



CITY OF WARRENTON

Raw Waterline Replacement

April 2022

Prepared by
City of Warrenton
and
Murraysmith Inc.

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FOR
RAW WATERLINE REPLACEMENT
FOR
CITY OF WARRENTON**

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CALL FOR BIDS



CALL FOR BIDS - PUBLIC WORKS IMPROVEMENT

Sealed bids will be received up to the hour of **2:00 PM**, local time, on **May 24, 2022**, by Collin Stelzig, P.E., Public Works Director, at the front desk of Warrenton City Hall, 225 South Main Street, Warrenton, OR. 97146:

RAW WATERLINE REPLACEMENT

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 2,235 linear feet of buried 24-inch diameter HDPE pipe, including isolation valves and other appurtenances, and connections to existing fiberglass and HDPE mains.

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 **May 12, 2022**, 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.

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 Morgan.Steinberg@murraysmith.us. Documents are available at no charge in electronic file format (PDF).

Questions regarding the project during the bid period shall be submitted to Andy Miles, P.E., Murraysmith via phone at 360-448-2857 or email at Andy.Miles@murraysmith.us.

Bids will be publicly opened and read by the Public Works Director at **2:00 PM**, local time on **May 24, 2022**, 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: Collin Stelzig, P.E., Public Works Director
City of Warrenton, Oregon

RAW WATERLINE REPLACEMENT

BIDDER'S CHECKLIST

BIDDER'S 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.

BID FORMS

BID 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

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 _____

(Name of Partner, 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**

Bid Item No.	Description	Quantity	Unit	Unit Price	Bid Amount
1	Mobilization	1	LS		
2	Record Drawings	1	LS		
3	Construction Survey Work	1	LS		
4	Temporary Work Zone Traffic Control	1	LS		
5	Erosion and Sediment Control	1	LS		
6	Tree Removal	1	LS		
7	24-in HDPE (IPS) DR17 Waterline	2,235	LF		
8	18-in DI CL50 Waterline	20	LF		
9	16-in DI CL50 Waterline	20	LF		
10	24-in Butterfly Valve	1	EA		
11	18-in Butterfly Valve	1	EA		
12	16-in Butterfly Valve	1	EA		
13	2-in Combination Air Release/Vacuum Valve Assembly	2	EA		
14	Fire Hydrant Assembly	1	EA		
15	Trench Protection and Dewatering	1	LS		
16	Connection to Existing Waterline	4	EA		
17	Abandon Existing Waterline	1	LS		
18	Stone Surfacing Pad	850	SF		

Total Bid Amount

CERTIFICATION OF NONDISCRIMINATION

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

FIRST TIER SUBCONTRACTOR'S DISCLOSURE FORM

PROJECT NAME: RAW WATERLINE REPLACEMENT

BID CLOSING: DATE: May 24, 2022 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.: _____

**BID BOND
FOR
RAW WATERLINE REPLACEMENT
FOR
THE CITY OF WARRENTON**

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.

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 _____, 2017.

CONTRACTOR AS PRINCIPAL:

SURETY:

(Corp. Seal)

(Corp. Seal)

Company: _____ Company: _____

Signature: _____ Signature: _____

Name: _____ Name: _____

Title: _____ Title: _____

(Attach Power of Attorney)

AGREEMENT

AGREEMENT

1.00 - GENERAL

THIS AGREEMENT, made and entered into this ____ day of _____, 2022, 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

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 contract. 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

Contractor Date

CITY OF WARRENTON, a municipal of the
State of Oregon

BY: _____
Mayor Date

ATTEST:

City Manager Date

PERFORMANCE BOND

**PERFORMANCE BOND
FOR
RAW WATERLINE REPLACEMENT
FOR
THE CITY OF WARRENTON**

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 _____, 2022 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
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 _____, 2022.

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.

PAYMENT BOND

**PAYMENT BOND
FOR
RAW WATERLINE REPLACEMENT
FOR
THE CITY OF WARRENTON**

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 _____, 2022 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
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 _____, 2022.

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.

GENERAL CONDITIONS FOR CONSTRUCTION

General Conditions for Construction for the City of Warrenton

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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 "2015 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 "2015 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 "2015 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. Discrepancies 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-of-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 Surfacing, 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 incompleteness, 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 $\pm 5\%$ of the Base, there will be no adjustment.
- If the MACMP is more than 105% of the Base, then:

$$\text{Adjustment Factor (\%)} = ((\text{MACMP})/(\text{Base})) \times (100) - 5$$

- If the MACMP is less than 95% of the Base, then:

$$\text{Adjustment Factor (\%)} = ((\text{MACMP})/(\text{Base})) \times (100) + 5$$

(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:

$$\text{Hourly Rate} = \frac{\text{Monthly Base Rate} \times \text{Rate Adjustment Factor}}{176 \text{ hours/month}} + \text{Hourly Operating Rate}$$

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.

City of Warrenton Raw Waterline Replacement

The Special Provisions contained
herein have been prepared by or
under the direction of the following
Registered Person.



RENEWS 12-31-22

REGISTERED CIVIL ENGINEER

Expires: 12-31-2022

SPECIAL PROVISIONS

SPECIAL PROVISIONS

PART 00100 – GENERAