. Do not compact soil with heavy equipment.

B. Inspect the Project for new growth of specified weeds at least monthly during the plants growing season and apply weed control measures as appropriate.

1. Inspect the area at least every 30 days after growing season has begun or as directed for continuing control of all vegetation considered as weeds.

2. Provide schedule of weed control measures.

3. Request to use wheeled or tracked construction equipment in sensitive areas.

C. Remove and control weeds according to the following:

1. Verify the weed control methods before proceeding with weed control activities.

2. Remove all specified weeds and ensure that weed seeds or reproducing plant parts such as vines, runners, or rhizomes do not remain or become disbursed during control activities.

3. Place weeds and related materials in an approved container and transport to an approved offsite disposal facility according to applicable laws and regulations.

4. Keep the site weed free including weeds not initially documented.

D. Weed Control at Sensitive Areas - as determined by the ENGINEER:

1. Use only hand or light mechanical weed control methods within 50 feet of sensitive areas.

2. Hand methods include the use of hand tools. Light mechanical methods include the use of hand carried, motorized machinery.

E. Weed Control Corrective Work - If corrective work for areas identified as deficient by the ENGINEER, it should be completed within a 15 Calendar Day period,

3.4 SEEDING

A. Apply Water Quality Seed Mix at rate indicated in Section 2.1.C.1 at all disturbed areas shown in the Drawings.

3.5 HYDROSEEDING AND HYDROMULCHING

A. Mix seeds, fertilizers, mulch, and tackifier with water in specific tank as follows:

1. Hydraulic Equipment should continuously mix and agitates the slurry providing a continuous, non-fluctuating delivery.

2. Provide a uniform distribution of the slurry.

3. Place seed, fertilizer, mulch, and tackifier in the hydroseeder tank no more than 30 minutes prior to application.

B. Hydroseeding operation: Perform hydroseeding according to the following:

1. One-Step Operation - Apply materials in one step only for the following situations:

a. When seeding in conjunction with erosion control matting. Apply seed, fertilizer, and tracer before installing matting.

b. When treating small areas that are 1,500 square feet or less and totaling no more than 0.5 acre, double the amount of seed to compensate for seed suspended above Soil by the mulch.

2. Two-Step Operation – for areas over 0.5 acre, use the two-step method for all hydroseeding/hydromulching operations:

a. Step 1 - Apply seed, fertilizer, and tracer.
b. Step 2 - Apply mulch and tackifier.

C. Seed -Thoroughly mix seeds when more than one kind is to be used.

D. Mulch - Apply at the following rates based on dry fiber weight:

1. Slopes Flatter Than 1V:2H - Apply cellulose fiber that includes a tackifier at a rate of 2,000 pounds per acre.

2. Slopes 1V:2H or Steeper - Apply cellulose fiber that includes a tackifier at a rate of 3,000 pounds per acre.

E. Tackifier for Cellulose Fiber Applications – apply dry tackifier to water tank at the following rates unless the Manufacture recommends a greater rate of application:

1. Slopes Flatter Than 1V:2H - 60 pounds per acre mixed with hydromulch fibers at the rate specified.

2. Slopes of 1V:2H or Steeper - 100 pounds per acre mixed with hydromulch fibers at the rate specified.

3.6 MECHANICAL SEEDING

A. Seeding, fertilizing, and covering: The following may be used to stabilize small, disturbed areas that are 1,500 square feet or less and totaling no more than 0.5 acre:

1. Seeds and fertilizer - Seed the disturbed area with the seed mix at the specified rate by mechanical spreader.

2. Cover - Cover seeded areas with one of the following:

a. Straw mulch at a rate of 100 pounds per 1,000 square feet. Spread the mulch uniformly approximately 2 inches deep, in loose condition, which requires roughly 2-1/2 tons per acre of dry mulch. Do not use straw mulch on slopes of 1V:1.5H or steeper.

b. Bark mulch spread uniformly at an approximate depth of 1/2-inch. Use well-decomposed mulch for seed mulching. Do not use bark mulch on slopes of 1V:1.5H or steeper.

c. Suitable open-weave, biodegradable erosion control matting installed according to Manufacturer's instructions.

3.7 SEEDING OVER MULCHED AREAS

A. If an area has been previously mulched for erosion control or temporary seed and mulch is present on the soil surface, double the pound rate for each seed type used. Apply seed and fertilizer hydraulically or mechanically and add a green dye to the mixture to visibly aid uniform application. Upon approval, fertilizer and seed may only be applied after mulching if one of the following conditions apply:

1. Mulch is punched into the soil by mechanized means. Avoid heavy equipment that may compact the soil. Roll seeded area with roller not exceeding 112 pounds/linear foot.

2. Mulch that is held down with netting or like material

3. Mulch is removed prior to seeding.

3.8 WORK QUALITY

A. After application, apply water with fine spray immediately after each area has been hydroseeded Apply water with fine spray immediately after each area has been mulched.

B. Drift - Prevent drift and displacement of seed and fertilizer regardless of equipment and methods used.

C. Displacement - Prevent seed, fertilizer, and mulch from falling or drifting onto other areas where grass is detrimental. Remove material that falls on plants, roadways, gravel shoulders, structures, and other surfaces where material is not specified.

D. Damage - Prevent damage to prepared areas and to completed fertilizer, seed, and mulch work. Replace all material that becomes displaced before acceptance of the work.

3.9 MAINTENANCE

A. Control growth of weeds.

B. Weed Control - Remove specified weeds prior to plants going to seed and keep weed control and seeded areas "Weed Free" throughout the Establishment Period.

C. Immediately reseed areas showing bare spots.

D. Repair washouts or gullies.

E. Protect seeded areas with warning signs during maintenance period.

F. Ensure that each seeded area has a uniform, healthy and weed-free stand of grass or other seeded plants growing at the end of the Establishment Period. The minimum living plant coverage standards for acceptance of seeding in a planted area are as follows:

1. Temporary Seeding:

    a. West of the Cascades - 70 percent coverage of ground surface.
    b. East of the Cascades - 30 percent coverage of ground surface.

2. Permanent Seeding:

    a. West of the Cascades - 90 percent coverage of ground surface.
    b. East of the Cascades - 30 percent coverage of ground surface.

3. Wetland Seeding - 70 percent coverage of ground surface.

4. Water Quality Seeding - 100 percent of ground surface.

G. Protection - Protect seeded areas from trespass and other hazards of damage. Use protective fences and signs at no additional cost to the OWNER. Obtain approval of protective methods used.

H. Fertilizing and Watering - Apply fertilizer according to grass and soil requirements. Apply water according to good horticultural practice under the prevailing conditions, as required to promote a healthy stand of plants. Obtain water at no additional cost to the OWNER.

I. Mowing – If mowing is required, do the first mowing of grass when soil is firm enough to prevent rutting and grass is about 3 inches tall. After mowing, leave grass that is approximately 2 inches tall. At each subsequent mowing, leave about 1-1/2 inches of growth. After the second mowing, grass clippings may be left in place upon written approval.

J. Repair and Restore - Repair and restore soil grades and re-seed damaged, settled, or unproductive areas to the specified conditions of this Section at no additional cost to the OWNER.

K. Finishing and Cleaning Up Cleanup - Remove weeds, trash, debris, stones, and other extraneous matter from seeded areas as directed and dispose of.

END OF SECTION

SECTION 32 93 00 - PLANTING

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. Furnishing all labor, materials and equipment for installation of landscape planting as shown on the drawings and as specified.

B. Related Sections include the following:

1. Section 32 91 13, Soil Preparation
2. Section 32 92 21, Finish Grading and Seeding

1.3 DEFINITIONS

A. The following publications, referred to thereafter by basic designation only, form a part of this specification to the extent indicated by references:

1. STANDARDIZED PLANT NAMES, 1942 Edition, published by J. Horace McFarland Company.

2. FLORA OF THE PACIFIC NORTHWEST; by Hitchcock and Cronquist, latest edition,

3. Federal Standard for Fertilizers - Mixed, Commercial: FS0-F-241D

B. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they were grown, with ball size not less than diameter and depth recommended by ANSI Z60.1, latest edition, for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum-laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1, latest edition.

C. Balled and Potted Stock: Exterior plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1, latest edition, for type and size of plant required.

D. Bare-Root Stock: Exterior plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1, latest edition, for type and size of plant required.

E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during

shipping and be sized according to ANSI Z60.1, latest edition, for type and size of plant required.

F. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1, latest edition, for type and size of plant.

G. Finish Grade: Elevation of finished surface of planting soil.

H. Groundcover: Low woody or herbaceous plants generally less than 24 inches high at maturity or per jurisdictional definition.

I. Healthy (Plants): Plants that are growing in a condition that expresses leaf size, crown density, color, and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site conditions, drainage and weather conditions.

J. Kinked root: A root within the root package that bends more than 90 degrees.

K. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

L. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.4 SUBMITTALS

A. Submit certifications, or samples of material requested for substitution.

B. A maximum of 1 month after the Contractor receives the authorization to proceed, the Contractor shall submit to the Owner's Representative, copies of all nursery invoices for plant materials to be used on site. The copies must indicate source of supply by name, address and phone number, order invoice number, and size and quantity for each species or variety ordered.

C. Inspection certificates:

1. All plant material shall meet requirements of State and Federal laws with respect to inspection for plant diseases and infestation.

2. Inspection certificates required by law shall accompany each shipment of plant materials and be submitted to the Owner's Representative.

1.5 QUALITY ASSURANCE

A. Work and material supplied shall comply with applicable requirements of the United States Department of Agriculture (USDA).

B. The Contractor shall protect all materials, at all times during handling, shipping and storage, from extreme weather conditions, wind, drying of roots or root ball injury.

1. Store fertilizers in a dry place and protect from intrusion of moisture.

2. Deliver plants at the time of planting, and handle with proper horticultural practice.

C. Plant materials showing damage from handling, shipping or during planting shall be rejected by the Owner's Representative and shall be replaced by the Contractor at their expense.

D. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in the latest edition of ANSI Z60.1, "American Standard for Nursery Stock."

1. Selection of exterior plants purchased under allowances will be made by Owner's Representative, who will tag plants at their place of growth before they are prepared for transplanting.

E. Tree and Shrub Measurements: Measure according to ANSI Z60.1, latest edition, with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

F. Observation: Owner's Representative may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Owner's Representative retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site and replace.

G. Store fertilizers in a dry place and protect from intrusion of moisture.

H. Planting

1. All landscaping work shall be done under the supervision of a Contractor currently licensed in landscape construction, under respective jurisdictions, and having a minimum of two years of experience in landscape construction. All work shall be done in accordance with proper horticultural practices and hereinafter described.

2. Installer's Personnel Certifications: Certified Landscape Technician, CLT-Exterior or Certified Ornamental Landscape Professional, COLP.

I. Herbicide Application

1. Application of herbicides for weed control as may be required shall be made only by an applicator currently licensed under this state's law.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver exterior plants freshly dug.

B. Do not prune trees and shrubs before delivery, except as approved by Owner's Representative. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to

destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery.

C. Handle planting stock by root ball.

D. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants trees in shade, protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots in water for two hours if dried out.

2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.

3. Do not remove container-grown stock from containers before time of planting.

4. Water root systems of exterior plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.7 PROJECT CONDITIONS AND COORDINATION

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

1. Planting Season: West of Cascade Mountains, September 1 – May 15, unless otherwise specified; container grown materials located in irrigated areas may be planted at other times depending upon written approval by Owner's Representative.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions are between 35- and 80-degrees Fahrenheit and soil conditions are not saturated.

C. Coordination with seeded, plugged and sodded areas: Plant trees and shrubs after finish grades are established and before seeding, plugging and sodding designated areas, unless otherwise acceptable to Owner's Representative.

1. When planting trees and shrubs after seeding, plugging and sodding, protect these areas and promptly repair damage caused by the planting operations.

D. The Contractor shall coordinate planting work with soil preparation.

1.8 PLANT MATERIALS SUBSTITUTION

A. Plants, not specifically named in the plant list, will not be accepted unless specifically accepted in writing by the Owner's Representative.

B. Substitutes proposed for approval, in each case, shall possess the same essential characteristics as the kind of plant actually specified in regard to appearance, ultimate height, shape, and habit of growth, general soil, and other environmental requirements.

1.9 WARRANTY

A. The establishment and warranty periods for all types of plantings shall be initiated upon the Owner's Representative acceptance of the work and for the period of time listed below.

B. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.

C. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.

D. General: The contractor shall provide a warranty for the vibrant and healthy survival of 100% of the trees through the warranty period. The contractor shall provide a warranty for the vibrant and healthy survival of 100% of the shrubs, vines and ornamental grasses through the warranty period. The contractor shall provide a warranty for the vibrant and healthy survival of 100% of the ground covers, biennials and perennials through the warranty period. The contractor shall replace all plants that have died, are dying or are not demonstrating vibrant and healthy growth, as determined by the Owner's Representative, immediately upon discovery by the contractor or direction from the Owner's Representative within the same period as the initial installation. The warranty shall be extended 12 months as originally specified for those plants which are replaced, beginning form the date of replacement. The replaced plants shall be of the same species and size as originally specified. Such replacement shall be made in the same manner as specified for the original plantings, and at no extra cost to the Owner. The replacement will be for one time as long as the contractor meets the requirements of these specifications and as reviewed by the Owner's Representative.

E. Warranty Guarantee

1. The contractor shall provide a financial instrument as a warranty guarantee in the amount of 100 percent of the contract amount (including all labor, equipment and materials). Acceptable instruments for the warranty guarantee are as follows:

    a. A warranty guarantee incorporated with the performance guarantee
    b. A warranty maintenance bond.
    c. Cash deposit with the Owner.

PART 2 PRODUCTS

2.1 TREES, SHRUBS AND GROUNDCOVER

A. General species, variety, quantity, size and condition of plant will be provided as indicated on the drawings.

Plant material shall be supplied, but not limited to form and conditions defined as follows:

Rhizome:	Section of root or stolon
Propagules:	Section of stem
Bulb:	Single bulb mass
Plug:	Rooted Cutting
Aquatic container:	Water filled container for floating plants

Seedling:	Rooted tree or shrub
Tubeling:	Rooted tree or shrub in single tube
Bare Root:	Shrub or tree with soil removed from root mass
Cutting:	Stem cut from parent stock
Ball and Burlap:	Tree or shrub with excavated root ball wrapped and tied
Container:	Standard pot or bag, per ANSI standard sizing.

B. Nomenclature shall conform to "Standardized Plant Names."

C. Quality definitions, grading tolerances, and caliper to height ratios no less than minimum specified in ANSI Z60.1.

D. Plant material shall be healthy nursery stock, well branched, full foliated when in leaf, free from disease, injury, insects, all weeds and weed roots.

E. Cold storage plants shall not be permitted.

F. Plant materials shall be nursery-grown unless otherwise specified. Nursery-grown plants shall have been growing continuously in licensed nurseries for the following minimum number of growing seasons:

Plant Materials	Time in Nursery
Evergreens and conifers	Two growing seasons
Deciduous	One growing season
Groundcover and Vines	One growing season

G. Balled and burlapped (B&B) stock shall be furnished with natural ball.

H. Potted and container stock shall be well rooted, vigorous enough to ensure survival and exhibit healthy growth.

I. Container stock shall have been growing in its container for a minimum of six (6) months and a maximum of two (2) years, with roots filling the containers but not showing evidence of being or having been root bound.

J. Trees: Provide untapped, straight, single-leader trees.

K. Plant materials shall be free from disease, insects, disfiguring knots, sun scale, injuries, bark abrasion, evidence of improper pruning and other objectionable disfigurements.

L. Trees and shrubs shall have all developed branching system; shrubs shall have full foliage and shall not be leggy.

M. Thin, weak, leggy, or misshapen plants will be rejected by the Owner’s Representative.

N. Labels: The correct horticultural name, size and caliper and/or other data, as specified in the Plant Material List, written on durable labels in weather-resistant ink, shall be securely attached to all individually shipped plants and to each box, bundle, bale and container of plant

materials. Labels shall remain on representative plant materials until final acceptance of planting. Labels shall be affixed in such a manner that will not girdle the plant materials.

O. The species (botanical and common names), size, manner in which the plants are furnished, and spacing of the required plant materials, are noted on the planting plan.

P. The quantities of plant materials shall be as determined by the Contractor in accordance with the specified spacing, or location on plan. Surplus or shortages of plant quantities shall be the responsibility of the Contractor.

2.2 TREE STABILIZATION MATERIALS

A. Stakes and Guys:

1. Upright and Guy Stakes: Rough-sawn, sound, new softwood with specified wood pressure-preservative treatment, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.

2. Retain one of first two subparagraphs below.

3. Flexible Ties: Wide rubber or elastic bands or straps of length required to reach stakes.

2.3 WATER

A. Water shall be suitable for irrigation, free from oil, acid, alkali, salt or other substances harmful to plant life.

2.4 MULCHES

A. Fir and/or hemlock bark, 1-inch minus size with less than 30% bark finer than 1/4-inch size. Sawdust and wood shavings will not be acceptable.

2.5 MISCELLANEOUS PRODUCTS

A. Wood Pressure-Preservative Treatment: AWPA C2, with waterborne preservative for soil and freshwater use, acceptable to authorities having jurisdiction, and containing no arsenic; including ammoniacal copper arsenate, ammoniacal copper zinc arsenate, and chromated copper arsenate.

B. Root Barrier: Black, molded, modular panels manufactured with 50 percent recycled polyethylene plastic with ultraviolet inhibitors, 85 mils thick, with vertical root deflecting ribs protruding 3/4 inch out from panel, and each panel 24 inches high and wide.

C. Anti-desiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

D. Burlap: Non-synthetic, biodegradable.

E. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb. of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb. of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 EXECUTION

3.1 INITIAL INSPECTION OF PLANT MATERIAL

A. All plant materials must be inspected by the Owner's Representative before planting. All plant material shall be free from insects, diseases, and injuries and sizing shall be equal to or exceeding measurements specified. Transport and handle all materials in strict accordance with proper horticultural standards. The Contractor shall provide plants with habit and growth that is normal, sound, healthy and vigorous.

B. All plant materials not meeting specification requirements shall be rejected.

C. All native plants shall be nursery stock except hardwood cuttings. Nursery stock shall be grown from propagules or seed collected from western Oregon or western Washington sources only. Plants from off-site collection sources shall not be allowed, unless otherwise approved by the Owner's Representative.

D. Hardwood cuttings, as identified on the plant list, shall be taken from healthy, vigorous, one to three-year old, plants grown in full sunlight and obtained from the respective watershed identified by the Owner's Representative. Cuttings shall be from 1 to 2 feet in length and between ¼ and ¾ inches in diameter, as shown on plans. Each piece shall contain a minimum of two dormant buds per foot of length. Period of collection shall be at dormancy and at the optimum time per proper horticultural standards for cutting establishment.

3.2 PLANT BED PREPARATION

A. Prepare plant beds as directed in Section 32 91 13, Soil Preparation.

3.3 PLANT LAYOUT AND INSPECTION

A. Layout of major planting areas as indicated on the plans are approximate only, and the locations and identity of all trees, shrubs, ground covers and other plantings shall be outlined in the field by the Contractor, subject to review and approval by the Owner's Representative.

B. Inspection: The Contractor shall notify the Owner's Representative forty-eight (48) hours prior to beginning any planting. The Owner's Representative may adjust plant material location to meet field conditions. Planting shall not occur until the Owner's Representative has approved the location and layout of all plant beds.

3.4 TREES, SHRUBS, GROUNDCOVER AND OTHER PLANTINGS

A. Plant trees and shrubs upright and adjust to set best appearance or relationship to adjacent plants and structures. Shrubs and groundcovers shall be planted one half the distance from curbs, sidewalks, buildings and other objects, as specified in the spacing requirements.

Native Plant material shall be planted with regard to condition specified on plan, per, but not limited to the following:

Rhizome:	Cut into soil surface within 2 inches of surface
Propagule:	Cut into soil surface within 2 inches of surface
Bulb:	Set into soil 4 inches- 6 inches deep; point up
Plug:	Placed into soil at size of root mass
Aquatic container:	Dispersed into open water surface
Seedling:	Cut into soil as deep as root mass, compacted
Tubeling:	Cut into soil as deep as root mass, compacted
Bare Root:	Placed into plant pit sufficient for root mass, compacted
Cutting:	Dibble into soil per cutting installation detail on plan
Ball and Burlap:	Placed into plant pit twice the size of root ball, compacted
Container:	Placed into plant pit twice the size of container

B. Planting dates:

1. Planting of burlapped and container stock: Feb.15 - May 15, Oct. 1-Nov. 15.

C. Excavation for planting

1. Stockpile all excavated topsoil for planting operations.

2. In digging pits for trees, the contractor shall separate sod, topsoil suitable for backfill, and subsoil, and shall dispose of the sod, rocks and unsuitable material off-site.

3. Diameter or minimum width of planting pit or trenches shall be as shown on the drawings.

4. If standing water is encountered during excavation of the planting pits, the Contractor shall notify the Owner's Representative who will determine the corrective drainage measures required.

5. If underground obstructions or rocks are encountered in excavation of planting areas making it impossible to plant materials as shown on the contract documents, an alternate location for the planting shall be selected by the Owner's Representative.

6. Excess excavated topsoil shall be used to form saucers around plants as detailed. Soil not required or suitable for the above usage shall be properly disposed of off the project site.

7. Root crown to be visible before tree is set. Remove top of root ball media to locate if needed.

8. Burlap, twine and metal basket to be cut and removed entirely down to base of rootball after tree is set (material on bottom can remain). If rootball is unstable or breaking, only remove the top 12" of burlap.

9. Staking to remain no more than two years unless Owner's Representative directs longer staking period. Maintain 2" strap slack around trunk.

D. Cutting: Cut off cleanly all broken or frayed roots, smaller than 1/2 inch caliper.

E. Prior to completing backfilling, the upper two-thirds of the plant pit shall be flooded with the plant starter solution. Allow solution to soak away. Finish filling holes to finish grade and lightly compact soil around root ball.

F. Placement and compaction: Place and compact backfill soil mixture carefully to avoid injury to roots; fill all voids.

3.5 SHRUBS AND GROUNDCOVER PLANTING BED GRADES

A. Establish finish grades and slopes in accordance with finish grades as specified.

3.6 MULCHING

A. Mulch all shrubs and ground cover planting beds with a 2 inch layer of mulch material within two (2) days after planting. Cover entire bed areas; apply evenly. A 2 inch layer of mulch material shall be applied to saucer areas of trees and shrubs located outside of planting beds.

3.7 TREE STABILIZATION

A. Install trunk stabilization as follows unless otherwise indicated:

1. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip out. Use a minimum of two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend to the dimension shown on Drawings above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.

2. Use two stakes for trees up to 12 feet high and 2-1/2 inches or less in caliper; three stakes for trees above 12 feet high.

3. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

3.8 ROOT-BARRIER INSTALLATION

A. Install root barrier where trees are planted within 60 inches of paving or other hardscape elements, such as walls, curbs, and walkways unless otherwise shown on Drawings. Length shall be 6’each side of tree center (12’ total length).

3.9 ANTIDESICCANT

A. The application of the antidesiccant shall be prior to transplanting as a spray or during planting as a dip. The antidesiccant shall not be applied if rain is anticipated in one hour or less. If not previously applied, the Contractor shall, within 24 hours of completing backfilling, spray all evergreen and leafed-out deciduous plants with the antidesiccant thoroughly covering all leaves. The solution shall be mixed according to manufacturer's specifications.

3.10 PRUNING

A. Pruning shall be done at or after the time of planting in accordance with proper horticultural practice.

B. Pruning shall be limited to the minimum necessary to remove injured twigs and branches and to compensate for the loss of roots during transplanting but shall never exceed one-half of the branching structure.

1. Crossed or rubbing branches shall be removed providing the natural shape of the tree is preserved.

2. All cuts shall be made flush with the parent stem leaving no stubs. Pruning cuts shall be made in a manner to favor the earliest possible covering of the wound by callus growth. Cuts that produce large wounds and weaken the tree will not be acceptable. Evergreens shall not be pruned except to remove injured branches and/or double leaders. The use of pole shears and/or hedge shears for pruning deciduous and evergreen trees will not be permitted. All trimmings and other debris left over from the planting operations shall be collected and disposed of legally off the site.

C. With the permission of the Owner's Representative, pruning may be done before delivery of plants, but not before plants have been inspected and accepted.

3.11 CLEANUP

A. Keep premises free from accumulation of debris.

B. At completion of each area of work, remove all debris, equipment and surplus materials

END OF SECTION

DIVISION 33 - UTILITIES

SECTION 33 05 50 - EXISTING PIPE ABANDONMENT

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the removal of existing buried piping and abandonment in place of existing buried piping.

B. Section includes:

1. Pipe removal.

2. In-place abandonment of pipe.

C. Related Sections:

1. Section 03 60 00, Grouting.

2. Section 31 23 16, Excavation.

3. Section 31 23 17, Trenching.

4. Section 31 23 19, Dewatering.

5. Section 31 23 23, Fill.

6. Section 31 23 24, Flowable Fill.

1.2 SUBMITTALS

A. Provide all submittals in accordance with Section 01 33 00, Submittal Procedures.

B. Piping Abandonment Plan:

1. Identify locations specified for pipe abandonment.

2. Provide method to be utilized to abandon the pipe, including whether the pipe will be left in place or removed in its entirety.

C. Non-Shrink Grout: Product data in accordance with Section 03 60 00, Grouting.

D. CLSM: Mix designs in accordance with Submittal requirements of Section 31 23 24, Flowable Fill.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. Permits: The Contractor is responsible for obtaining all necessary permits required for completion of the work described herein.

B. Protection of Persons and Property: Meet all federal, state, and local safety requirements for the protection of workmen, other persons, and property in the vicinity of the work and requirements of the General Provisions.

1.4 PROTECTION OF EXISTING WORK

A. Carefully examine the Contract Documents to determine the extent of the work of this Section.

B. Carefully coordinate the work of this Section with all other work and construction.

C. Take all necessary precautions to prevent damage to existing facilities or utilities which are to remain in place and be responsible for any damages to existing facilities or utilities, which are caused by the operations.

1.5 REPAIR OF DAMAGE

A. Work procedures shall provide for safe conduct of the work; careful removal and disposition of materials and equipment; protection of facilities, utilities and property which are to remain undisturbed; coordination with existing facilities and utilities to remain in service.

B. Any damage to existing facilities or utilities to remain as caused by the Contractor's operations shall be repaired to acceptance of Engineer.

C. Damaged items shall be repaired or replaced with new materials as required to restore damaged items or surfaces to a condition equal to and matching that existing prior to damage or start of work of this contract.

1.6 EXISTING CONDITIONS

A. If the pipe material contains any hazardous materials, such as asbestos, requiring special handling upon removal, it is the responsibility of the Contractor to remove and dispose of the material in accordance with all applicable federal, state, and local regulations.

PART 2 PRODUCTS

2.1 OWNERSHIP OF EXISTING MATERIALS

A. All materials, equipment, miscellaneous items, and debris involved, occurring, or resulting from pipe removal work shall become the property of the Contractor at the place of origin, unless otherwise specified in the Drawings or by the Engineer.

2.2 CONTROLLED LOW STRENGTH MATERIAL

A. As specified in Section 31 23 24, Flowable Fill.

PART 3 EXECUTION

3.1 PIPE REMOVAL

A. Where identified on the Drawings, remove, and dispose of all pipe material and associated appurtenances.

1. All fire hydrants, air release valves service lines and appurtenances being abandoned shall be removed to 36 inches below finished grade.

2. Existing service line appurtenances, including valve and meter boxes, shall be removed to 36 inches below finished grade.

B. All exposed ends of pipes and fittings to remain in service shall be capped or plugged with an appropriate ductile iron blind flange, cap or plug and restrained.

1. A pipe shall be considered in service if it is possible to flood the pipe with water by opening valves in the water system.

C. All excavation and backfilling associated with pipe removal shall be performed in accordance with 31 23 17, Trenching.

3.2 IN-PLACE ABANDONMENT OF PIPING

A. Where identified on the Drawings, abandon pipe in place.

B. All exposed ends of pipes being abandoned in place shall be cut and plugged with a minimum of two (2) feet of non-shrink grout.

C. Prior to placing grout, roughen interior pipe surface and apply epoxy bonding agent.

3.3 FILLING PIPE WITH CLSM

A. Where identified on the Plans, pipes to be abandoned-in-place shall be filled with CLSM.

B. CLSM shall be placed in a manner to ensure complete filling of the pipe, leaving no cavities or voids.

C. Install hot taps, saddles, fill lines and appurtenances as necessary for pumping CLSM from the surface into the pipe being filled.

D. CLSM shall be pumped up grade from fill lines rigidly connected to the pipes being filled.

E. Placement of CLSM by free flowing (non-pumped) methods will not be acceptable.

F. Fill lines shall be located at elevations lower than the pipe being filled.

G. As the CLSM is being placed, use other fill lines as view ports to ensure complete filling of the pipes.

H. Relocate pumping equipment as necessary to complete filling of the pipes.

I. Excavate and cut access holes in the pipes as necessary to complete filling operations.

J. Perform pipe filling operations in a manner to eliminate all air pockets.

K. Submit volume calculations for CLSM placed in each filled segment of piping to verify that pipelines have been completely filled.

3.4 CLEANUP

A. During and upon completion of work of this Section, promptly remove all unused tools and equipment, surplus materials, and debris.

B. Adjacent areas shall be returned to their existing condition prior to the start of work.

END OF SECTION

SECTION 33 05 64 - PRECAST CONCRETE VALVE VAULTS AND METER BOXES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Precast concrete valve vaults.
2. Precast concrete meter boxes.

B. Related Section:

1. Section 31 05 16, Aggregates for Earthwork
2. Section 31 23 16, Excavation
3. Section 31 23 23, Fill
4. Section 33 11 10, Water Utility Distribution and Transmission Piping
5. Section 33 11 10.30, HDPE Water Utility Piping

1.2 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM A185 - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
3. ASTM A536 - Standard Specification for Ductile Iron Castings.
4. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
5. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
6. ASTM C33 - Standard Specification for Concrete Aggregates.
7. ASTM C150 - Standard Specification for Portland Cement.
8. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
9. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
10. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
11. ASTM C890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.

12. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.

13. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

14. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3)).

15. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).

16. ASTM D4104 - Standard Test Method (Analytical Procedure) for Determining Transmissivity of Nonleaky Confined Aquifers by Overdamped Well Response to Instantaneous Change in Head (Slug Tests).

17. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 COORDINATION

A. Coordinate Work with utilities within construction area.

B. The drawings identify precast vaults and meter boxes by Manufacturer and model number. This information is provided for dimensional information only. Provide precast items in accordance with the requirements of this Section.

1.4 NOT USED

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on valve vaults and meter boxes.

C. Shop Drawings for Precast Concrete Valve Vaults:

1. Indicate plan, location, and inverts of connecting piping.

2. All interior and exterior dimensions.

3. Location and type of lifting inserts, connection embeds, and joints.

4. Details of reinforcement.

5. Covers or hatches.

6. Ladders and grating.

D. Manufacturer's Certificate: Certify that precast concrete valve vaults and meter boxes meet or exceed ASTM standards and specified requirements.

E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.6 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations and inverts of buried pipe, components, and connections.

1.7 QUALITY ASSURANCE

A. Perform Work according to standards identified in Article 1.2 herein.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in Manufacturer's original packaging and inspect for damage.

B. Transport and handle precast concrete units with equipment designed to protect units from damage.

C. Storage:

1. Store precast concrete valve vaults and meter boxes according to Manufacturer instructions.

2. Do not place concrete units in position to cause overstress, warping, or twisting.

PART 2 PRODUCTS

2.1 DESIGN REQUIREMENTS

A. Performance and Design Criteria:

1. Watertight, Precast, Reinforced, Air-Entrained Concrete Structures:

a. Manufactured to conform to ASTM C913.

2. Loading:

a. Design to ASTM C890-A16 / AASHTO HS20 live loading and installation conditions.

b. Where vaults are below grade, a dead load of 125 pounds per cubic foot shall be added for the soil.

c. Lateral loads:

1) Static: 105 x Depth of fill per square foot (psf) triangular equivalent fluid pressure plus a surcharge of an additional 3 feet of soil depth in areas subject to vehicular traffic (assume traffic load in all areas, unless indicated otherwise by the Contract Documents).

2) Seismic acceleration: UBC Zone 3 requirements (I = 1.25) where I = importance factor, I = 1.25, but not less than 0.20 grams (g) acting on structure mass. Seismic loading need not be considered simultaneously with traffic surcharge.

3. Minimum 28-Day Compressive Strength: 3,000 pounds per square inch (psi).

4. Honeycombed or re-tempered concrete is not permitted.

5. No knockouts shall be cast into vault walls. All pipe penetrations shall be pre-formed or core-drilled at the required locations.

6. Accessories: Accessories such as ladders, floor grates at sumps, and other features shall be provided as shown on the Drawings.

7. Size: Vault dimensions shall be as required by the Drawings.

2.2 PRECAST CONCRETE VALVES AND METER BOXES

A. Manufacturers:

1. Manufacturer shall be Oldcastle Precast Inc. or approved equal.

B. Valve Vault and Meter Box Frames and Covers:

1. Cast Iron Castings:

a. ASTM A48, Class 30 or better.

b. Free of bubbles, sand, air holes, and other imperfections.

C. Access Steps:

1. Steel reinforced formed polypropylene:

a. ASTM C478

b. Reinforced rod: ASTM A615, Grade 60, 1/2-inch diameter

2. Aluminum: ASTM B221, Alloy 6061-T6

3. Width: Minimum 12 inches

4. Spacing: 12 inches on center vertically.

2.3 ACCESS HATCHES AND LIDS

A. Unless noted otherwise elsewhere in the Contract Documents, vaults shall have concrete top slabs with access openings as shown on the Drawings.

B. Vault Manufacturer shall provide the access hatches per the requirements of Section 05 50 00, Metal Fabrications.

C. Lids shall have lifting holes.

D. When leveling bolts are used to set the vault top sections, ensure the load from the top slab is transferred through grout to the vault walls so that the load is not carried by the leveling bolts.

2.4 MATERIALS

A. Portland Cement:

1. ASTM C150, Type II

B. Coarse Aggregates:

1. ASTM C33

2. Graded 1 inch to No. 4 sieve

C. Sand:

1. ASTM C33

2. Fineness Modulus: 2.35

D. Water:

1. Potable.

2. Clean and free of injurious amounts of acids, alkalis, salts, organic materials, and substances incompatible with concrete or steel.

E. Air-Entraining Admixtures: ASTM C260

F. Reinforcing Steel:

1. Deformed Bars: ASTM A615, Grade 40 minimum

2. Welded Wire Fabric: ASTM A185

G. Gaskets:

1. Rubber gaskets: ASTM C443

H. Joint Sealant:

1. ASTM C990

I. Bedding:

1. Aggregate Bedding Material: Fill Type A1 as specified in Section 31 05 16, Aggregates for Earthwork. Size as shown in the Drawings.

2.5 FABRICATION

A. Fabricate precast reinforced concrete structures according to ASTM C913, to dimensions indicated on Drawings, and to specified design criteria.

B. Vaults may be formed with separate top and bottom slabs.

C. Walls shall be cast so that all sides are continuous at corners and their full length with no block-outs or knockouts.

D. Horizontal joints may be provided so that walls can be placed in horizontal segments.

E. All horizontal joints shall be keyed to prevent offsets and shall be provided with a watertight gasket.

F. Finish:

1. Formed surfaces shall be smooth and uniform with no fins, bulges, or other irregularities.

2. Any void greater in width than 1/2-inch or deeper than 3/8-inch shall be repaired.

3. Unformed interior slab surfaces shall have a smooth steel trowel finish.

4. Unformed exterior slab surfaces shall have a light broom finish applied to a steel trowel finish.

2.6 MIXES

A. Design concrete mix to produce required concrete strength, air-entrainment, watertight properties, and loading requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping connections, sizes, locations, and inverts are as indicated on Drawings.

3.2 PREPARATION

A. Ream pipe ends and remove burrs.

B. Remove scale and dirt from components before assembly.

C. Establish invert elevations for each component in system.

D. Hand trim excavation to suit valve vaults and meter boxes; remove stones, roots, and other obstructions.

3.3 INSTALLATION

A. Vaults/Meter and Bedding:

1. Excavate as specified in Section 31 23 16, Excavation for Work of this Section.

2. Hand trim excavation for accurate placement of vaults and meter boxes to elevations indicated.

3. Place bedding material level in one continuous layer to a minimum compacted depth of 6 inches.

4. Compact bedding material to 95 percent maximum density.

5. Bases for precast concrete structures shall be set level so that bedding material fully and uniformly supports them in true alignment with uniform bearing throughout full perimeter. Do not level bases by wedging gravel under the edges.

6. Backfill around sides of vaults and meter boxes as required by the Drawings.

B. Connect piping.

3.4 FIELD QUALITY CONTROL

A. Request examination of subgrade by Engineer prior to placing aggregate base under precast materials.

B. Compaction Testing: In accordance with Field Quality Control requirements of Section 31 23 23, Fill.

C. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

D. Frequency of Compaction Tests: In accordance with Section 01 45 00, Quality Control.

END OF SECTION

SECTION 33 11 10 - WATER UTILITY DISTRIBUTION AND TRANSMISSION PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Work under this Section applies to furnishing and installation of pipe materials, fittings, and appurtenances normally encountered with water distribution and transmission systems, including potable water and fire water systems.

B. Section includes:

1. Pipe and fittings
2. Flexible couplings
3. Flanged coupling adapters
4. Insulating flanged joints
5. Tapping sleeves and valves
6. Flexible expansion joints
7. Bedding and cover materials

C. Related Requirements:

1. General

a. Furnish and install all piping systems shown and specified in accordance with the requirements of the Contract Documents.

b. Each buried piping system shall be complete, with all necessary fittings, valves, accessories, lining and coating, testing, excavation, backfill and encasement, to provide a functional installation.

c. Piping layouts shown in the Drawings are intended to define the general layout, configuration, and routing for pipe, as well as the size and type of piping to be installed. The piping plans are not pipe construction or fabrication drawings.

d. The Contractor shall cause the Supplier of pipes, valves, fittings, and appurtenances to coordinate piping installation such that all equipment is compatible and is capable of achieving the performance requirements specified in the Contract Documents.

e. It is the Contractor's responsibility to develop the details necessary to construct all piping systems, to accommodate the specific equipment provided, and to provide and install all spools, spacers, adapters, connectors, valves, gaskets, fittings, appurtenances etc., for a complete and functional system.

D. Related Sections:

1. Section 03 11 00 - Concrete Work
2. Section 31 05 13 - Soils for Earthwork
3. Section 31 05 16 - Aggregates for Earthwork
4. Section 31 23 16 - Excavation
5. Section 31 23 17 - Trenching
6. Section 31 23 23 - Fill
7. Section 31 23 24 - Flowable Fill
8. Section 33 05 64 - Precast Concrete Valve Vaults and Meter Boxes
9. Section 33 11 10.30 – HDPE Water Utility Piping
10. Section 33 12 16 - Water Utility Distribution and Transmission Valves
11. Section 33 12 19 - Fire Hydrants
12. Section 33 13 00 - Testing and Disinfecting of Water Utility Piping

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

B. American Society of Mechanical Engineers (ASME):

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250
2. ASME B16.5 - Pipe Flanges and Flanged Fittings, Steel Nickel Alloy, and other Special Alloys
3. ASME B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges
4. ASME B31.10 - Standards of Pressure Piping

C. ASTM International (ASTM):

1. ASTM A36 - Standard Specification for Carbon Structural Steel
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
3. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
4. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

5. ASTM A536, Standard Specification for Ductile Iron Castings.

6. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

7. ASTM D1598 - Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure

8. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

9. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

10. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)

11. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

12. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

13. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

D. American Water Works Association (AWWA):

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings

2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems

3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings

4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast

7. AWWA C153 - Ductile-Iron Compact Fittings

8. AWWA C219 - Bolted, Sleeve-Type Couplings for Plain-End Pipe

9. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances

10. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

11. AWWA C606 - Grooved and Shouldered Joints

12. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm), for Water Transmission and Distribution

E. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves

F. NSF International (NSF):

1. NSF Standard 61 - Drinking Water System Components – Health Effects

2. NSF Standard 372 - Drinking Water System Components – Lead Content

3. NSF 600 – Health Effects Evaluation and Criteria for Chemicals in Drinking Water

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on pipe materials, pipe fittings, restrained joint systems, and accessories.

C. Shop Drawings: Indicate piping layout, including piping specialties.

1. Layout Schedule for applicable segments of proposed transmission main alignment. Schedule shall include layout plan and dimensions, schedule of pipe fittings and specials, materials and class for each size and type of pipe, joint details, pipe supports, and any special provisions required for assembly.

D. Lining and coating data.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Manufacturer’s handling, delivery, storage, and installation requirements.

G. Field Quality-Control Submittals:

1. Pipeline hydrostatic testing plan.

2. Indicate results of Contractor-furnished tests and inspections.

H. Preconstruction and Construction Progress Photographs:

1. Submit digital files of colored photographs of Work areas and material storage areas.

1.4 CLOSEOUT SUBMITTALS

A. As-Built Drawings:

1. Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.

2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.5 QUALITY ASSURANCE

A. Materials:

1. Unless otherwise noted, all water works materials provided for the Project shall be new, of first-class quality and shall be made by reputable manufacturers.

2. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the Owner's Representative.

3. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage, and handling.

B. Markings:

1. Pipes and Fittings: Mark each pipe and fitting at plant. Include date of manufacture, Manufacturer's identification, specification standard, inside diameter of pipe, dimension ratio as applicable, pipe class as applicable, pipe number for laying purposes as applicable, and other information required for type of pipe.

2. Bolting materials (washers, nuts, and bolts) shall be marked with material type.

C. Testing:

1. Except where otherwise specified, all materials used in the manufacture of the pipe shall be tested in accordance with the applicable Specifications and Standards.

1.6 MATERIAL DELIVERY, STORAGE, AND HANDLING

A. In accordance with Manufacturer's written recommendations and as specified in these Contract Documents.

B. Pipe, specials, and fittings delivered to Project Site in damaged condition will not be accepted.

C. Storage:

1. Store and support pipe securely to prevent accidental rolling and to avoid contact with mud, water, or other deleterious materials.

2. Pipe and fittings shall not be stored on rocks, gravel, or other hard material that might damage pipe. This includes storage area and along pipe trench.

3. Do not store materials in direct sunlight.

4. Gaskets: Do not allow contact with oils, fuels, petroleum, or solvents.

D. Handling:

1. Pipe and appurtenances shall be handled in accordance with Manufacturer's recommendations or requirements contained in this section or subsequent sections dealing with the specific pipe material, whichever is more stringent.

2. Pipe shall be handled with proper equipment in a manner to prevent distortion or damage. Use of hooks, chains, wire ropes, or clamps that could damage pipe, damage coating or lining, or kink and bend pipe ends is not permitted.

3. Use heavy canvas, or nylon slings of suitable strength for lifting and supporting materials.

4. Lifting pipe during unloading or lifting into trench shall be done using two slings placed at quarter point of pipe section. Pipe may be lifted using one sling near center of pipe, provided pipe is guided to prevent uncontrolled swinging and no damage will result to pipe or harm to workers. Slings shall bear uniformly against pipe.

E. Pipe Plugs:

Provide and install a cap or plug on each end of pipe during transportation and onsite storage to protect linings and coatings from debris. Install watertight plug-in end of installed pipe at the end of the workday. Under no circumstances shall materials be dropped or dumped into the trench.

PART 2 PRODUCTS

2.1 WATER PIPING

A. General

1. All piping materials and specials shall meet the specifications of this Section and of the appropriate AWWA Standard Specifications. In the case of conflict, the more stringent specifications shall apply.

2. All coatings and materials specified herein which may come in contact with potable water shall conform to National Sanitation Foundation (NSF) Standard 61, 372 and 600.

3. Minimum Pressure Ratings: Unless otherwise specified herein or shown in the Drawings, the minimum working pressure rating of all water works materials specified herein shall be 1-1/2 times the operating pressure or 150 pounds per square inch (psi) minimum.

4. Gaskets:

a. Material: Styrene Butadiene Rubber (SBR) composition.

B. Ductile Iron Pipe:

1. Centrifugally cast, conforming to AWWA Standard C151.

2. Coating: Asphaltic exterior coating in accordance with AWWA Standard C151.

3. Pipe Mortar Lining: Shop-applied NSF 61 cement mortar lining, smoothed finish, complying with AWWA C104.

4. Pipe Thickness Class:

a. Comply with AWWA C151.

b. Class 52, unless shown to be greater in the Plans.

1) The Contractor shall be aware ductile iron piping with thickness class greater than Class 52 may have long fabrication and supplier lead times. The Contractor shall be responsible for coordinating product submittal and delivery times accordingly such as not to delay construction.

5. NOT USED

6. Polyethylene Encasement:

a. Comply with AWWA C105.

b. Polyethylene film shall be minimum 8-mil thick virgin linear low-density polyethylene (LLDPE).

c. Secure in place with 10-mil polyethylene tape

d. V-BIO Enhance Polyethylene Film shall be minimum 9-mil thick and provided where specified or shown on plans.

7. Joints:

a. Joint types shall be provided as identified in the Drawings and as required for the application.

b. Mechanical Joints:

1) Comply with AWWA C111.

c. Push-on Joints:

1) Comply with AWWA C111.

2) Manufacturers, without exception:

a) Tyton Joint by American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, McWane, and Pacific States Cast Iron Pipe.

b) Fastite Joint by American Cast Iron Pipe Company.

d. Restrained Joints:

1) Joint restraint for pipe shall be accomplished with an integral lock mechanism, except as may be otherwise specified.

a) Any such system shall be a manufacturer's standard proprietary design, shall be as recommended by the Manufacturer for the application, and shall be performance proven.

2) Restraining components:

a) Ductile iron complying with AWWA C110 and/or C153, with the exception of a manufacturer's proprietary design dimensions.

b) Push-on joints for such fittings shall comply with AWWA C111.

3) Deflection:

a) The maximum pipe deflection shall not exceed one-half of the Manufacturer's stated joint deflection allowance.

4) Manufacturers:

a) For pipe larger than 12"

(1) "TR Flex", United States Pipe and Foundry Company.

(2) "Flex-Ring", American Cast Iron Pipe Company.

b) For pipe 12" and smaller

(1) "Field-Lok", United States Pipe and Foundry Company.

(2) "Fast Grip", American Cast Iron Pipe Company.

(3) "TR Flex", United States Pipe and Foundry Company.

(4) "Flex-Ring", American Cast Iron Pipe Company.

c) For all pipe sizes

(1) Wedge-type Restraint System – "MEGALUG", EBBA Iron, Inc. or equal.

(a) Where any restrained joint system requires the use of a wedge-type mechanical restraint gland for restraint, the glands shall be provided in quantities as may be required and shall be considered incidental to the joint restraint system.

(b) Wedge-type mechanical restraining glands shall not be used to restrain the plain end of plain end ductile iron or cast-iron fittings.

5) "Foster Adaptor", Infact Corporation

a) Where specified, mechanical joint (MJ) valves and fittings shall be connected using a bolt-through positive restraint mechanism manufactured of ductile iron conforming to ASTM A536, 65-45-12.

b) The positive restraint device shall connect the valves and/or fittings at a linear distance not to exceed three (3) inches and without attachment to pipe.

c) The device shall come complete with all accessories, including standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111/ASTM F-477 and weathering steel (Corten) bolts conforming to AWWA C111/A21.11 and ASTM A242.

d) Nuts for 3 through 12-inch sizes shall be SAE Grade 5 steel with black oxide coating. Nuts for 14-inch and larger adaptors shall be heavy hex Corten steel conforming to ASTM A242.

e) MJ positive restraining device shall be supplied with NSF 61, 7-mil. fusion bonded epoxy conforming to AWWA C116/A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/AWWA C550.

f) The device shall be used with standard mechanical joint fittings (AWWA C110 or C153) and valves and shall be Infact Corporation FOSTER ADAPTOR or equal.

e. Flanged Joints:

1) Flat faced, complying with AWWA C111 and C115, unless otherwise specified.

2) Bolt hole drilling according to ASME/ANSI B16.1, Class 125, or ASME/ANSI B16.1, Class 250, where specified. Flanges shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown.

3) The Contractor shall coordinate with pipe, valve, and fitting suppliers to make certain mating pipe, valve, and fitting flanges match in bolt pattern.

4) Pressure rating of flange joints shall not exceed the rating of the pipe or fitting of which they are a part, and the maximum pressure rating of the joint shall be 250 psi.

5) Flange joint connections shall not be exposed to test pressures greater than 1-1/2 times their rated working pressure.

6) Threaded flanges:

a) Ductile iron pipe spools with threaded flanges shall conform to AWWA C115.

b) Installed only on pipe with a minimum Class 53 wall thickness.

7) Buried flanges:

a) Flanged connections shall not be buried unless shown as such on the Drawings.

b) Buried flanges shall be wrapped with 2 layers of 10-mil tape along edges of flanges.

8) Gaskets:

a) Full faced, composed of synthetic rubber and 1/8-inch-thick conforming to ASME B21.1 and AWWA C111.

b) Ring gaskets will be permitted only where specifically noted in the Drawings and Specifications.

c) Gaskets for flanged joints shall be as follows:

(1) Pipe sizes between 6-inch and 24-inch diameter, service pressures of 150 psi or greater shall be Garlock 3760-U or equal.

(2) Pipe sizes 4-inch diameter and under, service pressures of 150 psi or greater shall be Garlock GYLON 3505 or equal.

(3) All pipe sizes with service pressures of 150 psi or less shall be Garlock 98206 or equal.

d) Gaskets for insulating flanged joints shall be as follows:

(1) Full faced, conform to ANSI 16.21.

(2) Material: Non-asbestos.

(3) Suitable for operating and test pressures of the pipe system.

(4) Manufacturer:

(a) Garlock GYLON 3505-or equal.

C. PVC:

1. All PVC pressure pipe shall be manufactured with an integral bell design capable of receiving an elastomeric gasket.

2. All PVC pressure pipe shall be dimensionally compatible with standard cast/ductile iron fittings produced according to AWWA C110 or AWWA C153, as applicable.

3. Deflection:

a. PVC pressure pipe may be deflected both horizontally and vertically at the joints after assembly.

b. Deflection by bending of the pipe rather than at the joints is not allowed.

c. The maximum pipe deflection shall not exceed one half of the Manufacturer's stated joint deflection allowance.

4. Joints:

a. Solvent-cement couplings are not permitted.

5. Gaskets: Comply with ASTM F477.

6. Size: 4-inch through 12-inch diameter

a. Comply with AWWA C900, DR 14, Class 305, unless shown otherwise in the Drawings or specified elsewhere.

7. Size: 14-inch through 48-inch diameter

a. Comply with AWWA C900, DR 18, Class 235, unless shown otherwise in the Drawings or specified elsewhere.

8. Restrained Joints:

a. For push-on pipe joint at pipe bells:

1) Material:

a) Body: Ductile iron. Comply with ASTM A536.

b) Bell Restraint Systems: Corten steel tie rods.

2) Coatings: Shop-applied liquid epoxy.

3) Construction:

a) A split serrated ring shall be used behind the pipe bell. A split serrated ring shall also be used to grip the pipe and a sufficient number of bolts shall be used to connect the bell ring and the gripping ring.

b) System shall be designed for a minimum 2 to 1 safety factor.

4) Manufacturers:

a) 4-inch through 12-inch diameter: EBAA Iron, Inc. - Series 1900 Bell Restraint Harness.

b) 14-inch through 48-inch diameter: EBAA Iron, Inc. - Series 2800 Bell Restraint Harness.

b. At mechanical joint fittings:

1) Material: Ductile iron. Comply with ASTM A536.

2) Coatings: Shop-applied liquid epoxy.

3) Construction:

a) Restraint accomplished by a restraint device consisting of a follower gland utilizing multiple gripping wedges.

b) The restraint system shall have a sufficient number of fastening bolts to connect the ring to the mechanical joint.

c) System shall be designed for a minimum 2 to 1 safety factor.

4) Fasteners:

a) T-bolts and nuts: High strength, low alloy steel.

b) Comply with AWWA C111.

5) Manufacturers:

a) EBAA Iron, Inc. - MEGALUG, Series 2000PV

b) Romac Industries, Inc. – 470 Series Pipe Restraining System

D. HDPE: See Section 33 1 10.30, HDPE Water Utility Piping.

2.2 FITTINGS

A. Material: Ductile iron, complying with AWWA Standard C110.

1. Fittings conforming to AWWA C153 may be substituted in lieu of AWWA C110 fittings.

B. Fittings used for joining ductile iron and PVC pipe shall be of the type, size, and strength designated on the Plans, elsewhere in the specifications.

1. Fittings shall be mechanical joint, push-on type, flanged or plain-end as required and shown on the Drawings.

2. All restraint systems and flanged fittings shall be provided with bolts and gaskets as specified herein.

C. Pressure ratings: As specified for joining pipe above and as shown on the Drawings.

D. Coating and Lining:

1. Asphaltic exterior coating in accordance with AWWA Standard C110.

2. Cement Mortar Lining: Comply with AWWA C104.

3. Wax Tape Coating System (Field Coating): Petrolatum wax tape coating system where specified or shown on drawings:

a. General: Apply a wax tape coating system generally per AWWA C217 and consists of three parts: surface primer, wax-tape, and outer covering. All three parts shall be the product of the same manufacturer.

b. The primer shall be a blend of petrolatum, plasticizer, and corrosion inhibitors having a paste like consistency. It shall have a pour point of 100-degrees F to 110-degrees F and a flash point of 350-degrees. Use Trenton Wax-Tape Primer or approved equal.

c. The wax-tape shall consist of a synthetic-fiber felt, saturated with a blend of high melt microcrystalline wax, solvents, and corrosion inhibitors, forming a tape coating that is easily formable over irregular surfaces and which firms up after application. The tape shall have a saturant pour point between 125-degrees F and 130-degrees F and a dielectric strength equal to a minimum of 100-volts per mil. Tape thickness shall be 50-mils to 90-mils in 6-inch-wide rolls. Use Trenton No. 1 wax-tape or equal.

d. The outer covering shall consist of two layers of a plastic wrapper at total of one 150 gauge or three 50 gauge wound together as a single sheet. The plastic wrapper material shall consist of clear polyvinylidene chloride, high cling membranes wound together as a single sheet. Use Trenton Poly-Ply or approved equal.

E. Following information cast upon fittings:

1. Manufacturer's identification.

2. Country of manufacture.

3. Pressure rating.

4. For bends, number of degrees and/or fractions of a circle.

F. Owner may require additional metallurgical documentation or other certifications.

2.3 NUTS, BOLTS, AND WASHERS

A. All bolts shall have heavy hex head with heavy hex nuts.

B. For operating pressures greater than 150 psi:

1. Bolts: Steel alloy composition. Comply with ASTM A193.

2. Nuts: Comply with ASTM A194, Grade 2H.

3. Washers: Comply with ASTM F436.

C. For operation pressures of 150 psi or less:

1. Bolts: Low-carbon steel composition. Comply with ASTM A307, Grade B.

2. Nuts: Comply with ASTM A563A, Heavy Hex.

3. Washers: Comply with ASTM F844.

D. Higher-strength bolts with higher torque values as specified above for operation pressures greater than 150 psi shall not be used for assembly of flange joints including gray-iron flanges.

2.4 FLEXIBLE COUPLINGS

A. General

1. All flexible couplings shall be constructed to inside diameters that properly fit the connecting pipes.

2. The Contractor shall be responsible for selecting sleeve lengths appropriate to the application, subject to review and approval of the Engineer, recognizing that longer sleeves allow for larger deflections and may ease installation.

B. Flexible Couplings:

1. Description:

a. Comply with AWWA C219.

b. Type: Bolted, sleeved.

c. Configuration: Straight, transition, or reducing as shown in the Drawings.

d. Center rings and end rings: Ductile iron. Comply with ASTM A536.

e. Gaskets: Virgin styrene butadiene rubber (SBR) compounded for water service. Comply with ASTM D2000.

f. Bolts and nuts: High strength low alloy steel. Comply with AWWA C111.

g. Lining and coating: Factory-applied fusion bonded epoxy.

h. Working pressure: Up to 260 psi.

2. Manufacturers:

a. For 2-inch to 24-inch diameter:

1) Romac Industries, Inc. – Style 501 or equal.

b. For 12-inch diameter and larger:

1) Romac Industries, Inc. – 400 Series or equal.

C. Insulating Flexible Couplings:

1. The Contractor shall be responsible for selecting couplings appropriate to the application, subject to review and approval of the Engineer, recognizing that different pipe materials will require specific sizing and material selection for couplings.

2. Description:

a. Comply with Flexible Coupling specifications above.

b. Insulating Boot: Ethylene propylene diene monomer (EPDM) compounded for water service. Comply with ASTM D2000.

3. Manufacturers:

a. For 4-inch to 14-inch diameter:

1) Romac Industries, Inc. – Style IC501 or equal.

b. For 12-inch to 96-inch diameter:

1) Romac Industries, Inc. – Style IC400 or equal.

D. Restrained Flexible Couplings:

1. Description:

a. Body: Steel. Comply with ASTM A36.

b. Restrained gland: Ductile iron. Comply with ASTM A536, Grade 65-45-12.

c. Gaskets: Virgin styrene butadiene rubber (SBR) compounded for water service. Comply with ASTM D2000.

d. Bolts and nuts: All-thread rod, at a minimum complying with ASTM A193 Grade B7. Nuts per ASTM A194 Grade 2H.

e. Lining and coating: Factory-applied fusion bonded epoxy.

f. Working pressure: 250 psi. Test pressure: 400 psi.

2. Manufacturers:

a. Romac Industries, Inc. – Style 400RG

b. EBAA Iron – 3800 MEGA-COUPLING

2.5 FLANGED COUPLING ADAPTERS

A. Flanged Coupling Adapters:

1. All flanged coupling adapters shall be constructed to diameters that properly fit the connecting plain end pipe and the flanged fitting.

2. Description:

a. Comply with AWWA C219.

b. Flange: AWWA Class D Steel Ring Flange, compatible with ANSI Class 125 and 150 bolt circles.

c. End ring and body:

1) Steel. Comply with ASTM A36.

2) Ductile iron. Comply with ASTM A536, Grade 65-45-12.

d. Flange: Compatible with ANSI Class 125 and 150 bolt circles.

e. Gaskets: Virgin styrene butadiene rubber (SBR) compounded for water service. Comply with ASTM D2000.

f. Bolts and nuts: High strength low alloy steel bolts and nuts. Comply with AWWA C111 composition requirements.

g. Lining and coating: Factory-applied fusion bonded epoxy.

h. Working pressure rating: Equal to the maximum rating of the flange.

3. Manufacturers:

a. Romac Industries, Inc.

1) Style FCA501

a) For 3-inch to 16-inch diameter.

2) Style FC400.

a) For 12-inch to 96-inch diameter.

B. Restrained Flanged Coupling Adapters:

1. Description:

a. Gland and flange body: Ductile iron. Comply with ASTM A536.

b. Flange: Compatible with ANSI Class 125 and 150 bolt circles.

c. Gaskets: Virgin styrene butadiene rubber (SBR) compounded for water service. Comply with ASTM D2000.

d. Restraining bolts and lugs: Ductile iron. Comply with ASTM A536.

e. T-bolts, Bolts, and nuts: High strength low alloy steel. Comply with AWWA C111 composition requirements.

f. Lining and coating: Factory-applied fusion bonded epoxy.

2. Manufacturers:

a. For ductile iron pipe (sizes 3-inch through 24-inch diameters):

1) Romac Industries, Inc. – RFCA Restrained Flanged Coupling Adapters.

2) EBAA Iron – MEGAFLANGE Restrained Flange Adapter Series 2100.

b. For HDPE pipe (sizes 4-inch through 24-inch diameters):

1) EBAA Iron – MEGAFLANGE Restrained Flange Adapter Series 2100.

2.6 TAPPING SLEEVES AND VALVES

A. Tapping Sleeves:

1. Description:

a. Type: Dual compression.

b. Material:

1) Body: Stainless steel, Type 304.

2) Flanged outlet: Stainless steel, Type 304.

c. Outlet Flange Dimensions and Drilling: Comply with ASME B16.1, Class 150, and MSS SP-60.

d. Outlet Gasket:

e. Provide with Type 304 stainless steel test plug.

f. Nuts, bolts, and washers: Stainless steel, Type 304.

2. Manufacturers:

a. Romac Industries, Inc. – Model STS 420

b. JMC Industries, Inc.

B. Tapping Valves:

1. Resilient wedge gate valves specified in Section 40 05 61, Gate Valves.

2.7 FLEXIBLE EXPANSION JOINTS

A. Description

1. Installed at locations indicated in the Drawings.

2. End connections: As shown in the Drawings.

3. Material: Ductile iron, AWWA C153.

4. Working pressure: 350 psi, minimum.

5. Construction:

a. An expansion joint designed and cast as an integral part of a double ball and socket type flexible joint.

b. Manufactured of ductile iron, conforming to requirements of AWWA C153 and ASTM A536.

c. Deflection: Minimum of 15 degrees deflection per ball.

d. Expansion:

1) 12-inch diameter and under: 8-inch.

2) Greater than 12-inch diameter: 16 inches.

e. The flexible expansion joint unit shall not impart a thrust force while under internal pressure.

f. Each flexible expansion joint shall be hydrostatically tested to the Manufacturer's published pressure rating prior to shipment.

g. Lining: All interior "wetted" parts shall be shop-lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of AWWA C213 and shall be holiday tested with a 1500-volt spark test conforming to said specification.

h. Coating: Coal tar epoxy.

6. Quality Assurance: Hydrostatically tested to Manufacturer's published pressure rating prior to shipment.

7. Appropriately sized polyethylene sleeves, meeting AWWA C105 requirements, shall be included for direct bury applications.

B. Manufacturers

1. EBAA Iron, Inc. – Flex-Tend or equal. Force Balanced Flex-Tend where specified or shown on plans.

2.8 UNDERGROUND PIPE MARKERS

A. As specified in Section 31 23 17, Trenching.

2.9 CONCRETE ENCASEMENT AND CRADLES

A. Concrete:

1. As specified in the Drawings.

2. Type: reinforced, air entrained as shown in the Drawings.

3. Compressive Strength: Minimum 3,000 psi at 28 days.

4. Finish: Rough troweled.

B. Concrete Reinforcement: As specified in the Drawings.

2.10 BEDDING AND COVER MATERIALS

A. Bedding and Cover:

1. Pipe Bedding: Coarse Aggregate Material Type A1, as specified in Section 31 05 16, Aggregates for Earthwork. Aggregate size as shown in the Drawings.

2. Pipe Zone Backfill: Coarse Aggregate Material Type A1, as specified in Section 31 05 16, Aggregates for Earthwork. Aggregate size as shown in the Drawings.

3. Trench Backfill from Pipe Zone to Finish Grade:

a. Material type varies by location, as shown in the Drawings.

b. Coarse Aggregate Material Type A1, as specified in Section 31 05 16, Aggregates for Earthwork. Aggregate size as shown in the Drawings.

c. Subsoil Type S1 or S2, as specified in Section 31 05 13, Soils for Earthwork.

2.11 NOT USED

2.12 ACCESSORIES

A. Concrete for Thrust Restraints: As specified in the Drawings.

B. Manhole and Cover: As specified in Section 33 05 13- Manholes and in the Drawings.

C. Miscellaneous Steel Rods, Bolt, Lugs, and Brackets:

1. Comply with ASTM A36 or ASTM A307.

2. Grade A carbon steel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

A. Preconstruction Site Photos:

1. Take photographs along centerline of proposed pipe trench; minimum one photograph for each 100 feet of pipe trench.

2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing Site features.

3. Include Project name, date taken, and sequential number of each photograph in physical log or CD.

B. Inspection:

1. All pipe sections, specials, and jointing materials shall be carefully examined for defects.

2. No piping or related materials shall be laid that is known to be defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Engineer at the Contractor's expense.

3. Defective material shall be marked and removed from the job site before the end of the day.

C. Pipe Cutting:

1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.

2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.

3. Grind edges smooth with beveled end for push-on connections.

4. Prior to assembly of field cut pipe, the reference mark shall be re-established with a pencil or crayon. The location of the reference mark at the proper distance from the bevel end shall be in accordance with the Manufacturer's recommendations.

D. Remove scale and dirt on inside and outside before assembly. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air, or washing to remove all foreign matter.

E. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

A. Bedding:

1. Excavation:

a. Excavate pipe trench as specified in Section 31 23 17, Trenching for Work of this Section.

b. All pipe trenches shall be excavated below the proposed pipe invert as required to accommodate the depths of pipe bedding material as scheduled on the Drawings.

c. Remove large stones or other hard matter which could damage pipe or impede consistent pipe bedding backfilling or compaction.

d. Trench base shall be inspected prior to placement of pipe.

e. Hand trim excavation for accurate placement of pipe to elevations as indicated on Drawings.

2. Dewater excavation as specified in Section 31 23 19, Dewatering to maintain dry conditions and to preserve final grades at bottom of excavation.

3. Provide sheeting and shoring as specified in Section 31 23 17, Trenching.

4. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches compacted depth and compact to 95 percent of maximum density.

B. Piping:

1. Install pipe according to AWWA C600 for ductile iron piping. Install according to AWWA C605 for PVC piping. Refer to Section 33 11 10.30 for HDPE piping.

2. Handle and assemble pipe according to Manufacturer instructions and as indicated on Drawings.

3. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

4. Steel Rods, Bolt, Lugs, and Brackets: Coat buried steel with one coat of coal tar coating before backfilling.

5. Sanitary Sewer Separation:

a. Install new water lines and appurtenances in compliance with local and state regulations governing the horizontal and vertical separations between water and sewer facilities.

b. Variance:

1) If a variance is proposed due to requested design revisions or if an existing facility has been installed at a different location or elevation than indicated on the Plans, submit written proposal for review and approval by the Engineer.

2) Include the reason for the variance, type of material and condition of the sewer line, location of the water and sewer facilities, horizontal and vertical skin-to-skin clearances and corrective measures proposed.

3) Each variance will be considered on a case-by-case basis.

4) Review Time: Allow a minimum of 5 working days review and response to each proposal.

6. Install ductile iron fittings according to AWWA C600.

7. Joints:

a. Pipe jointing surfaces shall be clean and dry when preparing surfaces for joining.

b. Lubricants, primers, adhesives, etc. shall be used as recommended by the Pipe or Joint Manufacturer's specifications.

c. The jointing materials or factory-fabricated joints shall then be placed, fitted, joined, and adjusted in such a manner as to obtain a watertight joint.

d. Trenches shall be kept water-free and as dry as possible during bedding, laying, and jointing.

e. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of the pipe from any cause.

8. Flanged Joints: Not to be used in underground installations except within structures, unless shown otherwise in the Drawings.

9. Deflection:

a. PVC pressure pipe may be deflected both horizontally and vertically at the joints after assembly.

b. Deflection by bending of the pipe rather than at the joints is not allowed.

c. The maximum pipe deflection shall not exceed one-half of the Manufacturer's stated joint deflection allowance.

d. Set a laser, string line, or other approved alignment guide along the centerline of previously installed pipe to the point where pipe joint deflection is required. The approved alignment guide shall extend to the end of the proposed subsequent pipe length. A measurement will be taken from the alignment guide to the centerline of the subsequent pipe length to determine the amount of pipe joint deflection proposed.

Measured deflection shall not exceed the specified allowable deflection for the purposes of aligning the pipe.

10. Install pipe and fittings to the line and grade specified on the Drawings, with joints centered, pipe properly supported and restrained against movement, and all valve stems plumb. Re-lay pipe that is out of alignment or grade.

11. High Points:

    a. Install pipe with no high points, unless otherwise shown in the Drawings.

    b. If unforeseen field conditions arise that necessitate high points, install air release valves as directed by Engineer.

12. Bearing:

    a. Install pipe to have bearing along entire length of pipe.

    b. Excavate bell holes to permit proper joint installation where necessary or as directed by Engineer.

    c. Do not lay pipe in wet or frozen trench.

13. Prevent foreign material from entering pipe during placement.

14. Install pipe to allow for expansion and contraction without stressing pipe or joints.

15. Close pipe openings with watertight plugs during Work stoppages.

16. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.

17. Install access fittings to permit disinfection of water system performed under Section 33 13 00 – Testing and Disinfecting of Water Utility Piping.

18. Cover:

    a. Establish elevations of buried piping with not less than 30 inches of cover.

    b. Measure depth of cover from final surface grade to top of pipe barrel.

19. Pipe Markers:

    a. Install as specified in Section 31 23 17, Trenching.

C. Tapping Sleeves and Valves:

1. As indicated on Drawings and according to Manufacturer instructions.

D. Polyethylene Encasement:

1. Encase piping in polyethylene where indicated on Drawings to prevent contact with surrounding backfill material.

2. Comply with AWWA C105.

3. Encasement shall be two (2) layers of 8 mil polyethylene encasement, V-bio, by US Pipe.

E. Thrust Restraints:

1. Provide valves, tees, bends, caps, and plugs with concrete thrust blocks at locations shown in the Drawings and as required to facilitate testing of lines.

2. Pour concrete thrust blocks against undisturbed earth.

3. Locate thrust blocks to ensure that pipe and fitting joints will be accessible for repair.

4. Provide thrust restraint bearing area on subsoil as shown in details within the Drawings.

5. Install tie rods, clamps, setscrew retainer glands, or restrained joints.

6. Protect metal-restrained joint components against corrosion with polyethylene film or wax tape as specified herein.

7. Avoid encasing mechanical and flanged joints in concrete. Provide clearance between concrete and mechanical and flange joints to allow future bolt removal.

F. Backfilling:

1. Backfill of piping systems shall be as specified in Section 31 23 17, Trenching.

G. Testing and Disinfection of Potable Water Piping System:

1. In accordance with AWWA C600 (for ductile iron piping), AWWA C605 (for PVC piping), AWWA C651 and as specified in Section 33 13 00, Testing and Disinfecting of Water Utility Piping.

2. All chlorinated water used in disinfection of the water main shall either be discharged through an approved connection to a public sanitary sewer system or shall be dechlorinated to limits acceptable by the Oregon Department of Health (DOH) and as required by project permits prior to discharge into any storm drainage system or open drainage way.

3. No chlorinated water shall be discharged into a storm drainage system or open drainage way without a dechlorination under a plan meeting DOH's requirements.

3.4 FIELD QUALITY CONTROL

A. Compaction Testing: See Section 31 23 17, Trenching for Compaction Testing requirements for piping trenches.

END OF SECTION

SECTION 33 11 10.30 - HDPE WATER UTILITY PIPING

PART 1 GENERAL

1.1 SCOPE

This Section covers high density polyethylene (HDPE) pressure pipe. HDPE pipe shall be furnished complete with all fittings, jointing materials, and appurtenances.

1.2 REFERENCE SPECIFICATION

A. ANSI/AWWA C906, AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4-inch through 63-inch, for Water Distribution and Transmission

B. ANSI/AWWA C901, AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 3/4"-inch though 3-inch, for water service.

C. AWWA M55 – Manual of Water Supply Practices, PE Pipe – Design and Installation

D. ASTM D2774 - Standard Practice for Underground Installation of Thermoplastic Pressure Piping

E. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

F. ASTM F1055 – Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing

G. ASTM F1290 - Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

H. ASTM F2164 - Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure

I. ASTM F2620 - Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

J. PPI Handbook of Polyethylene Pipe (2nd Edition)

K. PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining 12-Inch and Smaller Polyethylene (PE) Pipe

L. PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 14-Inch to 30-Inch Polyethylene (PE) Pipe

1.3 SUBMITTALS

A. Complete layout drawings, details, and specifications covering all HDPE piping and accessories shall be submitted.

B. When requested by the ENGINEER, certified copies of physical and chemical test results shall be submitted for the materials to be provided.

C. An affidavit of compliance and certification of special quality assurance testing shall be submitted.

D. Submit welding procedure including temperature, pressure, hold time and other data parameters that are logged during the welding.

E. Results of destructive testing of first thermal butt fused joint (bent strap test/bend back test or as recommended by pipe manufacturer).

F. Data logger results of the thermal butt fusion for all pipe joints.

G. Electrofusion coupling

1. Electrofusion pipe joining preparation and procedure, and operator checklist.

2. Documentation of operator's proper training and certification to perform coupling of HDPE pipe via electrofusion, from coupling manufacturer/supplier.

3. Manual records, and electronic records from electrofusion control box, of fusion results after coupling has been installed.

H. Electrofusion Branch Saddle

1. Electrofusion branch saddle joining preparation and procedure, and operator checklist.

2. Documentation of operator's proper training and certification to perform installation of branch saddle on HDPE pipe via electrofusion, from branch saddle manufacturer/supplier.

3. Manual and electronic records from electrofusion control box, of fusion results after branch saddle has been installed.

PART 2 MATERIALS

2.1 GENERAL

The nominal pipe(s) shall be IPS size, as shown on the Drawings. All piping materials shall be NSF-61 approved for use with potable water.

2.2 MATERIALS

A. Pipe

Pipe shall meet the requirements of ANSI/AWWA C906, Standard PE Code Designation PE 4710, minimum cell classification - PE 445574C (ASTM D3350). All HDPE pipe and fittings shall be of the dimension ratio (DR) as shown on the plans.

The pipe shall be color striped as follows: Blue (WATER).

B. Joints and Fittings

1. Pipe shall be joined using thermal butt fusion per ASTM F2620, except where otherwise specified or approved by the ENGINEER.

2. Polyethylene fittings shall either be molded per ASTM F2880 or fabricated from sections of pipe per the requirements of ASTM F2206. HDPE fittings shall be furnished by the manufacturer or fabricator with the same pressure rating or higher than the HDPE pipe being fused to the fitting.

3. Electrofusion couplings shall be installed only were shown on the plans, or where approved for installation by the ENGINEER. Couplings shall meet the minimum material and performance requirements of ASTM D3350 and ASTM F1055, respectively, be compatible for use on PE4710 HDPE pipe, have a pressure rating equal to or exceeding that of the connecting piping, be compatible with a 24-digit barcode control box conforming to ISO 12176-2, and shall be manufactured by Georg Fischer Central Plastics, or approved equal.

4. Flexible couplings and restrained couplings for connecting HDPE pipe plain ends shall be installed only were shown on the Drawings or where approved for installation by the ENGINEER. Refer to Section 33 11 10, Water Utility Distribution and Transmission Piping.

5. Electrofusion Branch Saddles shall be manufactured in accordance with ASTM F-1055 with a rated working pressure of 200 psi or greater for water applications. Branch saddles shall be provided with saddle clamps as recommended by the fitting manufacturer.

6. Mechanical service saddles shall be specifically designed for tapping HDPE pipe up to 24-inches in diameter, stainless steel half coupling, fused to pad with GMAW welding and rated for a maximum working pressure 150 psi. Service saddle shall be Model #305-H as manufactured by Romac Industries or approved equal.

7. Flange Insulating Kits – NOT USED

8. Electrofusion Flex Restraint Device shall have a minimal axial resistance rating of 7,000 lbf per saddle and shall be manufactured by Georg Fischer (GF) Central Plastics or approved equal.

C. Fusion Equipment Requirements

1. Butt fusion equipment must be in satisfactory working order and the hydraulic system must be leak free. Heater plates shall be free from scrapes, gouges, and have a consistent clean coated surface. The pressure gage and thermometer should be checked for accuracy. When requested by the OWNER, records showing a maintenance service/inspection within 3 months prior to use for this project shall be provided.

2. Electrofusion control boxes shall be maintained and calibrated per manufacturer's requirements and recommendations.

D. Transition Connections to DI Pipe

Connections between HDPE pipe and DI pipe shall be made using fittings as shown on the plans. HDPE molded flange adaptor fittings shall be of the same class as the HDPE piping.

Gaskets for molded HDPE flange to DI flange connections shall be 1/8" thick, full face and conform to ANSI B16.21, suitable for the operating and test pressures of the pipe system. Refer to Section 33 11 10, Water Utility Distribution and Transmission Piping.

DI backup ring shall be epoxy coated and rated to meet or exceed pressure rating of HDPE force main piping.

Flange fasteners shall be as specified in Section 33 11 10, Water Utility Distribution and Transmission Piping, for DI piping flange connections.

2.3 TRACER WIRE

A. Copper clad steel tracer wire shall be direct burial #12 AWG solid (0.0808-inch diameter), steel core hard drawn extra high strength horizontal directional drill tracer wire, 1,150-pound average tensile break load, 45-mil high molecular weight, high density blue polyethylene jacket complying with ASTM-D-1248, 30-volt rating, Copperhead Industries 1245G-EHS-2500 or equal.

PART 3 EXECUTION

3.1 INSPECTION

Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation. All defective pipe and fittings shall be removed from the site of the work.

3.2 PREPARATION

The interior of all pipe and fittings shall be thoroughly cleared of all foreign matter prior to installation. Precautions shall be taken to prevent foreign material from entering the pipe during installation.

Surface preparation procedures for all electrofusion processes, as recommended by electrofusion fitting manufacturers and per minimum requirements of PPI MAB Generic Electrofusion Procedure for Field Joining of Polyethylene (PE) Pipe (12-Inch and Smaller & 14-inch to 30-inch), shall be strictly adhered to.

3.3 HANDLING

Pipe, fittings, and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage or change the pipe and fittings. Hooks inserted in ends of pipe shall have broad well-padded contact surfaces. Scratches, gouges or damage of 10% or more of the pipe wall thickness will require removal of section of damaged pipe.

Pipe shall not be stored uncovered in direct sunlight.

3.4 JOINING

A. Thermal Butt Fused Joints:

1. Sections of polyethylene pipe shall be joined into continuous lengths on the job site above ground per ASTM D3261. The joining method shall be the thermal butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements for 400 degrees Fahrenheit (F), alignment, and 75 pounds per square inch (psi) interfacial fusion pressure.

2. Butt fusion joining shall be 100 percent efficient providing joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion will not be allowed. Extrusion welding or hot gas welding of HDPE shall not be used for pressure pipe applications or in fabrications where shear or structural strength is important.

3. Fusing machine shall be equipped with data logger and data logger results for butt fusion of all pipe joints shall be provided to OWNER and/or their representative for review.

4. Thermal butt fusion shall be the typical and preferred method for joining HDPE pipe ends. Other methods for connecting HDPE pipe ends shall only be employed where specified on the Drawings, or where approved by OWNER/ENGINEER.

B. Electrofusion Connections

1. Where shown on the Plans or approved by ENGINEER/OWNER, electrofusion connections shall be performed. Joining of HDPE pipe by this method shall be performed by an operator that has been properly trained and certified by the coupling supplier and/or manufacturer.

2. Procedure for installing electrofusion couplings and branch saddles shall comply with the minimum requirements described in PPI's guidance documents entitled "MAB Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe" and "MAB Generic Electrofusion Procedure for Field Joining of 14 Inch to 30-Inch (PE) Pipe" as well as any additional requirements provided by the coupling supplier/manufacturer, including use of the proper tools for preparing and clamping and restraining pipe, use of a suitable control box for the coupling or branch saddle to be installed, and following all fusion parameters recommended by the coupling manufacturer, including allowing proper cooling time after applying electric current.

3. Electrofusion process shall be documented manually by the operator via a standard preparation checklist recommended by the electrofusion fitting manufacturer, and electronically by the electrofusion control box during the fusion process. The electrofusion control box must be capable of reading and storing the input parameters and the fusion results for later download to a record file

4. Both forms of documentation (manual and electronic) are to be provided to the OWNER for their records after fusion process has been successfully completed.

5. Qualification of the fusion technician shall be demonstrated by evidence electrofusion training within the past year on the equipment to be utilized for this project

3.5 INSTALLATION

A. Direct Burial – HDPE pipe to be installed per the general guidelines of AWWA M55, Chapter 8, ASTM D2774, Standard Practice for Underground Installation of Thermoplastic Pressure Piping, and the pipe manufacturer's recommendations.

3.6 TRACER WIRE

For direct bury installations, extend the tracer wire to plastic valve boxes along the pipeline route at approximate 1,000-foot intervals or as shown on the Drawings or as otherwise directed by the ENGINEER. Tracer wire shall be installed by the CONTRACTOR once backfill has been placed and compacted to at least 12 inches above the top of the pipe and not more than 18 inches above the top of the pipe. Provide 2 feet of slack at the ends of the wire. Demonstrate that the copper conductor is electrically continuous after installation of the pipeline.

3.7 FIRST WELD DESTRUCTIVE FIELD TESTING OF BUTT FUSED JOINTS

CONTRACTOR shall conduct field bent strap test (bend back test) on first thermal butt fusion welded joint performed per the requirements of ASTM F2620 to verify proper butt fusion technique and procedures prior to performing production field welding of pipeline joints. If field bent strap testing is not recommended by HDPE manufacture due to pipe size and thickness, CONTRACTOR may be allowed to perform the guided side bend test per ASTM F3183 instead, upon OWNER representative's approval verify butt fusion technique/procedure.

3.8 HYDROSTATIC PRESSURE TESTING

Test all sections of HDPE pipe per the requirements of Section 33 13 00 Testing and Disinfecting of Water Utility Piping.

3.9 CONNECTIONS TO EXISTING PIPE

The Project includes connecting new HPDE pipe to existing HDPE, DI and FRP pipe. Locations and details for connecting to existing pipe are delineated in the Drawings.

END OF SECTION

SECTION 33 12 16 - WATER UTILITY DISTRIBUTION AND TRANSMISSION VALVES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes valves and valve boxes for installation with buried water distribution and transmission main, including fire hydrants and tapping sleeves.

B. Section Includes:

1. Valves.
2. Valve boxes.
3. Valve operator extensions.

C. Related Sections:

1. Section 03 11 00 – Concrete Work
2. Section 33 11 10 - Water Utility Distribution and Transmission Piping
3. Section 33 11 10.30 – HDPE Water Utility Piping
4. Section 33 12 19 - Fire Hydrants
5. Section 33 13 00 - Testing and Disinfecting of Water Utility Piping
6. Section 40 05 51 – Common Requirements for Process Valves
7. Section 40 05 61 – Gate Valves
8. Section 40 05 64 – Butterfly Valves

1.2 REFERENCE STANDARDS

A. American Society of Mechanical Engineers (ASME):

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250
2. ASME B16.5 - Pipe Flanges and Flanged Fittings, Steel Nickel Alloy, and other Special Alloys
3. ASME 1.20.1 - General Purpose Pipe Threads (Inch)

B. American Water Works Association (AWWA):

1. AWWA C504 - Rubber-Seated Butterfly Valves, 3 In. Through 72 In.
2. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service
3. AWWA C550 - Protecting Interior Coatings for Valves and Hydrants
4. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances

5. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings

C. ASTM International (ASTM):

1. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings

2. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications

D. NSF International (NSF):

1. NSF 61 - Drinking Water System Components - Health Effects

2. NSF 372 - Drinking Water System Components - Lead Content

1.3 COORDINATION

A. The Contractor shall cause the Supplier of valves to coordinate installation such that all pipes, valves, fittings, appurtenances, and equipment are compatible and capable of achieving the performance requirements specified in the Contract Documents.

B. Coordinate Work of this Section with City of Warrenton Department of Public Works standards and utilities within construction area.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit Manufacturer's latest published literature. Include illustrations, installation and maintenance instructions, and parts lists.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

E. Lining and coating data.

F. Valve Labeling: Schedule of valves to be labeled indicating in each case the valve location and the proposed labeling for the valve.

G. Certification of Valves Larger than 12 inches: Furnish certified copies of hydrostatic factory tests, indicating compliance with applicable standards.

H. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

I. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of valves.

B. Operation and Maintenance Data: Submit information for valves.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Tools: Furnish one tee wrench of required length to Owner.

1.7 QUALITY ASSURANCE

A. Cast Manufacturer's name, maximum working pressure, size of valve, and year of fabrication into valve body.

B. Valve Testing: Each valve body shall be tested under a test pressure equal to twice its design water-working pressure.

C. Certification: Prior to shipment, submit for all valves over 12 inches in diameter, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, American National Standards Institute (ANSI), ASTM, etc. Valves tested and supplied shall be trackable and traceable by serial number, tagged or otherwise noted on valve, upon arrival to Site.

D. Unless otherwise noted, all water works materials provided for the Project shall be new, of first-class quality and shall be made by reputable manufacturers.

E. All material of a like kind shall be provided from a single manufacturer, unless otherwise approved by the Engineer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves and accessories for shipment according to applicable AWWA standards.

B. Seal valve and ends to prevent entry of foreign matter.

C. Inspection: Accept materials on Site in Manufacturer's original packaging and inspect for damage.

D. Storage:

1. Store materials in areas protected from weather, moisture, or other potential damage.

2. Do not store materials directly on ground.

E. Handle products carefully to prevent damage to interior or exterior surfaces.

F. All defective or damaged materials shall be replaced with new materials at no cost to the Owner.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials in contact with potable water shall conform to ANSI/NSF Standard 61 and meet the “lead free” requirements of the Safe Drinking Water Act amendment, effective January 4, 2014, as per the lead content evaluation procedures outlined in NSF/ANSI Standard 372.1.

1. All fittings shall either be cast or permanently stamped with markings identifying the item as complying with NSF 61 per the requirements of NSF 372 for “lead free”.

2. All brass in contact with potable water shall comply with ASTM B584.

2.2 RESILIENT WEDGE GATE VALVES

A. As specified in Section 40 05 61, Gate Valves.

B. Connecting Hardware:

1. As specified in Article 2.3, Nuts, Bolts and Washers of Section 33 11 10, Water Utility Distribution and Transmission Piping.

C. Gaskets:

1. As required for the end connection types specified in Section 33 11 10, Water Utility Distribution and Transmission Piping.

2.3 DOUBLE-DISC GATE VALVES - NOT USED

2.4 SOLID WEDGE, METAL-SEATED GATE VALVES - NOT USED

2.5 RUBBER-SEATED BUTTERFLY VALVES

A. As specified in Section 40 05 64, Butterfly Valves.

B. Operation:

1. All buried valves shall be provided with 2-inch square operating nuts.

C. Connecting Hardware:

1. As specified in Article 2.3, Nuts, Bolts and Washers of Section 33 11 10, Water Utility Distribution and Transmission Piping.

D. Gaskets:

1. As required for the end connection types specified in Section 33 11 10, Water Utility Distribution and Transmission Piping.

2.6 ACTUATORS

A. Unless otherwise indicated, all valves shall be furnished with manual actuators.

B. Actuators shall be sized for the valve design pressure in accordance with AWWA C504.

C. All gear-assisted valves that are buried and submerged shall have the actuators hermetically sealed and grease-packed.

D. All valves 6 inches to 30 inches in diameter may have traveling-nut actuators, worm-gear actuators, spur- or bevel-gear actuators, as appropriate for each valve.

2.7 VALVE BOXES

A. Provide all buried valves with valve boxes, covers and risers.

B. Valve Boxes:

1. Materials: Cast iron.

2. Construction:

a. Walls not less than 3/16-inch thick at any point.

b. Internal diameter not less than 5 inches.

3. Type: Two-piece extension.

4. Manufacturers:

a. Olympic Foundry.

b. Brooks Products.

C. Covers:

1. Construction:

a. Prevents dislodging and rotation from traffic.

b. Allows a hand-held pry bar to be applied for easy removal.

2. Materials: Cast iron.

3. Lid Inscription: W.

4. Manufacturers: Matching that of valve box.

D. Riser:

1. Polyvinyl Chloride (PVC) Pipe:

a. ASTM D3034, SDR 35 PVC.

b. White, Schedule 40, 8-inch diameter.

c. Length as shown on details in the Drawings.

2.8 VALVE OPERATOR EXTENSIONS

A. As shown in the Drawings.

B. Provide operator extensions to a maximum of 12 inches below grade where depth to valve exceeds 36 inches. Provide with a 2-inch square operating nut and rock guard as shown on the Drawings.

2.9 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type as specified in Section 03 11 00 – Concrete Work.

PART 3 EXECUTION

3.1 PREPARATION

A. Conduct operations to not interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures, utilities, and landscape in immediate or adjacent areas.

B. Identify required lines, levels, contours, and datum locations.

C. Locate, identify, and protect from damage utilities to remain.

D. Access:

1. All valves shall be installed to provide easy access for operation, removal, and maintenance.

2. Avoid conflicts between valve operators and above grade construction such as structural members or handrails.

E. Valve Accessories:

1. Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the Contractor to properly assemble and install these various items so that all systems are compatible and operating properly.

2. The relationship between interrelated items shall be clearly noted on shop drawing submittals.

3.2 INSTALLATION

A. General:

1. All valves, operating units, stem extensions, valve boxes, and accessories shall be installed in accordance with the Manufacturer's written instructions and as shown in the Drawings and as specified herein.

2. Valves shall be firmly supported to avoid undue stresses on the pipe.

3. Stem extensions shall be braced at no greater than 10 feet intervals and be provided with double universal joints to allow for misalignment, where applicable.

B. Perform trench excavation, backfilling, and compaction as specified in Section 33 11 10, Water Utility Distribution and Transmission Piping.

C. Install valves in conjunction with pipe laying.

D. Set valves plumb.

E. Provide buried valves with valve boxes installed flush with finished grade.

1. Valves installed out of paved or otherwise hard-surfaced areas shall be set in a concrete pad at finished grade.

2. Concrete valve box pads shall be 18 inches square and be not less than 6 inches thick.

F. Disinfection of Water Piping System:

1. Flush and disinfect system as specified in Section 33 13 00, Testing and Disinfection of Water Utility Piping.

3.3 FIELD QUALITY CONTROL

A. Pressure test valving for water distribution system according to AWWA C600 and in accordance with Section 33 13 00, Testing and Disinfection of Water Utility Piping.

B. Field Testing of Valves:

1. All valves 24-inch diameter or larger, and all in-line transmission main valves, shall be pressure and leakage tested at the Site and shall pass the field testing prior to installation.

2. Valves shall be tested at 1.5 times normal operating pressure, 150 pounds per square inch (psi) minimum.

3. No valve shall be accepted for installation that fails to pass the field pressure test. Any valves failing field pressure tests shall be replaced by the CONTRACTOR at no additional cost to the OWNER.

4. ENGINEER shall witness field testing.

3.4 NOT USED

END OF SECTION

SECTION 33 12 19 - FIRE HYDRANTS

PART 1 GENERAL

1.1 SUMMARY

A. This Section addresses dry-barrel fire hydrants used in water supply service.

B. Section includes:

1. Fire hydrants used in water main installations.

C. Related Sections:

1. Section 03 11 00 – Concrete Work
2. Section 31 05 16 - Aggregates for Earthwork
3. Section 31 23 17 - Trenching
4. Section 33 13 00 – Testing and Disinfection of Water Utility Piping

1.2 REFERENCE STANDARDS

A. American Water Works Association (AWWA):

1. AWWA C502 - Dry-Barrel Fire Hydrants
2. AWWA C550 - Protective Interior Coatings for Valves and Hydrants
3. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances

B. National Fire Protection Association (NFPA):

1. NFPA 291 - Recommended Practice for Fire Flow Testing and Marking of Hydrants

1.3 COORDINATION

A. All hydrants supplied for the Project shall be of like kind from a single manufacturer.

1.4 SUBMITTALS

A. Section 01 33 00, Submittal Procedures: Requirements for submittals.

B. Product Data: Submit Manufacturer's latest published literature, including illustrations, installation and maintenance instructions, and parts lists.

C. Shop Drawings: Submit description of proposed installation.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of fire hydrants and service valves.

B. Operation and Maintenance Data: Submit data for hydrants.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Prepare hydrants and accessories for shipment according to AWWA standards.

B. Seal hydrant and ends to prevent entry of foreign matter.

C. Inspection: Accept materials on Site in Manufacturer's original packaging and inspect for damage.

D. Storage:

1. Store materials in areas protected from weather, moisture, or potential damage.

2. Do not store materials directly on ground.

E. Handle materials in a way that prevents damage to interior and exterior surfaces.

PART 2 PRODUCTS

2.1 FIRE HYDRANTS

A. Manufacturers:

1. Mueller Company, Super Centurion 250 Model A-423, or approved equal.

B. Dry-Barrel Breakaway Type:

1. Comply with AWWA C502.

2. Body: Cast iron.

3. Valve: Compression type.

4. Burial Depth: As indicated on Drawings.

5. Inlet Connection Size: 6 inches (150 millimeters).

6. Valve Opening: 5-1/4 inches (133 millimeters) in diameter.

7. End Connections: Mechanical joint or bell end.

8. Bolts and Nuts: Galvanized steel.

9. Interior Coating: Comply with AWWA C550.

10. Direction of Opening: Counterclockwise unless otherwise indicated.

C. Hose Connections:

1. One 4-1/2-inch diameter pumper, two 2-1/2-inch diameter hose nozzles.

2. Obtain thread type and size from local fire department.

3. Attach nozzle caps by separate chains.

D. Finishes:

1. Primer and two coats of enamel.

2. Color: R-1317, Safety Yellow.

2.2 NSF INTERNATIONAL (NSF) REQUIREMENTS

A. All fire hydrants must be NSF/ANSI Standard 61 certified and meet the "lead free" requirements of the Safe Drinking Water Act amendment, effective January 4, 2014, as per the lead content evaluation procedures outlined in NSF/ANSI Standard 372.

2.3 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type as specified in Section 03 11 00, Concrete Work.

B. Aggregate: Aggregate for hydrant drainage as specified in Section 31 05 16, Aggregates for Earthwork.

2.4 OUT OF SERVICE COVERS/OUT OF SERVICE RINGS

A. Provide orange plastic bag with reflective tape, or red plastic hydrant out of service rings.

2.5 MARKERS

A. Provide Blue Stimsonite two sided markers (2-way Blue 88AB) and Thermoset 2-part epoxy (EP-308 harderner Part B+EP-308 Epoxy Resin Part A).

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify location and size of hydrants from Drawings. Final location of hydrants to be determined by Engineer in the field.

B. Obtain clarification and directions from Engineer prior to execution of Work.

C. If installing a hydrant on an existing water system, verify invert elevation of existing piping is as indicated on Drawings prior to excavation and installation of fire hydrant.

3.2 PREPARATION

A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures, utilities, and landscape in immediate or adjacent areas.

B. Identify required lines, levels, contours, and datum locations.

C. Locate, identify, and protect from damage utilities to remain.

D. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.

1. Notify Owner and Engineer not less than 48 hours in advance of proposed utility interruption.

2. Do not proceed without written permission from Engineer.

3. Only District staff shall operate valves in existing system.

3.3 INSTALLATION

A. Perform trench excavation, backfilling, and compaction as specified in Section 31 23 17, Trenching.

B. Install pier support block and drainage gravel for fire hydrants; do not block drain hole.

1. Place drainage gravel around the pier block and bottom of hydrant to 6 inches above the hydrant drain opening.

2. Place textile fabric to cover drain rock prior to placement of backfill.

3. Setting shall allow the hydrant barrel to drain into drainage gravel at base of hydrant.

C. Set fire hydrants plumb with pumper nozzle facing roadway.

D. Set fire hydrants with centerline of pumper nozzle 18 inches above finished grade, and with safety flange not more than 6 inches nor less than 2 inches above grade. Install hydrant extensions where required and as approved.

E. Paint hydrants according to color scheme of local authorities having jurisdiction. Touch up paint after hydrant installation and testing.

F. After hydrostatic testing, flush hydrants, and check for proper drainage.

G. Disinfection of Water Piping System:

1. Flush and disinfect system as specified in Section 33 13 00, Testing and Disinfection of Water Utility Piping.

3.4 FIELD QUALITY CONTROL

A. Pressure test water distribution system according to AWWA C600 and Section 33 11 10, Water Utility Distribution and Transmission Piping, Field Quality Control.

3.5 CONCRETE HYDRANT PADS

A. When hydrant is place within sidewalks, form and pour-in-place 36-inch by 36-inch by 6-inch, 4,000 pounds per square inch (psi) concrete pad around the hydrant after the hydrant has been installed and set to grade.

B. Center hydrant pad on the hydrant. Set hydrant pad so top of pad is flush with surrounding surface, or as directed by the Engineer.

C. Hydrant pads may be adjusted to reach the back of curb if the hydrant pad is no less than 1-foot in any one direction.

3.6 OUT-OF-SERVICE HYDRANT PADS

A. To indicate that the fire hydrant is NOT operational, secure reflective tape, an orange plastic bag over the entire hydrant assembly or an approved out-of-service cover.

B. An out-of-service ring may also be used in addition to the bag or cover in case of removal of the cover.

C. Maintain the plastic bag up until the waterline is accepted by the Owner.

3.7 MARKERS

A. Attach marker to road surface with Thermoset 2-part epoxy. Locate marker right of centerline in travel lane closest to hydrant.

END OF SECTION

SECTION 33 13 00 - TESTING AND DISINFECTION OF WATER UTILITY PIPING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes hydrostatic pressure testing of raw water systems piping, fittings, and valves.

B. Disinfection and purity testing of raw water systems piping, fittings, and valves is NOT required.

C. Section Includes:

1. Pressure testing and disinfection of potable water distribution and transmission piping systems and appurtenances.

2. Testing and reporting of results.

D. Related Sections:

1. Section 33 11 10 - Water Utility Distribution and Transmission Piping

2. Section 33 11 10.30 – HDPE Water Utility Piping

3. Section 33 12 16 - Water Utility Distribution and Transmission Valves

4. Section 33 12 19 – Fire Hydrants

1.2 REFERENCE STANDARDS

A. American Water Works Association (AWWA):

1. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances

2. AWWA C605 - Underground Installation of PVC and PVCO Pressure Pipe and Fittings

3. AWWA M55 – PE Pipe, Design, and Installation

1.3 SUBMITTALS

A. Section 01 33 00 –Submittals Procedures: Requirements for submittals.

B. Product Data: Submit procedures.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Pipeline Testing Plan: To be submitted for review and approval by the Engineer a minimum of 1 month before testing is to start. As a minimum, the plan shall include the following:

1. Testing schedule.

2. Hydrostatic Testing Plan:

a. Narrative of the proposed process.

b. Proposed equipment to be used.

c. Disposal location for excess water used to fill mains.

3. Proposed testing locations.

4. Proposed plan for water conveyance, including flow rates.

5. Proposed plan for water control.

6. Proposed plan for water disposal, including flow rates.

7. Proposed measures to be incorporated in the Project to minimize erosion while discharging water from the pipeline.

1.4 CLOSEOUT SUBMITTALS

A. Hydrostatic Testing Report:

1. Name of person performing the test.

2. Test medium (normally water).

3. Test pressure.

4. Test duration.

5. Test data.

6. Pressure recording chart or pressure log.

7. Pressure versus makeup water added chart.

8. Pressure at high and low elevations.

9. Elevation at point test pressure is measured.

10. Ambient temperature and weather conditions.

11. Pipe and valve manufacturers.

12. Pipe specifications and/or standards.

13. Description of the test section length, location, and components.

14. Description of any leaks, failures, and their repair/disposition. Person or contractor conducting the test.

15. Test times and dates.

1.5 NOT USED

PART 2 PRODUCTS

2.1 EQUIPMENT

A. All test equipment, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the Contractor subject to the Engineer's review. No materials shall be used which would be injurious to the construction or its future functions.

B. All temporary thrust restraint and equipment and facilities required for hydrostatic testing will be considered incidental.

C. As a minimum, furnish the following equipment and materials for the testing:

Amount	Description
1	Hydraulic pump approved by the Engineer with hoses, valves, and fittings as needed and required for the testing of the facilities.
2	Pressure gauges with pressure range at least 120 percent greater than the required maximum test pressure with graduations in 2 pounds per square inch (psi) increments. Gauges shall have been calibrated with 90 days of pressure testing.

2.2 NOT USED

2.3 NOT USED

PART 3 EXECUTION

3.1 HYDROSTATIC TESTING OF WATER PIPING

A. Make all necessary provisions for conveying water to the points of use and for the disposal of test water.

B. Hydrostatic testing of the HDPE portion(s) of the water pipeline shall be conducted separately from ductile iron pipe segments. Contactor shall make provisions for isolating all segments of different materials required to complete testing of the entire pipeline. Any additional equipment, fittings, water, other materials and labor required to isolate the segments and to test the segments separately shall be considered incidental to this task.

C. No section of the pipeline shall be hydrostatically tested until backfill has been placed, compacted, and passed required density testing and all field-placed concrete or mortar has attained full strength.

1. At the Contractor's option, early strength concrete may be used when the full-strength requirements conflict with schedule requirements.

2. All such substitutions and installations shall be approved by the Engineer prior to installation.

D. Provide 72-hour notification to the Engineer and Owner prior to conducting hydrostatic testing.

1. Provide coordination and scheduling required for the Owner and Engineer to witness and provide necessary labor for operating Owner's existing system during hydrostatic testing and disinfecting procedures.

2. The Contractor shall not operate any part of the existing water systems.

E. Pipe Filling:

1. Fill pipes slowly from the lowest elevation to highest point along test section with potable water.

2. Take all required precautions to prevent entrapping air in the pipes.

3. Allow for natural absorption of water by the lining of the pipe to occur.

4. Apply specified test pressure by pumping.

F. Testing of Ductile Iron and PVC Mains:

1. Ductile Iron: In accordance with AWWA C600.

2. Polyvinyl chloride (PVC): In accordance with AWWA C605.

3. General:

a. Tests shall be conducted under a hydrostatic test pressure not less than 1.25 times the stated anticipated maximum sustained working pressure of the pipeline measured at the highest elevation along the test section and not less than 1.5 times the stated working pressure at the lowest elevation of the test section, minimum 150 psi, unless otherwise shown in the Drawings.

b. In no case shall the test pressure exceed the rated working pressure for any joint, thrust restraint, valve, fitting, or other connected appurtenance of the test section.

c. Testing shall be performed by applying the specified test pressure by pumping.

d. Once the test pressure has been attained, the pump shall be valved off.

e. The test will be conducted for a 2-hour period with the allowable leakage not to exceed the value as calculated per the Allowable Leakage formula below.

f. During the test period, there shall be no appreciable or abrupt loss in pressure.

4. Allowable Leakage:

a. Flanged Joints: Pipe, fittings, and valves with flanged joints shall be completely watertight. No leakage allowed.

b. Mechanical or Push-on Joints: Pipe, fittings, and valves with rubber gasketed joints shall have a measured loss not to exceed the rate given in the following Allowable Leakage formula:

$$AL = \frac{LD(P)^{1/2}}{148{,}000}$$

In the above formula:

AL = Allowable leakage, in gallons per hour
L = Length of pipe tested, in feet
D = Nominal diameter of pipe, in inches
P = Average test pressure during the leakage test, in pounds per square inch.

5. Maintaining Pressure:

   a. During the test period, operate the pump as required to maintain pressure in the pipe within 5 psi of the specified test pressure at all times.

   b. At the end of test period, operate the pump until the specified test pressure is again obtained.

      1) The pump suction shall be in a clean, graduated barrel, or similar device or metered so that the amount of water required to restore the test pressure may be accurately measured.

      2) Sterilize this makeup water by adding chlorine to a concentration of 25 milligrams per liter (mg/L).

   c. The Engineer will determine the quantity of water required to maintain and restore the required pressure at the end of the test period.

   d. Each hour's loss stands on its own and will not be averaged.

6. Defects, Leakage, Failure:

   a. If the test reveals any defects, leakage in excess of the allowable, or failure, furnish all labor, equipment, and materials required to locate and make necessary repairs.

   b. Correct any visible leakage regardless of the allowable leakage specified above.

   c. All leaks shall be repaired in a manner acceptable to the Engineer.

   d. The testing of the line shall be repeated until a test satisfactory to the Engineer has been achieved.

G. Testing of HDPE Piping:

1. HDPE: In accordance with AWWA M55 and as specified herein.

   a. All HDPE pipe shall be hydrostatically tested at least twice. The first test shall be conducted after the pipe is butt fused and installed in the trench. Piping should be backfilled or adequately blocked to prevent movement. The water, pipe, and soil should be allowed to thermally stabilize. Prior to conducting the test, the pipe shall be flushed. The amount of leakage should be zero. At the Contractor's option, an initial "pre-installation" test may be performed above grade to check the fused joints.

b. A second pressure and leak test shall be performed after all fused branches, mechanical joints, taps, and appurtenances have been installed onto the HDPE pipeline.

c. Before commencing each test, the pipeline shall be filled with water to the specified test pressure and allowed to stand without makeup pressure until the pressure reaches equilibrium. Equilibrium will usually occur within 2 to 4 hours. After equilibrium has been reached, the test section shall be returned to the specified test pressure and the test period can begin.

d. All HDPE piping shall be tested under a hydrostatic test pressure not less than 150 psi (+/- 5 psi) at the highest point along the test section or as shown on the plans. However, the pressure applied as measured at the lowest point along a test section must not exceed the design pressure of any piping, fitting, or restraint system on the pipeline. Testing shall be performed by applying the specified test pressure by pumping. Once the test pressure has been attained, the pump shall be valved off. The test will be conducted for one two-hour period. The required makeup water volume shall not exceed the allowance for expansion during a two-hour test in the following table.

Nominal Pipe Size (inches)	Allowance for Expansion (US gallons/100ft. of pipe)
8	1.0
10	1.3
12	2.3
18	4.3
24	8.9

e. All leaks shall be repaired. Leaks at fusion joints shall be repaired by cutting out the leaking fusion joint, refusing the joint and conducting a new test.

f. Contractor shall schedule pressure testing such that pressure changes due to thermal expansion or contraction of the pipe during the test period are minimized. Test section piping should be depressurized and allowed to “relax” for at least eight hours before retesting.

g. After pressure tests described above have been successfully completed, water main tie-in connections to the existing water system shall be completed. A final pressure and leak test shall be performed at system static pressure to observe tie-in connections. In addition to checking that pipeline does not exceed its allowable expansion, visual inspection of each cut-in location shall be performed to confirm no leakage.

h. If the testing reveals any defects, any leakage, or any failure, Contractor shall furnish all labor, equipment and materials required to locate and make necessary repairs. The testing of the line and repairing of defects, excessive leakage, and failures shall be repeated until a test satisfactory to Engineer has been achieved. All costs for locating, repairing, and retesting shall be borne by Contractor.

3.2 NOT USED

3.3 NOT USED

3.4 NOT USED

END OF SECTION

DIVISION 40 – PROCESS INTERCONNECTIONS

SECTION 40 05 51 – COMMON REQUIREMENTS FOR PROCESS VALVES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes basic materials and methods related to valves commonly used for process systems, including pump stations, utility vaults, and water and wastewater treatment. This Section is to be used in conjunction with 40 05 61, Gate Valves, 40 05 64, Butterfly Valves, and 40 05 78.19, Combination Air Valves for Water Service.

B. Section Includes:

1. Valves.

C. Related Sections

1. Section 03 11 00, Concrete Work
2. Section 33 11 10, Water Utility Distribution and Transmission Piping
3. Section 33 11 10.30, HDPE Water Utility Piping
4. Section 40 05 61, Gate Valves
5. Section 40 05 64, Butterfly Valves
6. Section 40 05 78.19, Combination Air Valves for Water Service

1.2 REFERENCE STANDARDS

A. American Water Works Association (AWWA):

1. AWWA C504 - Rubber-Seated Butterfly Valves, 3 In. Through 72 In.
2. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
3. AWWA C541 - Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.
4. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

B. ASTM International (ASTM):

1. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
2. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

C. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):

1. MSS SP-25 - Standard Marking System for Valves, Fittings, Flanges and Unions.

D. NSF International (NSF):

1. NSF 61 - Drinking Water System Components - Health Effects.

2. NSF 372 - Drinking Water System Components - Lead Content.

1.3 COORDINATION

A. Contractor shall be solely responsible to coordinate Work of this Section with piping, equipment, and appurtenances.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit Manufacturer's latest published literature. Include illustrations, installation and maintenance instructions, and parts lists.

2. Submit valve cavitation limits.

3. Submit Manufacturer data for actuator with model number and size indicated.

C. NOT USED

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer Instructions: Submit installation instructions and special requirements, including storage and handling procedures.

F. Lining and coating data.

G. Valve Labeling Schedule: Indicate valve locations and nametag text.

H. Certification of Valves Larger than 12 inches: Furnish certified copies of hydrostatic factory tests, indicating compliance with applicable standards.

I. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

J. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections, including factory-applied coatings.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of valves and actuators.

B. Operation and Maintenance Data: Submit information for valves.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Spare Parts:

1. Furnish one set of Manufacturer's recommended spare parts.

B. Tools:

1. Furnish special wrenches and other devices required for Owner to maintain equipment.

2. Furnish compatible and appropriately labeled toolbox when requested by Owner.

1.7 QUALITY ASSURANCE

A. Cast Manufacturer's name, pressure rating, size of valve, and year of fabrication into valve body.

B. Valve Testing: Each valve body shall be tested under a test pressure equal to twice its design water-working pressure.

C. Certification: Prior to shipment, submit for all valves over 12 inches in diameter, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, ASTM, etc. Valves tested and supplied shall be trackable and traceable by serial number, tagged or otherwise noted on valve, upon arrival to Site.

D. Maintain clearances as indicated on Drawings.

E. Unless otherwise noted, all water works materials provided for the Project shall be new, of first-class quality and shall be made by reputable manufacturers.

F. All material of a like kind shall be provided from a single manufacturer, unless otherwise approved by the Engineer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in Manufacturer's original packaging and inspect for damage.

B. Store materials according to Manufacturer instructions.

1. Store materials in areas protected from weather, moisture, or other potential damage.

2. Do not store materials directly on ground.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

2. Protect valve ends from entry of foreign materials by providing temporary covers and plugs.

3. Provide additional protection according to Manufacturer instructions.

D. Handle products carefully to prevent damage to interior or exterior surfaces.

E. All defective or damaged materials shall be replaced with new materials at no cost to the Owner.

1.9 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.

2. Indicate field measurements on Shop Drawings.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials in contact with potable water shall conform to ANSI/NSF Standard 61 and meet the “lead free” requirements of the Safe Drinking Water Act amendment, effective January 4, 2014, as per the lead content evaluation procedures outlined in NSF/ANSI Standard 372.1.

1. All fittings shall either be cast or permanently stamped with markings identifying the item as complying with NSF 61 per the requirements of NSF 372 for “lead free”.

2. All brass in contact with potable water shall comply with ASTM B584.

2.2 VALVES

A. Description: Valves, operator, actuator, handwheel, chainwheel, extension stem, floor stand, worm and gear operator, operating nut, chain, wrench, and other accessories as required and shown in the Drawings.

B. Operation:

1. Open by turning counterclockwise; close by turning clockwise.

2. Cast directional arrow on valve or actuator with OPEN and CLOSE cast on valve in appropriate location.

C. Valve Construction:

1. Bodies: Rated for maximum temperature and pressure to which valve will be subjected as specified in valve Sections.

D. Connecting Nuts and Bolts: Stainless steel.

2.3 RESILIANT-SEATED GATE VALVES

A. As specified in Section 40 05 61, Gate Valves.

2.4 RUBBER-SEATED BUTTERFLY VALVES

A. As specified in Section 40 05 64, Butterfly Valves.

2.5 VALVE ACTUATORS

A. All valves shall be furnished with manual actuators, unless otherwise indicated in the Drawings.

B. Valves in sizes up to and including 4 inches in diameter shall have direct acting lever or handwheel actuators of the Manufacturer's best standard design.

C. Actuators shall be sized for the valve design pressure in accordance with AWWA C504.

D. Provide actuators with position indicators for shutoff valves 6 inches and larger.

E. Comply with AWWA C541 and C542, where applicable.

F. Furnish gear operators for valves 8 inches and larger, and chainwheel operators for valves mounted over 7 feet above floor.

G. Provide gear and power actuators with position indicators.

H. Gear-Assisted Manual Actuators:

1. Provide totally enclosed gears.

2. Maximum Operating Force: 60-pound-force (lbf).

3. Bearings: Permanently lubricated bronze.

4. Packing: Accessible for adjustment without requiring removal of actuator from valve.

I. Handwheel:

1. Furnish permanently attached handwheel for emergency manual operation.

2. Rotation: None during powered operation.

3. Permanently affix directional arrow and cast OPEN or CLOSE on handwheel to indicate appropriate direction to turn handwheel.

4. Maximum Operating Force: 60 lbf.

J. NOT USED

K. NOT USED

L. NOT USED

M. NOT USED

2.6 SOURCE QUALITY CONTROL

A. Testing: Test valves according to Manufacturer's standard testing protocol, including hydrostatic, seal, and performance testing.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping system is ready for valve installation.

3.2 PREPARATION

A. Access: All valves shall be installed to provide easy access for operation, removal, and maintenance and to avoid conflicts between valve operators and structural members or handrails.

B. Valve Accessories: Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the Contractor to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop drawing submittals.

3.3 INSTALLATION

A. Install valves, extensions, and accessories according to Manufacturer instructions.

B. Firmly support valves to avoid undue stresses on piping.

C. Coat studs, bolts, and nuts with anti-seizing lubricant.

D. Clean field welds of slag and splatter to provide a smooth surface.

E. Install valves with stems upright or horizontal, not inverted.

F. Install valves with clearance for installation of insulation and allowing access.

G. Provide access where valves and fittings are not accessible.

H. Comply with Division 40 - Process Interconnections for piping materials applying to various system types.

I. Valve Applications:

1. Install shutoff and drain valves at locations as indicated on Drawings and as specified in this Section.

2. Install shutoff and isolation valves.

3. Isolate equipment, part of systems, or vertical risers as indicated on Drawings.

4. Install valves for throttling, bypass, or manual flow control services as indicated on Drawings.

J. Disinfection of Water Piping System:

1. Flush and disinfect system as specified in Section 33 13 00, Testing and Disinfection of Water Utility Piping.

3.4 FIELD QUALITY CONTROL

A. Valve Field Testing:

1. Test for proper alignment.

2. If specified by valve Section, field test equipment to demonstrate operation without undue leakage, noise, vibration, or overheating.

3. Engineer will witness field testing.

3.5 NOT USED

END OF SECTION

SECTION 40 05 61 - GATE VALVES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes gate valves for use in buried service, fire hydrant assemblies and combination air release/vacuum valve assemblies. Coordinate with Section 33 12 16, Water Utility Distribution and Transmission Valves.

B. Section Includes:

1. Resilient-seated gate valves.
2. General duty gate valves smaller than 3 inches.

C. Related Sections:

1. Section 33 11 10, Water Utility Distribution and Transmission Piping
2. Section 33 11 10.30, HDPE Water Utility Piping
3. Section 33 12 16, Water Utility Distribution and Transmission Valves
4. Section 40 05 51, Common Requirements for Process Valves

1.2 REFERENCE STANDARDS

A. American Society of Mechanical Engineers (ASME):

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings.

2. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 - Metric/Inch Standard.

3. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.

4. ASME B1.20.1 - Pipe Threads, General Purpose (Inch).

B. ASTM International (ASTM):

1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

2. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.

3. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

C. American Water Works Association (AWWA):

1. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.

2. AWWA C515 – Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service

3. AWWA C550 - Protecting Interior Coatings for Valves and Hydrants.

D. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):

1. MSS SP-70 - Gray Iron Gate Valves, Flanged and Threaded Ends.
2. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves.

E. NSF International (NSF):

1. NSF/ANSI Standard 61 - Drinking Water System Components - Health Effects
2. NSF/ANSI Standard 372 - Drinking Water System Components - Lead Content

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
B. As required by Section 33 12 16 - Water Utility Distribution and Transmission Valves.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials in contact with potable water shall conform to ANSI/NSF Standard 61 and meet the “lead free” requirements of the Safe Drinking Water Act amendment, effective January 4, 2014, as per the lead content evaluation procedures outlined in NSF/ANSI Standard 372.1.

1. All fittings shall either be cast or permanently stamped with markings identifying the item as complying with NSF 61 per the requirements of NSF 372 for “lead free”.

2. All brass in contact with potable water shall comply with ASTM B584.

2.2 RESILIENT-SEATED GATE VALVES

A. Description:

1. Comply with AWWA C509.

2. Minimum Pressure Rating:

a. Twelve-inch Diameter and Smaller: 200 pounds per square inch (gauge) (psig).
b. Sixteen-inch Diameter and Larger: 150 psig.

3. End Connections: As shown in the Drawings.

a. Standard mechanical joint ends comply with ANSI/AWWA C111.

b. Flanged end dimensions and drilling comply with ANSI/ASME B16.1, class 125. Comply with AWWA C115 & ASME 16.5.

1) The CONTRACTOR shall coordinate with pipe, valve, and fitting suppliers to make certain pipe, valve, and fitting flanges match in bolt pattern.

4. Gear Actuators: Conforming to AWWA C509 for manual valves.

5. Linings and Coatings:

    a. Corrosion-resistant fusion bonded epoxy conforming to AWWA C550 and NSF 61.

    b. All internal and external ferrous surfaces.

    c. Do not coat flange faces of valves.

6. Bi-directional flow.

B. Operation:

1. Non-rising stem.

2. Open counterclockwise when viewing the valve from above, unless otherwise indicated in the Drawings.

3. Buried Valves: All buried valves shall be provided with 2-inch square operating nuts.

4. In-Plant Service Valves: Valves for in-plant or exposed service shall be furnished with handwheel operators, unless otherwise specified in Section 40 05 51, Common Requirements for Process Valves.

C. Materials:

1. Wedge:

    a. ASTM A126, cast iron or ASTM A536, ductile iron.
    b. Fully encapsulated.

2. Body and Bonnet:

    a. ASTM A126, cast iron or ASTM A536, ductile iron.

3. Stem, Stem Nuts, Glands, and Bushings: ASTM B584, bronze.

4. Valve Body Bolting: Stainless steel.

D. Manufacturers:

1. Clow Valve Company.
2. M&H Valve.
3. U.S. Pipe.
4. American Flow Control.
5. Mueller Company.

2.3 DOUBLE-DISC GATE VALVES – NOT USED

2.4 SOLID WEDGE, METAL-SEATED GATE VALVES – NOT USED

2.5 GENERAL-DUTY GATE VALVES - SMALLER THAN 3 INCHES

A. Two inches and Smaller:

1. MSS SP 80, Class 125.
2. Body and Trim: ASTM B584, bronze.
3. Bonnet: Union.
4. Operation: Handwheel.
5. Inside screw with back-seating stem.
6. Wedge Disc: Solid; ASTM B584, bronze.
7. End Connections: Threaded.

B. Two and one-half inches to 3 inches:

1. MSS SP 70, Class 125.
2. Stem: Non-rising.
3. Body: ASTM A126, cast iron.
4. Trim: Bronze.
5. Bonnet: Bolted bonnet.
6. Handwheel, outside screw and yoke.
7. Wedge Disc: Solid, with bronze seat rings.
8. End Connections: ASME B16.1, ASME B16.5, ASME B16.42, flanged.

C. Manufacturers:

1. Stockham, Figure B-103.
2. Nibco, Model T-113.
3. Milwaukee Valve, Model 105.
4. Approved equal.

2.6 SOURCE QUALITY CONTROL

A. Testing: Test gate valves according to AWWA C509.

PART 3 EXECUTION

3.1 INSTALLATION

A. As required by Section 33 12 16, Water Utility Distribution and Transmission Valves.
B. Install according to Manufacturer's instructions.
C. Support valves in plastic piping to prevent undue stresses on piping.

END OF SECTION

SECTION 40 05 64 - BUTTERFLY VALVES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes butterfly valves for buried service. Coordinate with Section 33 12 16, Water Utility Distribution and Transmission Valves and Section 40 05 51, Common Requirements for Process Valves.

B. Section Includes:

1. Rubber-seated butterfly valves.

C. Related Sections:

1. Section 33 11 10, Water Utility Distribution and Transmission Piping
2. Section 33 12 16, Water Utility Distribution and Transmission Valves
3. Section 40 05 51, Common Requirements for Process Valves.

1.2 REFERENCE STANDARDS

A. American Society of Mechanical Engineers (ASME):

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings.

2. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 - Metric/Inch Standard.

3. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.

B. ASTM International (ASTM):

1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

2. ASTM A536 - Standard Specification for Ductile Iron Castings.

3. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.

4. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

C. American Water Works Association (AWWA):

1. AWWA C504 - Rubber-Seated Butterfly Valves, 3 In. (75 mm) Through 72 In. (1,800 mm).

2. AWWA C550 - Protecting Interior Coatings for Valves and Hydrants.

D. NSF International (NSF):

1. NSF/ANSI Standard 61 - Drinking Water System Components - Health Effects
2. NSF/ANSI Standard 372 - Drinking Water System Components - Lead Content

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
B. As required by Section 33 12 16 - Water Utility Distribution and Transmission Valves.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials in contact with potable water shall conform to ANSI/NSF Standard 61 and meet the "lead free" requirements of the Safe Drinking Water Act amendment, effective January 4, 2014, as per the lead content evaluation procedures outlined in NSF/ANSI Standard 372.1.

1. All fittings shall either be cast or permanently stamped with markings identifying the item as complying with NSF 61 per the requirements of NSF 372 for "lead free".

2. All brass in contact with potable water shall comply with ASTM B584.

2.2 RUBBER-SEATED BUTTERFLY VALVES

A. Description:

1. Comply with AWWA C504, Class 150B.

2. Minimum Pressure Rating:

a. Twelve-inch Diameter and Smaller: 200 pounds per square inch (gauge) (psig).

b. Sixteen-inch Diameter and Larger: 150 psig.

3. End Connections: As shown in the Drawings.

a. Standard mechanical joint ends comply with ANSI/AWWA C111.

b. Flanged end dimensions and drilling comply with ANSI/ASME B16.1, class 125, unless shown otherwise.

1) The CONTRACTOR shall coordinate with pipe, valve, and fitting suppliers to make certain pipe, valve, and fitting flanges match in bolt pattern.

4. Gear Actuators: Conforming to AWWA C504 for manual valves.

5. Linings and Coatings:

a. Corrosion-resistant fusion bonded epoxy conforming to AWWA C550 and NSF 61.

b. All internal and external ferrous surfaces.

c. Do not coat flange faces of valves.

6. Bubble-tight at the rated pressure for bi-directional flow.

7. Style: Valve bodies shall be non-wafer style and meet the requirements of AWWA C504, with lay length and end connections as shown on the plans and details.

8. Shaft: Self-lubricating, sleeve-type bearings. One-piece, through-shaft construction.

a. Valve shafts shall be full size for that portion of the shaft extending through the valve bearings, valve disc, and shaft seal.

b. Any portion of the shaft turned down for any reason shall have fillets with radii equal to the offset to minimize stress concentrations at the junction of the different shaft diameters. The turned down portion of the shaft shall be capable of transmitting the maximum operator torque without exceeding a torsional steel stress of 11,500 pounds per square inch (psi).

9. Seats: Mounted on body for valves 24 inches and smaller; field replaceable (mechanically retained in a machined groove) for valves larger than 24 inches.

10. Packing: Replaceable without dismantling valve.

B. Operation:

1. Open counterclockwise, unless otherwise indicated in the Drawings.

2. Operators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between full open and fully closed without creeping or fluttering.

3. Buried Valves: All buried valves shall be provided with 2-inch square operating nuts.

C. Materials:

1. Body: ASTM A126, cast iron or ASTM A536, ductile iron. Integrally cast flanged or mechanical end joints.

2. Shaft: Stainless steel.

3. Disc: ASTM A126, cast iron or ASTM A536, ductile iron.

4. Seats: Resilient, replaceable, Buna-N.

5. Seating Surfaces: Type 316 stainless steel.

6. Bearings:

    a. Sleeve: Corrosion-resistant and self-lubricating.

D. Manufacturers:

1. M&H Valve.
2. Henry Pratt Company.
3. Mueller Company.
4. Kennedy Valve Company.
5. Dezurik.

2.3 SOURCE QUALITY CONTROL

A. Testing: Test butterfly valves according to AWWA C504.

PART 3 EXECUTION

3.1 INSTALLATION

A. As required by Section 33 12 16, Water Utility Distribution and Transmission Valves.

B. Install according to Manufacturer's instructions.

END OF SECTION

SECTION 40 05 78.19 – COMBINATION AIR VALVES FOR WATER SERVICE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Combination air valves for water service.

B. Related Sections:

1. Section 09 90 00 - Painting and Coating

2. Section 40 05 51 - Common Requirements for Process Valves

1.2 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C512 - Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

B. ASME International:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

C. ASTM International:

1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

2. ASTM A536 - Standard Specification for Ductile Iron Castings.

D. International Organization for Standardization:

1. ISO 9001 - Quality Management Systems.

E. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.

2. NSF 372 - Drinking Water System Components - Lead Content.

1.3 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with installation of process piping.

1.4 NOT USED

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit Manufacturer catalog information.

C. Shop Drawings: Indicate materials, dimensions, weights, and end connections in assembly drawings.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer Instructions: Submit special procedures and setting dimensions.

F. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Manufacturer Reports: Certify that equipment has been installed according to Manufacturer instructions.

1.6 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of combination air valves.

1.7 QUALITY ASSURANCE

A. Materials in Contact with Potable Water: Certified to NSF 61 and NSF 372.

B. Manufacturer Quality Management System: Certified to ISO 9001.

C. Perform Work according to City of Warrenton standards.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

B. Installer: Company specializing in performing Work of this Section with minimum three years' experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in Manufacturer's original packaging and inspect for damage.

B. Store materials according to Manufacturer instructions.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

2. Furnish temporary end caps and closures on piping and fittings and maintain in place until installation.

3. Provide additional protection according to Manufacturer instructions.

1.10 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.

2. Indicate field measurements on Shop Drawings.

1.11 WARRANTY

A. Furnish five-year Manufacturer's warranty for combination air valves.

PART 2 PRODUCTS

2.1 COMBINATION AIR VALVES FOR WATER SERVICE

A. Description:

1. Type:

a. Fully automatic, float operated.

b. Body: Double.

2. Comply with AWWA C512.

3. Size: As indicated on Drawings.

4. Suitable for potable water service.

B. Materials:

1. Body and Cover: 316 Stainless Steel or Ductile Iron ASTM A536 Grade 60-40-18.

2. Float, Seat, and Trim: 316 Stainless Steel.

3. Seats: Buna-N.

4. Seals: Buna-N.

C. End Connections:

1. Size 4 Inches and Smaller: Threaded, NPT.

2. Size Larger than 4 Inches: Flanged, ASME B16.5.

D. Manufacturers:

1. DeZurik, APCO AVV-1800/1800K, Dual Body Combination Air Valves, or approved equal.

2.2 INSULATION

A. As indicated on Drawings.

2.3 FINISHES

A. Prepare piping appurtenances for field finishes as specified in Section 09 90 00 - Painting and Coating.

2.4 SOURCE QUALITY CONTROL

A. Certificate of Compliance:

1. If fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.

2. Specified shop tests are not required for Work performed by approved fabricator.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field dimensions are as indicated on Drawings.

B. Inspect existing flanges for nonstandard bolt hole configurations or design and verify that new pipe and flanges mate properly.

3.2 PREPARATION

A. Thoroughly clean end connections before installation.

B. Close pipe and equipment openings with caps or plugs during installation.

C. Surface Preparation: Clean surfaces to remove foreign substances.

3.3 INSTALLATION

A. According to Manufacturer instructions.

B. Provide access for operation, removal, and maintenance, and to avoid discharge to occupied areas or other equipment.

C. Installation Standards: Install Work according to City of Warrenton standards.

3.4 FIELD QUALITY CONTROL

A. Inspect for interferences and proper supports.

B. Testing:

1. As specified in Section 40 05 51 - Common Requirements for Process Valves.

2. Demonstrate operation without undue noise or vibration.

C. Manufacturer Services: Furnish services of Manufacturer's representative experienced in installation of products furnished under this Section for not less than two days on Site for

installation, inspection, startup, field testing, and instructing Owner's personnel in operation and maintenance of equipment.

D. Equipment Acceptance:

1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

2. Make final adjustments to equipment under direction of Manufacturer's representative.

3. Repair damaged coatings with material equal to original coating.

E. Furnish installation certificate from Equipment Manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.

3.5 CLEANING

A. Keep interior of air release valves clean as installation progresses.

3.6 DEMONSTRATION

A. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

SUPPLEMENTARY INFORMATION

1 – GEOTECHNICAL ENGINEERING REPORT

2 – WETLANDS DELINEATION REPORT

3 – DSL REMOVAL-FILL PERMIT

VOLUME II – DRAWINGS

City Commission Agenda Memo

Meeting Date: March 25, 2025
From: Kevin Gorman, Public Works Director
Subject: Vactor Truck Purchase

Summary:
The Public Works Department urgently requires a functional Vactor Truck, as our current vehicle has been out of service for over a month. This equipment is essential to the department's efficiency and operations.

Sufficient funds are available in our capital reserve due to uncompleted projects from this fiscal year. To accommodate this necessary purchase, we have chosen to defer those projects to the next fiscal year.

Additionally, the need to address vehicle emissions concerns further supports the urgency of this purchase.

Recommendation/Suggested Motion:
"I move to approve the purchase of a Vactor Truck as outlined."

Alternative Actions:

- Take other action as deemed appropriate by the City Commission.
- No action recommended.

Fiscal Impact: $555,000

- Water 025-430: 30%: $166,500
- Storm 028-430: 10%: $55,500
- Sewer 038-430: 30%: $166,500
- Streets 040-431: 30%: $166,500

Attachments:
(All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.)

- Exhibit A

Approved by City Manager: _____

CITY OF WARRENTON
CONTRACT FOR GOODS AND SERVICES

CONTRACT:

This Contract, made and entered into this _____ day of March 2025, by and between the City of Warrenton, a municipal corporation of the State of Oregon, hereinafter called "CITY," and Enviro-Clean Equipment located at 2395 11 Mile Avenue Gresham OR 97030, hereinafter called "CONTRACTOR", duly authorized to do business in Oregon.

W I T N E S S E T H

WHEREAS, the CITY requires goods and services which CONTRACTOR is capable of providing, under terms and conditions hereinafter described; and

WHEREAS, CONTRACTOR is able and prepared to provide such goods and services as CITY does hereinafter require, under those terms and conditions set forth; now, therefore,

IN CONSIDERATION of those mutual promises and the terms and conditions set forth hereafter, the parties agree as follows:

1. CONTRACTOR GOODS AND SERVICES: (Title: Public Works Vactor Truck Procurement)

   A. CONTRACTOR shall provide goods and services for the CITY, as outlined in its attached quote, dated March 3, 2025, and is attached hereto as Exhibit A.

   B. CONTRACTOR'S obligations are defined solely by this Contract, the RFP, or solicitation document, (if any) and its attachment and not by any other contract or agreement that may be associated with this project.

2. COMPENSATION

   A. The CITY agrees to pay CONTRACTOR a total not-to-exceed price of $555,000.00 for providing goods and performance of those services provided herein;

   B. The CONTRACTOR will submit a final invoice referencing complete delivery of service trucks and for all goods provided or services rendered to: City of Warrenton, Attention: Accounts Payable, PO Box 250, Warrenton, Oregon 97146, **OR**, CONSULTANT may submit invoice via email to ap@warrentonoregon.us. City pays net 21 upon receipt of invoice.

   C. CITY certifies that sufficient funds are available and authorized for expenditure to finance costs of this Contract.

3. CONTRACTOR IDENTIFICATION

   CONTRACTOR shall furnish to the CITY the CONTRACTOR'S employer identification number, as designated by the Internal Revenue Service, or CONTRACTOR'S Social Security number, as CITY deems applicable.

4. CITY'S REPRESENTATIVE

For purposes hereof, the CITY'S authorized representative will be Rock Haglund.

5. CONTRACTOR'S REPRESENTATIVE

For purposes hereof, the CONTRACTOR'S authorized representative will be Steve Bruning.

6. CONTRACTOR IS INDEPENDENT CONTRACTOR

A. CONTRACTOR'S services shall be provided under the general supervision of City's project director or his designee, but CONTRACTOR shall be an independent CONTRACTOR for all purposes and shall be entitled to no compensation other that the compensation provided for under Section 2 of this Contract,

B. CONTRACTOR acknowledges that for all purposes related to this contract, CONTRACTOR is and shall be deemed to be an independent CONTRACTOR and not an employee of the CITY, shall not be entitled to benefits of any kind to which an employee of the CITY is entitled and shall be solely responsible for all payments and taxes required by law; and furthermore in the event that CONTRACTOR is found by a court of law or an administrative agency to be an employee of the CITY for any purpose, CITY shall be entitled to offset compensation due, or, to demand repayment of any amounts paid to CONTRACTOR under the terms of the contract, to the full extent of any benefits or other remuneration CONTRACTOR receives (from CITY or third party) as result of said finding and to the full extent of any payments that CITY is required to make (to CONTRACTOR or a third party) as a result of said finding.

C. The undersigned CONTRACTOR hereby represents that no employee of the City of Warrenton, or any partnership or corporation in which a City of Warrenton employee has an interest, has or will receive any remuneration of any description from the CONTRACTOR, either directly or indirectly, in connection with the letting or performance of this contract, except as specifically declared in writing.

7. CANCELLATION FOR CAUSE

CITY may cancel all or any part of this Contract if CONTRACTOR breaches any of the terms herein or in the event of any of the following: Insolvency of CONTRACTOR; voluntary or involuntary petition in bankruptcy by or against CONTRACTOR; appointment of a receiver or trustee for CONTRACTOR, or any assignment for benefit of creditors of CONTRACTOR. Damages for breach shall be those allowed by Oregon law, reasonable and necessary attorney's fees, and other costs of litigation at trial and upon appeal. CONTRACTOR may likewise cancel all or any part of this contract if CITY breaches any of the terms herein and be therefore entitled to equivalent damages as expressed above for CITY.

8. ACCESS TO RECORDS

CITY shall have access to such books, documents, papers and records of contract as are directly pertinent to this contract for the purposes of making audit, examination, excerpts and transcripts.

9. FORCE MAJEURE

Neither CITY nor CONTRACTOR shall be considered in default because of any delays in completion of responsibilities hereunder due to causes beyond the control and without fault or negligence on the part of the party so disenabled provided the party so disenabled shall within ten (10) days from the beginning

such delay notify the other party in writing of the causes of delay and its probable extent. Such notification shall not be the basis for a claim for additional compensation.

10. NONWAIVER

The failure of the CITY to insist upon or enforce strict performance by CONTRACTOR of any of the terms of this Contract or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.

11. ATTORNEY'S FEES

In the event suit or action is instituted to enforce any of the terms of this contract, the prevailing party shall be entitled to recover from the other party such sum as the court may adjudge reasonable as attorney's fees at trial or on appeal of such suit or action, in addition to all other sums provided by law.

12. APPLICABLE LAW

The law of the State of Oregon shall govern the validity of this Agreement, its interpretation and performance, and any other claims related to it.

13. CONFLICT BETWEEN TERMS

It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the proposal of the CONTRACTOR, this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said proposal conflicting herewith.

14. INDEMNIFICATION

CONTRACTOR agrees to indemnify and hold harmless the CITY, its Officers, and Employees against and from any and all loss, claims, actions, suits, reasonable defense costs, attorney fees and expenses for or on account of injury, bodily or otherwise to, or death of persons, damage to or destruction of property belonging to CITY, contractor, or others resulting from or arising out of CONTRACTOR'S negligent acts, errors or omissions in the supply of goods or performance of services pursuant to this Agreement. This agreement to indemnify applies whether such claims are meritorious or not; provided, however, that if any such liability, settlements, loss, defense costs or expenses result from the concurrent negligence of CONTRACTOR and The CITY this indemnification and agreement to assume defense costs applies only to the extent of the negligence or alleged negligence of the CONTRACTOR.

15. INSURANCE

Prior to starting work hereunder, CONTRACTOR, at CONTRACTOR'S cost, shall secure and continue to carry during the term of this contract, with an insurance company acceptable to CITY, the following insurance:

A. **Commercial General Liability**. Contractor shall obtain, at Contractor's expense and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage with limits of not less than $1,000,000 per occurrence and the annual aggregate of not less than $2,000,000. Coverage shall include contractors, subcontractors and anyone directly or indirectly employed by either. This insurance will include personal and Advertising injury liability, products and completed operations. Coverage may be written in combination with Automobile Liability Insurance (with separate limits). Coverage will be written on an occurrence basis. If written in conjunction with Automobile Liability the combined

single limit per occurrence will not be less than $1,000,000 for each job site or location. Each annual aggregate limit will not be less than $2,000,000.

B. **Automobile Liability**. Contract shall obtain, at Contractor's expense and keep in effect during the term of the resulting Contract, Commercial Business Automobile Liability Insurance covering all owned, non-owned, or hired vehicles. This coverage may be written in combination with the Commercial General Liability Insurance (with separate limits). Combined single limit per occurrence will not be less than $1,000,000, and annual aggregate not less than $2,000,000.

C. **Additional Insured.** The liability insurance coverage shall include City and its officers and employees as Additional Insured but only with respect to Contractor's activities to be performed under this Contract. Coverage will be primary and non-contributory with any other insurance and self-insurance. Prior to starting work under this Contract, Contractor shall furnish a certificate to City from each insurance company providing insurance showing that the City is an additional insured, the required coverage is in force, stating policy numbers, dates of expiration and limits of liability, and further stating that such coverage is primary and not contributory.

D. **Notice of Cancellation or Change.** There will be no cancellation, material change, potential exhaustion of aggregate limits or non-renewal of insurance coverage(s) without thirty (30) days written notice from Contractor or its insurer(s) to City. Any failure to comply with the reporting provisions of this clause will constitute a material breach of this Contract and will be grounds for immediate termination of this Agreement.

16. WORKMEN'S COMPENSATION

The CONTRACTOR, its subcontractors, if any, and all employers working under this Agreement are either subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage for all their subject workers, or are employers that are exempt under ORS 656.126.

17. LABORERS AND MATERIALMEN, CONTRIBUTIONS TO INDUSTRIAL ACCIDENT FUND, LIENS AND WITHHOLDING TAXES

Contractor shall make payment promptly, as due, to all persons supplying CONTRACTOR labor or material for the prosecution of the work provided for this contract.

Contractor shall pay all contributions or amounts due the Industrial Accident Fund from CONTRACTOR or any subcontractor incurred in the performance of the contract.

Contractor shall not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.

Contractor shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

18. PAYMENT OF MEDICAL CARE

Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury to the employees of such CONTRACTOR, of all sums which the CONTRACTOR agrees to pay for such services and all moneys and sums which the CONTRACTOR collected or

deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

19. STANDARD OF CARE

The standard of care applicable to contractor's services will be the degree of skill and diligence normally employed by contractors performing the same or similar services at the time CONTRACTOR'S services are performed. CONTRACTOR will re-perform any services not meeting this standard without additional compensation.

20. NO THIRD PARTY BENEFICIARIES

This contract gives no rights or benefits to anyone other than the CITY and CONTRACTOR and has no third party beneficiaries.

21. SEVERABILITY AND SURVIVAL

If any of the provisions contained in this Agreement are held illegal, invalid or unenforceable, the enforceability of the remaining provisions shall not be impaired thereby. Limitations of liability shall survive termination of this Agreement for any cause.

22. BUSINESS LICENSE

A City of Warrenton Business License is required for all businesses working within the City of Warrenton. Information for this process is available on the City of Warrenton website at http://ci.warrenton.or.us/ or by calling 503-861-2233.

23. COMPLETE CONTRACT

This Contract and its referenced attachments constitute the complete contract between CITY and CONTRACTOR and supersedes all prior written or oral discussions or agreements. CONTRACTOR services are defined solely by this Contract and its attachments and not by any other contract or agreement that may be associated with this Contract.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first written above.

City of Warrenton, a Municipal Corporation

BY: _____ _____
Henry Balensifer III, Mayor Date

ATTEST:

_____ _____
Dawne Shaw, CMC, City Recorder Date

CONTRACTOR:

BY:_____ _____
Date

Enviro-Clean Equipment
2395 11 Mile Avenue
Gresham, OR 97030

Date 3/3/2025
Number 108309
Type of Quote Oregon Buys Ven **#V00016444**
PO
Attn Rock Haglund

Warrenton Single Axle Standard Controls Oregon Buys Quote

Retail Purchaser ECE DemoX4 Ship To Gresham Shop
Retail ID #3089

Comments 1) Hydroexcavation reel mounted curb side behind front bumper 2) 36" Wide Toolbox ILO standard 3) Hinged Deck Mount cone rack to be D/S deck 4) NO FEPTO - Hydraulic pump to be PTO with switch on dash, both Hydrostatic pumps to be on Transfer Case

Price excludes any applicable F.E.T., sales taxes, tag, title or registration fees.
Option content is subject to engineering approval.

Model Number - V V311HEN/1300 L A

Main Information

Model	V311HEN/1300
Blower	Select a Blower
Boom	10' Aluminum Telescoping Boom with Pendant Control Station
Hose Reel	Front Mounted, Articulating to Drivers Side, 600 foot (1 inch) Capacity (Std Pivot)
Jet Rodder Hose	400' x 3/4" Jet Rodder Hose - Standard
Water System	50 gpm/3000 psi FMC Pump - Single Engine - Hydrostatic Drive

Debris Body Options

Qty	Description
1	6" Knife Valve with Center Post and Handle, in Lieu of the 5" Butterfly Valve (662-0125)
1	A Flat Style Rear Door ilo Dome Style Door Including Hydraulic Opener will be Provided
1	Built in Body Prop - Rear Support Frame Mounted
1	Debris tank drain screen placement - Standard drain valve
1	Rear Door Drain Valve Flush Out Connection
1	Rear Splash Shield - Rear Flange Mounted
1	Rubber pad on standard deflector
1	Screen assembly over drain port in debris tank

Water System Options

Qty	Description
1	1/4 turn ball valve water drain
1	Air Purge System
1	Debris Body "Power Flush" System, 8 jets
1	Hydroexcavation Package Includes: 50 foot handgun hose reel with 1/2" hose, 711-53686 72" 1/2" schedule 80 lance with single forward spray nozzle, Storage tubes for lances, Heavy duty unloader valve, Main control ball valve, Variable flow valve
1	Pre-Tank Water Filter (In-line)
1	Variable Flow Valve (Valve Only) - nozzles required
1	Water Pump Remote Oil Drain

Hose Reel Options

Qty	Description
1	Hose Footage Counter (Curb Side)

Misc Machine Options

Qty	Description
1	Cone Rack, Hinged Style/Deck
1	Long Handle Storage Placement - Mounted in Storage Box Under Shelf
1	Remote Boom Grease Zerk Assembly (Ground Level - includes water pump drive) - If Applicable
1	Remote Debris Tank Grease Assembly (Ground Level)

Lighting Options

Qty	Description
1	LED 4 Strobes - (2) front bumper / (2) rear bumper - Whelen 50A03ZCR - Amber
1	LED Boom Mounted Flood Lights with Limb Guard - Whelen NP6BB Worklight
1	LED Flood Light - Level Wind Guide - Whelen NP6BB Worklight
1	LED Midbody Flood Lights with guards - Whelen NP6BB (Driverside and Curbside)
1	LED Rear Mounted Flood Lights with Limb Guard - Whelen NP6BB Worklight
1	Midbody LED Strobes - Frame Mounted - Whelen 50A03ZCR - Amber

Electrical Options

Qty	Description
1	Low Water Alarm with Light
1	Rear Camera Placement
1	Remote Control (Wireless): Boom, Vacuum Breaker, Throttle & Debris Body (includes Hi-Dump, if applicable). Does not include remote cable pendant controls for boom or hi dump.
1	Traffic Camera With Color Monitor - MUST PICK CAMERA PLACEMENT

Misc Accessories

Qty	Description
1	33" Wide Toolbox ILO Standard
1	Paper Vac-Con Manual - No longer standard

Spare Nozzles

Qty	Description
1	3/4" Nozzle rack

Leader Hose

Qty	Description
1	3/4" x 15' Length Leader Hose

Pipe Storage Racks

Qty	Description
1	Additional Pipe Rack(s), specify any requested locations in comments section, otherwise engineering will place in best available locations.
1	Lazy Susan Pipe Rack (Holds 5 Pipes)

Paint

Qty	Description
1	Paint Module: Single-Stage Polyeurethene Elite White (white is standard unless otherwise specified. PPG code: 940813)
1	Painted steel upper water tank panels in lieu of standard aluminum diamond plate
1	Standard Striping Package - Blue 692-5204-02

Paint Notes Sub Red Stripes at no charge per Bryce.

Truck Chassis Information

Pool Truck Chassis Model **California CARB Only Freightliner 114 SD Plus 6x4 66000GVWR DD13 450HP 4500RDS** *Pool Trucks are subject to availability.*

Qty	Description	
	Make	Freightliner
	Model	114SD Plus
	Engine Make and Model	DD13 Detroit Deisel
	Engine HP and RPM	505hp
	Transmission Make and Model	Allison 4500RDS

ECE Demo Quote - $555,000

City Commission Agenda Memo

Meeting Date: March 25th, 2025
From: Kevin Gorman, Public Works Director
Subject: Request to Award Engineering Professional Services Contract – Seafarers Bank Stabilization Project

Summary:

The City of Warrenton solicited quotes from three firms for the Seafarers Bank Stabilization Project and received only one proposal from North Coast Civil Design, LLC. After a thorough review, staff have determined that the proposal meets all qualifications and expectations. North Coast Civil Design, LLC has previously served as the Engineer of Record for the City's Bank Stabilization Projects at the Marinas and has demonstrated expertise in stabilization projects. The scope of work includes survey, permitting and geotechnical bores, marine geotechnical analysis, engineering design, bidding assistance, construction administration, and project observation for a total contract amount of $95,800.

Recommendation/Suggested Motion:

"I move to award Engineering Professional Services Contract to North Coast Civil Design, LLC for $95,800"

Alternative:

Other action as deemed appropriate by the City Commission
OR
None recommended

Fiscal Impact:

The proposed contract amount is within the 2024-2025 adopted budget. No additional fiscal impact is anticipated beyond the committed funding sources.

Attachments:

- Professional Services Contract
- Exhibit A. North Coast Civil, LLC Proposal for Services

Approved by City Manager: Esther Moberg

CITY OF WARRENTON
CONTRACT FOR PROFESSIONAL CONSULTING SERVICES

CONTRACT:

This Contract made and entered into this day of March, 2025, by and between the City of Warrenton, a municipal corporation of the State of Oregon, hereinafter called "CITY", and North Coast Civil Design, LLC, hereinafter called "CONSULTANT", duly authorized to do business in Oregon.

W I T N E S S E T H

WHEREAS, the CITY requires services which CONSULTANT is capable of providing, under terms and conditions hereinafter described; and

WHEREAS, CONSULTANT is able and prepared to provide such services as CITY does hereinafter require, under those terms and conditions set forth; now, therefore,

IN CONSIDERATION of those mutual promises and the terms and conditions set forth hereafter, the parties agree as follows:

1. CONSULTANT SERVICES:

   A. CONSULTANT's obligations are defined solely by this contract and its attachment and not by any other contract or agreement that may be associated with this project. See Attachment Exhibit A. Proposal Dated February 13th, 2025 for the Seafarer's Park Bank Stabilization Project.

2. COMPENSATION

   A. The CITY agrees to pay CONSULTANT a total not-to-exceed price of 95,800 for performance of Project Survey, Permitting, Marine Geotechnical Analysis, Engineering Design Plans, Construction Bidding, Administration, and Project Observation.

   B. The CONSULTANT will submit a final invoice referencing Seafarer's Park Bank Stabilization Project for all services rendered to: City of Warrenton, Attention: Accounts Payable, PO Box 250, Warrenton, Oregon 97146, **OR**, CONSULTANT may submit invoice via email to ap@warrentonoregon.us. City pays net 21 upon receipt of invoice.

   C. CITY certifies that sufficient funds are available and authorized for expenditure to finance costs of this Contract.

3. CONSULTANT IDENTIFICATION

   CONSULTANT shall furnish to the CITY the CONSULTANT's employer identification number, as designated by the Internal Revenue Service, or CONSULTANT's Social Security number, as CITY deems applicable.

4. CITY'S REPRESENTATIVE

For purposes hereof, the CITY'S authorized representative will be, City Manager, City of Warrenton, PO Box 250, Warrenton, Oregon, 97146.

5. CONSULTANT'S REPRESENTATIVE

For purposes hereof, the CONSULTANT's authorized representative will be **Kyle Ayers, PE.**.

6. CONSULTANT IS INDEPENDENT CONSULTANT

A. CONSULTANT shall be an independent CONSULTANT for all purposes and shall be entitled to no compensation other that the compensation provided for under Section 2 of this Contract,

B. CONSULTANT acknowledges that for all purposes related to this contract, CONSULTANT is and shall be deemed to be an independent CONSULTANT and not an employee of the CITY, shall not be entitled to benefits of any kind to which an employee of the CITY is entitled and shall be solely responsible for all payments and taxes required by law; and furthermore in the event that CONSULTANT is found by a court of law or an administrative agency to be an employee of the CITY for any purpose, CITY shall be entitled to offset compensation due, or, to demand repayment of any amounts paid to CONSULTANT under the terms of the contract, to the full extent of any benefits or other remuneration CONSULTANT receives (from CITY or third party) as result of said finding and to the full extent of any payments that CITY is required to make (to CONSULTANT or a third party) as a result of said finding.

C. The undersigned CONSULTANT hereby represents that no employee of the City of Warrenton, or any partnership or corporation in which a City of Warrenton employee has an interest, has or will receive any remuneration of any description from the CONSULTANT, either directly or indirectly, in connection with the letting or performance of this contract, except as specifically declared in writing.

7. TERMINATION OF CONTRACT

A. CITY may terminate all or any part of this Contract if CONSULTANT breaches any of the terms herein or in the event of any of the following: Insolvency of CONSULTANT; voluntary or involuntary petition in bankruptcy by or against CONSULTANT; appointment of a receiver or trustee for CONSULTANT, or any assignment for benefit of creditors of CONSULTANT. Damages for breach shall be those allowed by Oregon law, reasonable and necessary attorney's fees, and other costs of litigation at trial and upon appeal. CONSULTANT may likewise terminate all or any part of this Contract if CITY breaches any of the terms herein and be therefore entitled to equivalent damages as expressed above for CITY.

B. In addition to any other rights provided herein, CITY may terminate all or part of this Contract at any time and for its own convenience by written notice to CONSULTANT.

8. ACCESS TO RECORDS

CITY shall have access to such books, documents, papers and records of CONSULTANT as are directly pertinent to this contract for the purposes of making audit, examination, excerpts and transcripts.

9. FORCE MAJEURE

Neither CITY nor CONSULTANT shall be considered in default because of any delays in completion of responsibilities hereunder due to causes beyond the control and without fault or negligence on the part of the party so disenabled provided the party so disenabled shall within ten (10) days from the beginning such delay notify the other party in writing of the causes of delay and its probable extent. Such notification shall not be the basis for a claim for additional compensation.

10. NONWAIVER

The failure of the CITY to insist upon or enforce strict performance by CONSULTANT of any of the terms of this Contract or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.

11. ATTORNEY'S FEES

In the event suit or action is instituted to enforce any of the terms of this contract, the prevailing party shall be entitled to recover from the other party such sum as the court may adjudge reasonable as attorney's fees at trial or on appeal of such suit or action, in addition to all other sums provided by law.

12. APPLICABLE LAW

The law of the State of Oregon shall govern the validity of this Agreement, its interpretation and performance, and any other claims related to it.

13. CONFLICT BETWEEN TERMS

It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the proposal of the CONSULTANT, this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said proposal conflicting herewith.

14. INDEMNIFICATION

CONSULTANT agrees to indemnify and hold harmless the City of Warrenton, its Officers, and Employees against and from any and all loss, claims, actions, suits, reasonable defense costs, attorney fees and expenses for or on account of injury, bodily or otherwise to, or death of persons, damage to or destruction of property belonging to city, CONSULTANT, or others resulting from or arising out of CONSULTANT's negligent acts, errors or omissions in the supply of goods or performance of services pursuant to this Agreement. This agreement to indemnify applies whether such claims are meritorious or not; provided, however, that if any such liability, settlements, loss, defense costs or expenses result from the concurrent

negligence of CONSULTANT and The City of Warrenton this indemnification and agreement to assume defense costs applies only to the extent of the negligence or alleged negligence of the CONSULTANT.

With regard to Professional Liability CONSULTANT agrees to indemnify and hold harmless CITY, its officers and employees from any and all liability, settlements, loss, reasonable defense costs, attorney's fees and expenses arising out of CONSULTANT's negligent acts, errors, or omissions in service provided pursuant to this Agreement; provided, however, that if any such liability, settlements, loss, defense costs or expenses result from the concurrent negligence of CONSULTANT and the City, this indemnification and agreement to assume defense costs applies only to the extent of negligence of CONSULTANT.

With respect to Professional Liability, CONSULTANT reserves the right to approve the choice of counsel.

15. INSURANCE

Prior to starting work hereunder, CONSULTANT, at CONSULTANT's cost, shall secure and continue to carry during the term of this contract, with an insurance company acceptable to CITY, the following insurance:

A. Commercial General Liability. CONSULTANT shall obtain, at CONSULTANT's expense and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage with limits of not less than $1,000,000 per occurrence and the annual aggregate of not less than $2,000,000. Coverage shall include CONSULTANTs, sub consultants and anyone directly or indirectly employed by either. This insurance will include personal and advertising injury liability, products and completed operations. Coverage may be written in combination with Automobile Liability Insurance (with separate limits). Coverage will be written on an occurrence basis. If written in conjunction with Automobile Liability the combined single limit per occurrence will not be less than $1,000,000 for each job site or location. Each annual aggregate limit will not be less than $2,000,000.

B. Professional Liability Insurance. The CONSULTANT shall have in force a policy of Professional Liability Insurance in an amount not less than $1,000,000 per claim and $2,000,000 aggregate. The CONSULTANT shall keep such policy in force and current during the term of this Agreement.

C. Automobile Liability. CONSULTANT shall obtain, at CONSULTANT's expense and keep in effect during the term of the resulting Contract, Commercial Business Automobile Liability Insurance covering all owned, non-owned, or hired vehicles. This coverage may be written in combination with the Commercial General Liability Insurance (with separate limits). Combined single limit per occurrence will not be less than $1,000,000 and annual aggregate not less than $2,000,000.

D. Additional Insured. The liability insurance coverage shall include City and its officers and employees as Additional Insured but only with respect to CONSULTANT's activities to be performed under this Contract. Coverage will be primary and non-contributory with any other insurance and self-insurance. Prior to starting work under this Contract,

CONSULTANT shall furnish a certificate to City from each insurance company providing insurance showing that the City is an additional insured, the required coverage is in force, stating policy numbers, dates of expiration and limits of liability, and further stating that such coverage is primary and not contributory.

E. Notice of Cancellation or Change. There will be no cancellation, material change, potential exhaustion of aggregate limits or non-renewal of insurance coverage(s) without thirty (30) days written notice from CONSULTANT or its insurer(s) to City. Any failure to comply with the reporting provisions of this clause will constitute a material breach of this Contract and will be grounds for immediate termination of this Agreement.

16. LABORERS AND MATERIALMEN, CONTRIBUTIONS TO INDUSTRIAL ACCIDENT FUND, LIENS AND WITHHOLDING TAXES ORS 279B.220

CONSULTANT shall make payment promptly, as due, to all persons supplying CONSULTANT labor or material for the prosecution of the work provided for this contract.

CONSULTANT shall pay all contributions or amounts due the Industrial Accident Fund from CONSULTANT or any sub consultant incurred in the performance of the contract.

CONSULTANT shall not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.

CONSULTANT shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

17. WORKERS COMPENSATION INSURANCE

CONSULTANT, its sub-CONSULTANTs, if any and all employees working under this agreement are either subject to employers under the Oregon Worker's Compensation Law and shall comply with ORS 656.017, which requires them to provide workers compensation coverage for all their subject workers, or are employers that are exempt under ORS 656.126.

18. PAYMENT OF MEDICAL CARE ORS 279B.230

CONSULTANT shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury to the employees of such CONSULTANT, of all sums which the CONSULTANT agrees to pay for such services and all moneys and sums which the CONSULTANT collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

19. OVERTIME ORS 279B.235.

Employees shall be paid for overtime work performed under this contract in accordance with ORS 279B.235(3) unless excluded under ORS 653.010 to 653.261 (29 U.S.C. sections 201 to 209).

20. BUSINESS LICENSE

Prior to commencing work in the City of Warrenton, CONSULTANT shall obtain a city business license.

21. STANDARD OF CARE

The standard of care applicable to CONSULTANT's services will be the degree of skill and diligence normally employed by CONSULTANTs performing the same or similar services at the time CONSULTANT's services are performed. CONSULTANT will re-perform any services not meeting this standard without additional compensation.

22. NO THIRD-PARTY BENEFICIARIES

This contract gives no rights or benefits to anyone other than the CITY and CONSULTANT and has no third-party beneficiaries.

23. SEVERABILITY AND SURVIVAL

If any of the provisions contained in this Agreement are held illegal, invalid or unenforceable, the enforceability of the remaining provisions shall not be impaired thereby. Limitations of liability shall survive termination of this Agreement for any cause.

24. COMPLETE CONTRACT

This Contract and its referenced attachments constitute the complete contract between CITY and CONSULTANT and supersedes all prior written or oral discussions or agreements. CONSULTANT services are defined solely by this Contract and its attachments and not by any other contract or agreement that may be associated with this Contract.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first written above.

City of Warrenton, a Municipal Corporation

BY:_____
Henry A. Balensifer, Mayor

ATTEST: _____
Dawne Shaw, City Recorder

CONSULTANT:

By:_____ _____

Printed Name: _____ Date

Title: _____

THE CITY OF WARRENTON:
REQUEST FOR QUALIFICATIONS
for
SEAFARERS PARK:
BANK STABILIZATION PROJECT

Firm Name:	North Coast Civil Design, LLC
Email:	kyle@nccivil.com
Address:	35240 Tohl Ave, Nehalem, OR
Office:	503.368.3732
Submission Date:	February 13, 2025

www.nccivil.com



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Cover Letter

Dear Esther Moberg & Dale McDowell,

We are delighted to have the opportunity to submit our Statement of Qualifications as a response to the City's RFQ for the Seafarers Park Bank Stabilization Project. As a team, with 25 years of experience working together on the north Oregon Coast, we believe we are the perfect fit for this Project.

Our team consists of local professionals who have a deep understanding of the coastal communities and have worked together for many years. In addition, we have worked with the City of Warrenton for 22 years. We are confident that our knowledge and experience will enable us to assist your staff in the provision of engineering services in a timely and economical fashion while maintaining the highest level of quality.

North Coast Civil Design (NC Civil) has provided quality consulting for the City of Warrenton and intend to utilize this knowledge for design, cost estimation, project management, construction management and overall quality control of the project.

As a final benefit, being a local firm ensures that our Construction Observation Team can be onsite quickly, and without charging excessive travel time to the project. This allows for more active inspection, which we've discovered may become necessary, depending on the contractor. We actively document, detail and record (by photo, video and drone inspection) the Contractor's progress, as necessary for quality control, as-built documentation and contactor pay requests.

We have a strong track record of delivering high-quality design plans and contract documents, as well as effectively managing the construction timeframe and budgets of our projects. Our proposal outlines our successful projects and ability to meet schedules and budgets. We've proven this on the numerous annual paving projects, and City construction projects, which has included extensive design in the Warrenton and Hammond Marinas, including 2 separate phases of Bank Stabilization Projects.

Please review our responses to the Scope of Services provided in the proposal. We are excited and ready to continue to support the City of Warrenton with exceptional service to deliver this important project.

Sincerely,

North Coast Civil Design, LLC

Kyle Ayers

Kyle Ayers, PE, Principal-in-Charge

Project Approach

North Coast Civil Design has been a trusted partner of the City of Warrenton, particularly when it comes to the development and maintenance of the City's marinas. Our team has successfully completed two bank stabilization projects for the Hammond Marina, and we are now excited to take on this new project located next door. However, we understand that this project poses unique challenges due to its location on the Columbia River. As a company with extensive experience in coastal and riverfront engineering, we are confident in our ability to overcome these challenges and deliver a successful project for the City of Warrenton.

Task 1: Property Ownership (Boundary & Topographic Survey) – DSL/FED/City

Prior to design and the requests for permitting, the actual ownership of this property should be clearly understood. Our team surveyor will research and map the DSL/Federal ownership of the Columbia River adjacent to Seafarers Park. This needs to be clearly researched, especially as there is a dual piling line on the south riverside, adjacent to the project location.

We propose handling this task through a local survey company, S&F Land Services, in Seaside. They have done other research along the Columbia River and have pinpointed ownership. Once the topographic survey is completed, ownership will be established and then we can be assured we are working with the correct regulatory agencies, obtaining permits necessary for the proposed work.

Further, it may be necessary to apply for a Joint Permit, from ACOE and Department of State Lands. In this case, the permitting process may take longer than a simple permit from DSL, perhaps up to 6 months or more.

NC Civil has already performed an aerial drone survey of the basin as a portion of our scope with the Hammond Marina (as shown below). Data from the drone survey will be integrated into the survey data, for a complete 3 dimensional site plan.



Task 2: Permitting to allow "Shoulder" zone(s)

Once the regulatory agency or agencies are known, we will coordinate with the City of Warrenton to fulfill the permit requirements. Assuming the application process is straightforward, and the permit(s) are issued, we can then bring on a Marine Geotechnical Engineer to conduct sub-surface bores, and determine the existing subgrade conditions.

We are assuming that at least 3 bores will be made along the bank to see what type of material the heavy shoulder rock will rest on and not be moved by the tides. If we determine that a Marine Geotechnical Engineer is required, we will proceed with the following Task 3, as shown below.

Task 3: Marine Geotechnical Analysis & Report (As Needed Basis)

As stated above, a Marine Geotech will advise us on the existing conditions and materials. Currently, the thinking is that the existing concrete flatwork that was dumped at the site, should be removed. However, the geotechnical report may indicate that some material may be recycled and utilized in the armament.

With the geotechnical report in hand, we are then ready to prepare design documents for bank stabilization.

Task 4: Engineering Document Preparation

Excavation may require booms, water quality monitoring, and/or daily reports. Our plans will reflect the permit requirements that are associated with this project.

A site demolition plan may be required, due to the non-engineered fill that has been placed in this location. The plans will include the geotechnical notes for general demolition and excavation. However, during construction, the contractor is responsible for the construction activities that take place on the project site.

This task gives us drawing sheets that describe the current issues, project limits, and rock types for shoulder cross sections. We expect to provide cross sections where the bank changes direction or the bottom condition changes.

We understand that the King Tides affected and actually damaged the bank structure for about 350-400' and part of the viewing road, and parking locations. Therefore, the current road design will be shown and the plans will include the plans for rebuilding the road cross sections as well.

It should be noted here that the finalized plans may need to go to the regulatory agencies as part of the permitting process. If so, they will be so routed.

Document preparation is an opportunity to coordinate with the City during the design process. Typically, this is done at the 30%, 60% and 90%. We would be happy to show the work progress to the City or Parks Department

Task 5: Technical Specifications

Technical Specifications will be prepared to reflect the project as approved by the regulatory agencies and the City. The City will have an opportunity to review and comment on the project specifications, possibly during the 60% and 90% drawing reviews. We are happy to show the technical specifications that direct the project.

Task 6: Bidding Assistance

NC Civil will prepare bidding Construction Documents for a public solicitation of contractors. We will then accept and review bids on behalf of the City of Warrenton. This item of work includes the preparation of a contract between the City and the required notices to the selected contractor.

Task 7: Construction Administration

NC Civil will perform the Construction Administration for the construction project. Our staff will keep track of constructed bid items, administer change orders, RFI's and review monthly pay requests from the contractor and prepare payment recommendations for the City.

Task 8: Construction Observation

NC Civil's project engineers and inspectors will conduct periodic observations and specified testing of the construction work to determine compliance with the plans and specifications. The project engineer will complete the approval letters, or note the repairs needed. Our engineering staff will prepare and submit the final construction certificate if required.



FEES

The fees shown below are approximate only. We propose to bill hourly for this project, within the not-to-exceed fees shown below, with charges detailed for your review. We will not exceed these fees without your prior authorization.

TASK DESCRIPTION	FEE
1: Property Ownership (Boundary & Topographic Survey)	$7,500
2: Permitting to allow "Shoulder" zone(s)	$8,000
3: Marine Geotechnical Analysis & Report (As Needed Basis)	$35,000
4: Engineering Document Preparation	$25,200
5: Technical Specifications	$4,800
6: Bidding Assistance	$2,800
7: Construction Administration	$4,500
8: Construction Observation	$8,000
Total Estimated Professional Service Fees >	$95,800

The fees for the above items assume all work will be completed by our office under a single-phase contract. Item #3 above can be performed on an as needed basis, based upon the recommendation of the Project Engineer, the Marine Geotechnical Engineer and the City. Separate, not specified items can be added in addition to the Total Fees and an Additional Service Request can be provided to the City for additional work. General engineering consulting and planning services beyond the scope of this proposal shall be billed at an hourly rate. All in-house reimbursable costs, such as copies, reproductions, facsimiles, etc., are included in the contract amount. Copies of direct expense vouchers are not provided with the invoices. Subconsultants, and any other out-of-house direct costs, will be invoiced at cost plus 10% percent and are only anticipated as specified above and are included in the contract amount.

Please Note: We can see that the Fees provided for engineering are substantial in comparison to the overall construction budget, as stated by the City's RFQ. NC Civil understands the difficulty of juggling yearly budgets and are willing to work with the City to possibly Phase the construction efforts for this project. By Phasing, the City may be able to acquire more City construction funds or possibly State or Federal grants. NC Civil will also allow the City to negotiate engineering fees for this project.

SCHEDULE

Following "Notice to Proceed", our office can provide firm time estimates. In general, we will complete the project according to the schedule shown below:

TASK DESCRIPTION	EST START	EST FINISH
1: Property Ownership (Survey)	April 2025	May 2025
2: Permitting	April 2025	May 2025
3: Marine Geotechnical & Report	June 2025	July 2025
4: Engineering Document Preparation	July 2025	September 2025
5: Technical Specifications	August 2025	September 2025
6: Bidding Assistance (In-Water Work Period Nov. 1-Dec. 31, 2025)	September 2025	October 2025
7: Construction Administration (In-Water Work Period Nov. 1-Dec. 31, 2025)	November 2025	December 2025
8: Construction Observation (In-Water Work Period Nov. 1-Dec. 31, 2025)	November 2025	December 2025

The schedule outlined above is based on the following assumptions:

1. All pertinent information and documents necessary for the completion of our work is received in a timely manner.
2. That all reviews and approvals will take place in a timely manner. NC Civil will not be liable for delays in the project schedule due to extended or delayed agency or client review that is not within our control. Administrative authority approval may extend timelines.
3. That this proposal will be approved and returned to our office (by either mail or email) within 7 calendar days. The schedule is based on an assumed start date and the scope identified as of the date this proposal was prepared. The timeline will start once the Client Kickoff meeting occurs and an adjusted schedule will be provided to the Client if requested, at that time.

OTHER FEES

No other fees are anticipated currently. The area appears to be within the City of Warrenton and the regulatory agency boundaries.

ADDITIONAL WORK

Any additional work not included in the scope of this proposal, which is added by the client or other approval agencies, will be charged at our standard hourly rates for this project. No additional work will be initiated without the prior written approval of the client.

SEAFARERS PARK FEE WORKSHEET - ESTIMATES

ENGINEER'S ESTIMATER OF PROBABLE COSTS FOR CONSTRUCTION MANAGEMENT/ADMINISTRATION

DATE: 2/13/2025

BY: KA

PROJECT DURATION 75 DAYS

NORTH COAST CIVIL DESIGN

Item	Description	Quantity	Units	Unit Cost	subtotals	TOTALS
PROJECT SURVEY - BOUNDARY/TOPO						
1	COORDINATE PROJECT TOPO SURVEY (BY OTHERS) SURVEY ESTIMATE/S&F - 3 DAYS FIELD (2 MAN CREW)/1 DAY OFFICE	40	HR	$150	$6,000	
2	COORDINATION W/DSL - REVIEW PERMIT REQUIREMENTS AND MONITORING HANDBOOK 235 PAGES	5	HR	$115	$575	
3	PREPARE PHOTO POINTS FOR MITIGATION POINTS (BE SURE TO INCLUDE W/SURVEY)	4	HR	$115	$460	
4	COORDINATION MEETINGS WITH THE CITY/HARBORMASTER (ASSUME 4)	4	HR	$115	$460	
	subtotal				$7,495	$7,495
PERMITTING & GEOTECH BORES						
5	PERMITTING - DSL/CoE	20	HR	$150	$3,000	
6	SUBSURFACE BORES	5	EA	$1,000	$5,000	
	subtotal				$8,000	$8,000
MARINE GEOTECHNICAL ANALYSIS & REPORT						
7	MARINE GEOTECHNICAL ANALYSIS & REPORT	70	HR	$500	$35,000	
	subtotal				$35,000	$35,000
ENGINEERING DESIGN PLANS/CD/TS/AND CONSTRUCTION COST ESTIMATE						
8	ENGINEERING PLAN SHEETS	96	HR	$115	$11,040	
9	PREPARE CONTRACT DOCUMENTS, TS TO BE PER CURRENT APWA/ODOT CONST. SPECS	70	HR	$150	$10,500	
10	PREPARE CONSTRUCTION ESTIMATE FOR PROJECT	60	HR	$115	$6,900	
11	MEETINGS W/HARBORMASTER - COORD/PLAN REVIEW/PREP FOR BID (ASSUME 3 MEETINGS)	10	HR	$150	$1,500	
	subtotal				$29,940	$29,940
CONSTRUCTION BIDDING						
12	BIDDING ADVERTISEMENT (ELECTRONIC, QUEST/CDN) - DA/DJC	9	HR	$115	$1,035	
13	REQUESTS FOR INFORMATION - ASSUME 1 RFI @ 2 HR EA (*)	2	HR	$115	$230	
14	PREPARATION OF ADDENDA - ASSUME 1 @ 4 HRS EA	2	HR	$115	$230	
15	CONDUCT PRE-BID MEETING W/BIDDERS - PREPARE AGENDA - WALK THROUGH	2	HR	$115	$230	
16	BID OPENING - BONDING AND QUALIFICATIONS CHECKS	2	HR	$115	$230	
17	MASTER BID TABS/LIST COMPARISONS - BID RECOMMENDATION	2	HR	$150	$300	
18	LETTERS TO BIDDERS - COMMUNICATION W/SUCCESSFUL BIDDER	2	HR	$150	$300	
19	CITY COMMISSION REVIEW AND APPROVAL TO CONSTRUCT	1	HR	$150	$150	
20	CONTRACT EXECUTION - SIGNED PAPERWORK - DELIVERED	1	HR	$115	$115	
	subtotal				$2,820	$2,820
CONSTRUCTION ADMINISTRATION						
21	REQUEST FOR INFORMATION (RFIs) - ASSUME 1 @ 3 HR EACH	3	HR	$115	$345	
22	CHANGE ORDERS (COs) - MAY REQUIRE DSL/PW/CITY COMMISSION APPROVAL ASSUME 2 @ 4 HRS EACH	8	HR	$115	$920	
23	PROCESSING OF PAY REQUESTS (PR) - ASSUME 2 REGULAR, 1 FINAL @ 4 HRS EACH	12	HR	$115	$1,380	
24	MISC - MEETINGS TO FINALIZE PROJECT - COORDINATION (ASSUME 3 MEETINGS @ 2HR EACH FOR ESTIMATE)	6	HR	$115	$690	
25	PUNCH LIST - PREPARE/ADMINISTRATION/COORD/SITE VISIT/FOLLOWUP	3	HR	$115	$345	
26	CONTRACTOR RECORD DWGS TO AS-BUILTS	3	HR	$115	$345	
27	LIQUIDATED DAMAGES - ASSUME NONE	0	HR	$115	$0	
28	FINAL PAY REQUEST - CERTIFICATIONS IN PLACE - APPROVAL BY DSL	4	HR	$115	$460	
	subtotal			***EST=>***	$4,485	$4,485
PROJECT OBSERVATION						
29	PROJECT OBSERVATION - BASED ON (2 HR/DAY) FOR 20 DAYS, INCLUDES TRAVEL	40	HR	$105	$4,200	
30	REPORT PREPARATION FROM FIELD NOTES - PHOTO PROCESSING - 0.5HR/DAY, FOR 20 DAYS	10	HR	$105	$1,050	
31	PROJECT MEETINGS - ASSUME 6 WEEKLY MEETINGS, FOR 6 WEEKS (2 HRS. EACH)	12	HR	$105	$1,260	
32	PROJECT MANAGEMENT/REVIEW OF OBSERVATIONS 0.5/DAY, FOR 30 DAYS	10	HR	$150	$1,500	
	subtotal			***EST=>***	$8,010	$8,010
					subtotal	$95,750
					ESTIMATED TOTAL roundup f	**$95,800**

PRELIMINARY ESTIMATE OF PROBABLE COSTS FOR CONSTRUCTION @ SEAFARERS PARK, HAMMOND, OREGON

10/24/2024/BY JGF/NCCD

NORTH COAST CIVIL DESIGN

#	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL FOR ITEM
1	MOB, TRAFFIC CONTROL & FLAGGING	1	LS	$ 30,000	$ 30,000
2	EROSION CONTROL/STORMWATER MANAGEMENT (NO DSL)	1	LS	$ 10,000	$ 10,000
3	EXCAVATE AND WASTEHAUL CONCRETE/WOODY SITE DEBRIS (GEOTECH)	2,000	TONS	$ 15	$ 30,000
4	ADD PIT-RUN WORK SHELF/BENCH TO OPERATE MACHINES, COMPACTED.	1,860	TONS	$ 35	$ 65,100
5	EXCAVATE KEY TRENCH AT OUTER BASE (5' X 5' X 400')	370	CY	$ 10	$ 3,700
6	CLASS 2000 RIP-RAP IN KEY TRENCH (370 CY X 1.4)	520	TONS	$ 55	$ 28,600
7	CLASS 700 RIP RAP - BANK STABILIZATION MAT OVER GEOFABRIC (1.5'X20'X400') * 1.4	650	TONS	$ 50	$ 32,500
8	ADD CLAY FILL TO RIP-RAP (EST) (ALT, CLEAN NATIVE), BEHIND GEOFABRIC	500	CY	$ 15	$ 7,500
9	GEOTEXTILE FABRIC BANK STAB + PARKING AREA, 2' OVERLAP	3,000	SY	$ 5	$ 15,000
10	AGGREGATE - 3/4"-0" COMPACTED, UNDER AC (22,750SF X 0.5")/27 COMPACTED	422	CY	$ 60	$ 25,320
11	TOPSOIL 6" AND RE-VEGETATE W/GRASS (400'X10'X0.5')	75	CY	$ 50	$ 3,750
12	AC_REPAVE - PRKNG AREA, INCL LAKE (400'X 75') - 3", TOTAL: PROF. LIFT, & 2" LIFT	585	TONS	$ 220	$ 128,700
				subtotal >	$ *380,170*
	ESTIMATE ONLY			Contingency @ 15%>	$ 57,026
				subtotal >	$ *437,196*
				Engineering Design @ 20%>	$ 95,800
				Permitting (by City)>	$ -
				Project bidding (by City)>	$ -
				Construction Management>	$ -
				ESTIMATED TOTAL FOR PROJECT>	$ **532,996**

ASSUMES CITY HAS A DISPOSAL SITE FOR CONCRETE DEBRIS (SHOULD BE WASTEHAULED FOR CRUSHING)

3 Example Projects with References

The City of Warrenton

Contact:

Jessica McDonald,
Harbormaster

Email:

jmcdonald@warrentonoregon.us

Phone:

(503) 861-3822

Reference Project:

Hammond Marina Bank Stabilization Project

Project Cost: $148,000

Project Year: 2023

Description: Engineer of Record who provided Civil Design, Project Admin and Construction Admin of 563 LF of shoreline armoring within the Hammond Marina due to King Tides and storm runoff damage.





Hammond Rip-Rap Project

The City of Warrenton

Contact:

Jessica McDonald,
Harbormaster

Email:

jmcdonald@warrentonoregon.us

Phone:

(503) 861-3822

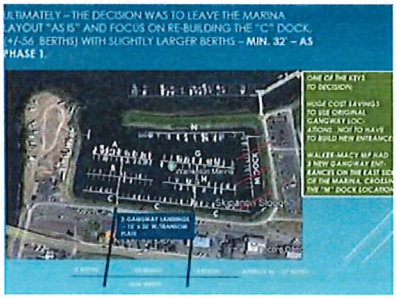
Reference Project:

Warrenton & Hammond Marina Re-Visioning Projects

Project Cost: $95,000 (Engineering Fees)

Project Year: 2024-Present

Description: 2 Separate Marina updates with Phasing to allow multiple years of construction CIP's.





Marina Visioning Projects

The City of Manzanita

Contact:

Rick Rempfer, Public Works Director

Email:

rrempfer@ci.manzanita.or.us

Phone:

(503) 368-5343

Reference Project:

Dorcas Lane Reconstruction

Project Cost: $1.53 Million

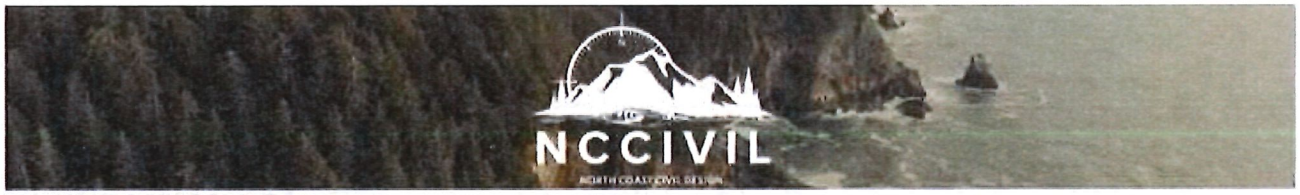
Project Year: 2022

Description: Engineer of Record who provided Civil Design, Project Admin and Construction Admin of 2,800 LF of residential roadway reconstruction, full storm system construction, and full water distribution system construction





Dorcas Lane Reconstruct



KYLE AYERS, PE

CIVIL ENGINEER | PROJECT MANAGER | OWNER

Kyle is a civil engineer and project manager on the North Coast of Oregon. He has 25 years of experience and began engineering working in Manzanita in June of 1998. Kyle thrived on various types of public and private sector projects, including designs of water systems, water master plans, sewer systems, roads, downtown reconstruction projects, storm water master plans and storm drainage systems. Kyle also performed field investigation, site development, construction observation, grading design, utility design and coordination, project management, contract document and technical specification preparation, public bidding assistance, and construction management. Kyle has been providing Oregon's coastal communities with a wide range of design, planning, architectural, surveying, bid support and construction management services. From HLB to Otak and now to NC Civil, Kyle has continued serving clients along the coast including Astoria, Warrenton, Gearhart, Cannon Beach, Clatsop County, Manzanita, Nehalem, Wheeler, Tillamook, Port of Tillamook Bay, Tillamook County and ODOT. His services ranged from street, stormwater and other water resources, sanitary sewer, clean water, bicycle and pedestrian facilities and utilities design; construction support (bid services and reviews, contract specifications and documents, construction administration and management); and grant coordination. Now, with NC Civil, Kyle has decided that he can lead a team to better serve the coastal communities, utilizing a small, efficient team with low overhead, excelling in client management and customer service. North Coast Civil Design will thrive with Local employees who understand the concept of efficiency and can operate within the limits of the coastal economy.

REGISTRATIONS

Professional Engineer (Oregon)

CERTIFICATIONS/ TRAINING

AutoDesk Civil 3D Advanced Design Training

CESCL Certified Erosion Control Inspector

PROFESSIONAL AFFILIATIONS

American Public Works Association

EDUCATION

OREGON INSTITUTE OF TECHNOLOGY

Graduated June 1999,	Summa cum laude
Bachelor of Science,	Civil Engineering
Associate of Arts,	Civil Engineering

WORK EXPERIENCE

LJ FRIAR & ASSOCIATES, INC.: SURVEY TECHNICIAN

June 1997–September 1997
Rod-man, topographic survey, construction staking, boundary survey, CAD drafting

HLB & ASSOCIATES, INC.: ENGINEER TECHNICIAN
HLB OTAK, INC.: ENGINEER TECHNICIAN
OTAK, INC.: PROFESSIONAL CIVIL ENGINEER

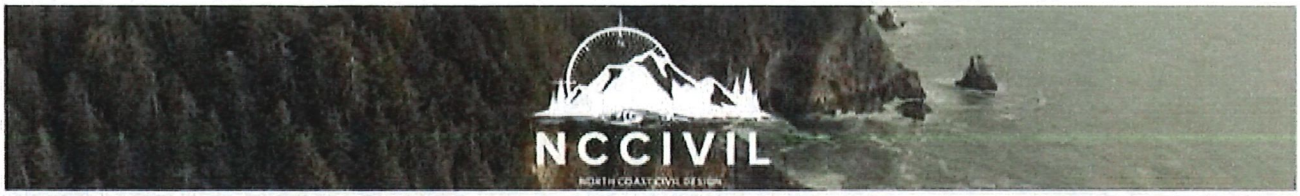
1998 – 2006: Engineer designer, CAD drafter, project manager, inspector, field testing
2006 – 2015: Engineer designer, CAD drafting, project manager, construction manager, inspector
2016 – 2021: Licensed Professional Engineer, civil designer, project manager, construction manager

NORTH COAST CIVIL DESIGN: CIVIL ENGINEER/PROJECT MANAGER/OWNER

May 2021 – Present: Principal, Licensed Professional Engineer, civil designer, CAD drafter, project manager, construction manager, inspector

SELECTED PROJECT EXPERIENCE

- City of Nehalem, Engineer of Record, 2021 – Present
- Carmel Avenue Reconstruction; Manzanita, 2017
- 2006-2018 Road, Water & Storm Reconstruction Projects; Manzanita
- Manzanita & NKNWD Water Inter-Tie Project, 2015
- Manzanita & Nehalem Water Inter-Tie Project, 2023
- Laneda Avenue Reconstruction; Manzanita, 2004 & 2014
- Manzanita Highway 101 Water Main Bore, 2018
- Wheeler Downtown Improvement Project; Wheeler, 2003
- Beach Street Reconstruction Project; Manzanita, 2011
- City of Warrenton, Engineer of Record, 2015 – 2018
- Dorcas Lane Reconstruction; Manzanita, 2022
- Storm Water Master Plan; Manzanita, 2020
- City of Nehalem, Water System Reconstruction Project; Nehalem, 2006
- City of Nehalem, Water Master Plan, Nehalem, 2015
- Ecola Creek Water Main(s) Replacement; City of Cannon Beach, 2010
- Manz Ave & 3rd Reconstruction, Manzanita, 2017
- Port of Tillamook Bay Campus Wide Project; 2014



JON G. FORRESTER

SENIOR CIVIL ENGINEERING TECHNICIAN

Jon is a Senior Engineering Technician. His responsibilities have included major project management, extensive contract administrative activities such as design and construction liaison, cost controls, dispute resolution, reviewing pay requests, and monitoring project budgets. He has extensive experience in engineering design, technical specifications for various land development and related municipal consulting for civil engineering projects. Jon serves as an advisor to northwest city managers, engineering departments, and public works departments. He also has extensive hydraulic design capability, having designed or performed stringent DEQ testing of over 60 pump stations, having extensive experience in storm water, potable and sewage stations, both in the United States and the United Arab Emirates. His responsibilities also include design and construction oversight of storm drainage systems, sewer mains, water mains, roads, wetlands mitigation, and environmentally sensitive sites, along with close coordination with regulatory agencies and funding sources.

Education

- Bachelor of Science, Civil Engineering (Oregon Institute of Technology)
- A.A.S. (Spokane Community College)

Professional Affiliation

- ASCE
- City of Seaside, Contractor Arbitration Board past Member
- Water Environment Federation

Selected Project Experience

City of Manzanita, Dorcas Lane Reconstruction; Manzanita, Oregon
Project Designer—Assistant to Kyle Ayers, PE for the design of the Dorcas Lane Reconstruction Project. Roles included engineering deign calculations, Construction Manger and Administrator.

City of Cannon Beach; North Side Tank, Cannon Beach, Oregon
Assistant to Jeff Harrington, PE, — Flow study for new installation, assisted in Project Management.

City of Cannon Beach; Sunset Water Booster Project, Cannon Beach, Oregon
Pump Station Designer/Project Manager for construction of the Booster —Pump Station.

City of Warrenton Core Conveyance Pump Station; Warrenton, Oregon
Project Manager/Designer—Estimated cost at $2.0 million. A large collection point/pump station design/construction for the City of Warrenton.

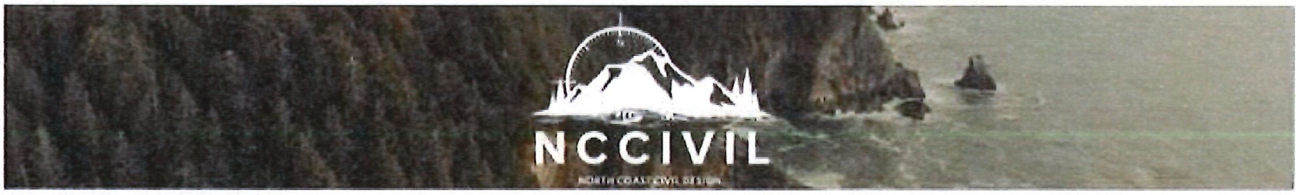
Sewer Rehabilitation Project; Tillamook, Oregon
Pump Station Designer/Construction Oversight—redesign and construction of the 12th Street Pump Station.

Gearhart Water Treatment Plant; Gearhart, Oregon
Construction Observation-Management—New water filtration treatment plant. Raw water, pumped from beach wells is treated via new membrane filtration. Daily CM, oversight, cost-controls.

Bond Street Waterline Replacement Project; Astoria, Oregon
Civil Designer—alternatives analysis, a utility study, construction cost estimates, and grant application assistance. The City has received a Federal Hazard Mitigation Grant through Oregon Emergency Management for the project.

Construction Inspection Services for the Denver Street (CSO) Project; Astoria, Oregon
Engineering Technician—Daily construction management, cost controls, review of change orders, progress payments, meetings with staff.

Wastewater Treatment Plant Project; Warrenton, Oregon
Project Construction Manager—New Sequencing Batch Reactor Wastewater Treatment Plant. Responsible for project management, construction management, approval of Change Orders progress and final payment. Project at completion had less than 3% in change orders, and was published in Public Works magazine.



DAN AYERS

PROJECT CIVIL INSPECTOR

Dan is an ODOT Certified Project Civil Inspector who provides civil inspections for North Coast Civil Design, LLC. His experience and responsibilities include onsite inspections of roads, water, sewer, storm water and communication systems for various municipalities in Tillamook and Clatsop counties. Dan works with the civil engineers and project managers to coordinate with the various contractors and provide assessment to the clients and engineers with daily reports and documentation of progress for each project.

Registrations

- Licensed General Contractor State of Oregon
- ODOT Certified Inspector for Civil Construction

Certifications/ Training

- Solid Builder 3D design software

Professional Affiliations

- Wheeler Planning Commissioner
- Board member of Community Action Team Inc. Tillamook and Clatsop counties

City of Manzanita: **Manzanita & 3rd Street Reconstruction Project**
Carmel Ave. Reconstruction Project
Dorcas Lane Reconstruction Project

These 3 projects included the reconstruction of over 7,000 LF of street reconstruction work. The work included the paving of 3 separate residential streets, with the installation of water main and storm drainage facilities. These projects required coordination with local utility companies, commercial properties and local residents. Duties also included conducting weekly meetings with the client, engineers and contractor.

City of Warrenton 9th St. Pump Station

This project included the replacement and installation of a sanitary sewer pump station. The project required the dismantling of an existing pump station which required a by-pass system during the installation of the new pump station. Also installed on site were new pumps, valves, meters, vaults, DBS auxiliary pump system and pump station control building. This project required coordination with local utility companies as well as state and federal agencies as a result of pump station location along wetland boundaries. Duties included conducting weekly meetings with the client, engineers and contractor.

Tillamook County 3rd St Project

The 3rd St. project included inspecting and observing the lowering and placement of existing communications, new sewer laterals, new right of way improvements, driveway approaches and the replacement and installation of AC roadways. This project required the coordination with existing businesses and private residences to facilitate continued utility service with minimal disruption of services.

City of Tillamook Sewer Rehabilitation Project #2.

This project included the removal and installation of 3800 feet of sanitary sewer pipe, the removal and installation of 17 sanitary sewer manholes, the removal and installation of 1572 feet of sanitary sewer laterals and the installation of 87 sewer cleanouts. This project required coordination with local utility companies as well as state and federal agencies. Duties also included conducting weekly meetings with the client, engineers and contractor.

Vernonia Waste Water Treatment Plant

This project included the installation of sanitary sewer ductile iron pipe.
Installation of pump stations, flow meters, valves, clarifiers, tanks, outfall structures, chlorine contact chambers. This project required coordination with local utility companies as well as state and federal agencies. Duties also included conducting weekly meetings with the client, engineers and contractor.

City of Warrenton Core Conveyance Project

This project included the installation of sanitary sewer force main pipe, installation of sanitary sewer manholes and valves, and the installation of a sanitary sewer pump station. Duties included project observation, conducting weekly meetings with the client, engineers and contractor.

End of RFQ

North Coast Civil Design, LLC uses recycled material when printing this RFQ

Federal Tax ID (EIN) **87-0818758**

NC Civil is a Resident Bidder as defined by ORS 279A.120.

This proposal is valid for sixty (60) days from the date of submission.

City Commission Agenda Memo

Meeting Date: March 25, 2025
From: Esther Moberg, City Manager
Subject: Request for Hardship Consideration Robin Bergerson

Summary:

Robin Bergerson has requested a hardship consideration for his sidewalk in lieu of payment in the amount of $9,720.

Mr. Bergerson requested from the City manager a delay in payment including a payment plan (we do not have this mechanism) this request would require a code and policy change as well as additional staffing to track, administer, and place an additional lien. This is not something we currently allow or have the process in place for.

Mr. Bergerson further requested a delay until receipt of his second loan which he was willing to write a promissory note for. The city does not allow for promissory notes since we do not hold debt for builders and this could impact our audit if there is uncleared future debt. This would also need a code change since all builders are required to pay the sidewalk in lieu of fee before building occupancy and final permits.

The City Manager recommended Mr. Bergerson present his hardship request to the City Commission since his request does not fit under current City Code or policy as well as sets a new precedent that other builders' could request the same hardship and as such the City Manager could not approve it.

Recommendation/Suggested Motion:

I move to deny the request for hardship.

Alternative:

Other action as deemed appropriate by the City Commission

OR

None recommended

Fiscal Impact:

- If a one-time exemption, other builders and property owners will ask for the same exemption.
- Change in City Code for sidewalk in lieu of fees
- Change in City Policy for sidewalk in lieu of fees
- Additional staff would be needed to track and administer a sidewalk in lieu of fee future payment plan or liens.
- If Sidewalk in lieu of fees are billed after building occupancy, there is no compulsion on the builder or owner to pay, most likely resulting in liens, not payments.

Attachments:

(All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.)

- Original pre-app for gardenia project
- Staff memo with brief timeline for NW Gardenia Ave project

- Sidewalk in lieu of fee invoice

Approved by City Manager: _____

Timeline of Robin Bergerson's Project 805 NW Gardenia Ave – City Staff Memo

(Building and Public Works Depts.)

April 11, 2024
During the pre-application meeting, Builder and property owner Robin Bergerson was provided with a Public Works memo (see attached) outlining the public works requirements. These included:

- Connection charges and system development charges must be paid for water service before water meter installation. *No dollar amounts listed since there is no design of the project submitted at this time so we cannot calculate until an actual design is presented.*

- Compliance with private street standards, including payment of a sidewalk in-lieu fee. *No dollar amounts listed since the streets have not been designed at this time and there is nothing to calculate until a design is presented.*

- Preliminary evaluation indicated that engineered civil plans would be required for further assessment.

May 14, 2024
Former Planning Director Matthew Ellis sent Robin Bergerson a detailed site plan description as outlined in Chapter 16 of the Development Code.

June 26, 2024
Public Works had not received any official plans, engineering documents, or Right-of-Way permits from Robin Bergerson. However, during a site visit, it was discovered that he had proceeded to illegally create a private road within the city right-of-way. Additionally, he had begun inquiring with Public Works staff about sewer hookups, disregarding the proper procedure.

July 26-31, 2024
Robin Bergerson, assisted by his father Chuck Bergerson (not property owner), submitted building plans along with structural, mechanical, and plumbing permit applications.

August 6, 2024
Robin requested a foundation-only permit to take advantage of favorable weather conditions. Interim Building Official Robert Johnston approved this request under ORSC Section R106.3.3, which allows phased permitting. It was stipulated that there would be no connection to public infrastructure at this time, as civil utility issues remained unresolved and were unrelated to the design or construction of the footing.

August 7, 2024
Matthew Ellis sent a notification to Robin stating that his review for the Planning Department was approved with conditions. The conditions required that a new elevation certificate be provided upon completion of construction and prior to the issuance of a Certificate of Occupancy.

August 13, 2024
Civil plans were submitted by engineer Geoff Liljenwall. Comments were sent back to Geoff Liljenwall requesting additional pertinent information per city code be added to the civil plans.

September 11, 2024
Robin's building permit was issued, approved with conditions from the Planning and Public Works Departments. At this stage, the engineering requirements for completion of civil plan types were nearly met.

November 10, 2024
Geoff Liljenwall submitted identical civil plans to those dated August 13, 2024. Brian relayed this information to Geoff and requested a digital version of the stormwater report, which had been physically dropped off by Chuck Bergerson the previous day.

November 27, 2024
Chuck Bergerson contacted Public Works on behalf of Robin Bergerson, stating that they appeared to have everything needed to proceed with water and sewer hookups. Brian responded the same day, indicating that the civil plans were nearly complete. He had spoken with Geoff Liljenwall and requested an updated plan set. Brian informed Chuck that the review process was expected to have a quick turnaround. Once the civil plan set and stormwater report were approved, the project could move forward with sewer and water connections. Brian also mentioned that Chuck could choose whether to address minor comments immediately or wait for the reviewing engineer to complete the review.

Chuck responded the same day, inquiring about the reviewing engineer, costs, and whether they would receive a list of necessary corrections. He also expressed frustration over the delays.

December 3, 2024
The Building Department met with Robin and his plumber to discuss fire sprinkler submittal requirements. At this time, no permit was submitted.

December 9, 2024
Twyla responded to Chuck's email, apologizing for the delay due to Brian's absence (staff on vacation). She reiterated that they required Chuck's decision to proceed before providing a cost estimate or timeline for the review. Chuck responded the same day, confirming that they would proceed.

December 11, 2024

The submitted plans contained multiple errors, including incorrect leader lines in the plan view that did not correspond with the intended items in our scanned plan set. The applicant and their engineer were notified and requested to resubmit corrected plans. A resubmittal was received on December 12th; however, the same issues persisted. Despite this, our engineer proceeded with the review in order to provide an estimate for the reimbursement agreement.

December 18, 2024

The Public Works Department issued the Agreement to Reimburse for Professional Consulting Services (Resolution No. 2600) in the amount of $3,500, based on the engineer's estimate from AKS, to the applicant. The applicant paid the fee on December 23rd, and the engineer subsequently began the review.

December 23, 2024

Robin mentioned concerns about the review fee cost of $3500. Staff reminded Robin that the review fee is the cost for the city to have an engineer review his civil design plans. He also complained about delays with his project. City Manager reviewed timeline with staff and requested they move forward as quickly as possible. Civil design review (first submittal) was completed on January 3rd (see below). This was a 2-week turn around by the City but was the only delay in September-April by the City of Warrenton and this was due to time needed by the engineer for a full review as well as holiday closures.

December 30, 2024,

Staff mentioned to Robin that the property was not yet in his name which needed to have the title change completed. On December 31, Robin stated he had already given staff something saying the property was in his name but noted he would be at Ticor within a few days to complete the title process.

January 3, 2025
The first submittal review was completed by AKS, requesting a resubmittal.

February 4, 2025
Geoff Liljenwall responded to AKS regarding plan review responses.

February 7, 2025
Paul from AKS provided informal feedback on Geoff's questions.

March 4, 2025
Geoff submitted a resubmittal of the plans.

March 12, 2025
Paul from AKS completed the review with a conditional approval.

On the same day, Robin requested a fire sprinkler inspection. It was explained to him that he did not yet have approved sprinkler plans or a permit in place. That afternoon, he submitted the necessary plans, and approvals were granted on March 17.

March 17, 2025
Public Works Director Kevin Gorman issued a formal notification approving Robin to establish water service with the utility department. This approval was contingent on his compliance with all city requirements before proceeding with additional work in the City right-of-way or obtaining occupancy approval.

On the same day, Robin came into the Building Department to pay his fire sprinkler permit. He inquired why a building permit was issued if he could not obtain water service for his site. It was explained to him that the permit was issued in September as a courtesy and at his request, given that at the time, only a few outstanding items needed to be addressed with his engineer and Public Works. The department had felt comfortable issuing the permit under those circumstances. However, had it been known that these outstanding items would remain unresolved for such an extended period, the permit issuance would have been delayed accordingly.

Additionally, on March 17, Robin received his sidewalk in-lieu fee calculation amount.

March 20th, 2025

Robin requested a meeting with the City Manager and expressed a need to delay his payment. The City Manager could not approve this given his two requests did not fit city code or policy and she recommended he bring his hardship request to the City Commission.

City Manager notes that typical turnaround from September 2024 until March 2025, City Staff and city external engineering review turnaround was between 1day to 1 week other than the delay in December (approximately 2 weeks while AKS was reviewing the project) which was partly due to the engineering review and the holidays. I believe that first engineering review was 10 days by AKS. Mr. Bergerson's civil engineer at each part of the process took 4-6 weeks to respond even after urging (multiple check ins) by city staff each time.

Toward the end of the process in January and February, Mr. Bergerson had (at least two or three) friends stop by Public Works individually to complain about the process and each time the interim public works director informed them we were waiting on Mr. Bergerson's engineer and they should go talk to him or Mr. Bergerson.

Public Works Department

Pre-Application Memorandum

To: Robin Bergerson, Applicant
From: Twyla Vittetoe, Engineering Technician, Brian Crouter, Project Coordinator
Date: April 11th, 2024
Re: Proposed Single-Family Home on Tax Lot 810160000616

Public Works acknowledges the proposal for a new single-family home on tax lot 810160000616. Please note that the comments provided herein may not address all aspects, and additional rules, restrictions, or requirements may apply. Upon preliminary evaluation, it is anticipated that Public Works will require Engineered Civil Plans for further assessment.

Water:

An 8-inch water main runs along Gardenia Ave. Initial assessment suggests the possibility of installing a water meter in the City Right-of-Way (R.O.W) in front of tax lot #81016000614, though charges will apply.

Sewer:

The Sanitary Sewer terminates roughly 400 feet away from the property. Presently, neighboring properties utilize pump systems to access the sewer, and due to depth considerations, connecting via gravity at the proposed site may not be feasible. Depending on the depth of the existing sanitary main in Gardenia Ave, an individually maintained grinder pump station for sanitary service on each lot may be required.

Alternatively, installing a septic system may be a viable option. However, you would need to consult with the Clatsop County Sanitarian to determine if a septic system is permissible for this location.

Streets:

As per PWDS section 3.1.8.1, any driveway exceeding 150 feet in length must adhere to the requirements outlined for Private Streets in PWDS section 3.2. The projected length of this 'driveway' falls within the range of approximately 500 feet.

To comply with Private Streets standards, the following criteria would need to be met:

a. Payment of sidewalk fee-in-lieu.
b. Approval of a fire suppression system (potentially fire sprinklers) by the PW Director or their designee (possibly the Building Official) and the City Fire Official.
c. A minimum unobstructed width of 20 feet with a vertical clearance of 14 feet.
d. A minimum private drive surface width of 14 feet, subject to approval by the Fire Marshal/Official.

e. Provision of a standard turn-around at the dead-end in accordance with Oregon Fire Code requirements.
f. The establishment of emergency access, private access, and utility easements.

Furthermore, under M.C. 16.120.020 1.), a durable non-paving material may be utilized for driveways and private streets serving three or fewer residential dwelling units, or where adequate findings of fact demonstrate the need to reduce surface water runoff and protect water quality. All paving and non-paving surfaces must adhere to City construction standards and receive approval from the Community Development Director, City-appointed engineer, and/or Planning Commission.

Private street/driveway will likely require culvert(s) or bridges as the purple lines in the screenshot are existing drainage avenues for stormwater from the west. These crossings may require Joint fill-removal permits (DSL/USACE) depending on the wetland/waters delineation and concurrence from DSL. It may be 'easier' to build it within the ROW and limit the # of crossings to a single location.



Storm Water:

Stormwater system for a driveway would be a private system that is maintained by the homeowner. Driveway connection to existing public ROW will need to maintain drainage

patterns and any storm infrastructure within ROW needs to meet City Engineer Design standards.

Streetlight:

Street light locations shall be located at property lines and curb returns where possible. A minimum of one light shall be located at each residential local street intersection, each 3-legged intersection (all classifications), and at the end of each cul-de-sac or permanent dead-end street.

Standard Comments:

1. The developer is required to follow the City of Warrenton Development Standards. These standards can be found in Title 16 of the Warrenton Municipal Code. Please provide documentation showing how this development will meet that standards set forth in the development code. Below is a link to the Development Code http://qcode.us/codes/warrenton/view.php?topic=16&frames=on
2. The developer must follow the City's Water and Sewer Regulations. These regulations are included under Title 13 of the Warrenton Municipal Code. Please provide documentation showing how this development will meet that standards set forth in the development code. Below is a link to the Title 13 of our Code: http://qcode.us/codes/warrenton/view.php?topic=13&frames=on
3. The developer is required to follow the Engineering Standards & Design Criteria Manual. Please provide documentation showing how the development meets the standards set forth in this manual. This manual can be found at the http://www.ci.warrenton.or.us/publicworks/page/engineering-specifications-design-guide
4. Connection charges and System Development Charges are required to be paid for water service before water meter installation.









Sidewalk Construction
Fee-In-Lieu Calculation

Property Address:

805 NW Gardenia

Owner or Developer Responsible for Fee Payment: | **Phone Number:**

Robin Bergerson	503-338-2189

Proposed Sidewalk Dimensions, Full Frontage of Property:

Length, FT		Width, FT		Area, SF	
200	X	5	=	1,000	Gross area of sidewalk

Proposed Sidewalk Dimensions, Full Frontage of Property:

Length, FT		Width, FT		Area, SF	
	X	6	=	0	Gross area of sidewalk

Proposed Driveway Approach:

Length, FT		Width, FT		Area, SF	
	X	6	=	0	Gross area of Driveway Approach

Determine Total Sidewalk Area:

Gross Area of Sidewalk		Subtract Total Area of Driveway Approach		Total Sidewalk Area, SF	
1,000	-	0	=	1,000	Total area of sidewalk

CALCULATE IN-LIEU-OF FEE FOR SIDEWALK CONSTRUCTION:

In-Lieu-Of Construction Fees at 125% Cost

4" Thick Sidewalk, per SF	**$ 9.72**	*fees are reviewed annually at a minimum and revised as necessary*
6" Thick Driveway Approach, per SF	**$ 14.29**	

Sidewalk Area, SF		Sidewalk Cost Per SF			
1,000	X	$ 9.72	=	$ 9,720.00	Total Sidewalk Cost

plus

Approach Area, SF		Approach Cost Per SF			
0	X	$ 14.29	=	$ 0.00	Total Approach Cost

TOTAL IN-LIEU-OF FEE FOR SIDEWALK CONSTRUCTION $ 9,720.00

Office Use Only

Calculations Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

To City of Warrenton Commissioners

I would like to address some of my concerns about how I thinks some changes should be made when It comes to buibling a new house and especially the pre construction meeting thats availably. Also due to the many undescribed fees and the engineering required I was not prepaired financially for this project. This should have been more fully given to me at the pre construction meeting. If you could allow me to express my feelings at your Commissioner meeting I would really appriciate. Also let this be a formal request to reduce the (sidewalk in Lieu of) fee of 9,720.00 this street can never be developed due to the wetlands and drainage for this entire part of town. This is a hardship request. I'm out of money and I'm only able to finish due to private funding and that is running out fast. I appreciate your consideration

Thanks Rob Berg 3/21/25

RECEIVED
MAR 21 2025
CITY OF WARRENTON
CITY RECORDERS OFFICE

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

SENATE COMMITTEE ON
VETERANS, EMERGENCY MANAGEMENT, FEDERAL AND WORLD AFFAIRS
Sen. James Manning Jr., Chair
Sen. Kim Thatcher, Vice-Chair
Sen. Mark Meek
Sen. David Brock Smith
Sen. Aaron Woods

March 19, 2025

RE: Letter of Support for Salvage Chief and SB2

Honorable Senators Manning, Thatcher, Meek, Smith and Woods:

As the Mayor of Astoria, Oregon I am pleased to offer this letter of support for the Salvage Chief and SB2. I have had the honor of touring the ship and meeting the crew working to bring the Salvage Chief back online. The capabilities of this ship, and the crew, are impressive. The potential of The Salvage Chief for providing emergency aid, power, water and services to provide for the health, safety and welfare of our citizens is unmatched, and extremely necessary for our community.

Of great concern to our community is the possibility of a Cascadia subduction earthquake, one of several catastrophic events for which our community is not prepared. Given our location, topography and geography, what is left of Clatsop County after such an event will be cut off from sources of aid for weeks or months. We are surrounded on three sides by water, and mountains on the remaining side. We have only two highways connecting Clatsop County to the I-5 corridor. Both are prone to slides in minor weather events and will be impassable after even a minor earthquake. In a major disaster, several bridges between Portland and Astoria will fail, making the Columbia River unnavigable, leaving Clatsop County stranded. As in past disasters, Clatsop County will be dependent on resources within the county until outside aid can be provided.

The Salvage Chief would play an enormous role in helping our community to survive such an event. The Salvage Chief is fitted with five generators that can provide over a million watts of ship-to-shore power for 45 days. The ship is able to provide a necessary field hospital, can filter up to 3,000 gallons of potable water daily, and can be offshore for six months without needing resupply. These capabilities will mean the difference between death and survival for thousands of people in Clatsop County.

Support for The Salvage Chief from your committee is imperative. I urge you to support the efforts of The Salvage Chief foundation to repair and upgrade this important vessel.

Sincere Regards,

Sean Fitzpatrick, Mayor
City of Astoria

Outlook

Fwd: astoria mayors letter - sb2

From FE Holcom <floydholcom@gmail.com>
Date Wed 3/19/2025 3:48 PM
To Dawne Shaw <dshaw@warrentonoregon.us>

1 attachment (217 KB)
mayorofastoriaSB2.pdf;

Mr. Mayor,

Attached is Astoria's Mayor FITZPATRICK's letter in support of SB2, #ReadytheChief !

Given our need for regional support, we honorably request a similiar support letter.

Floyd
Sent from my iPhone

Begin forwarded message:

> **From:** fholcom@pacificdefensesupply.com
> **Date:** March 19, 2025 at 15:43:03 PDT
> **To:** FE Holcom <floydholcom@gmail.com>
> **Subject: astoria mayors letter - sb2**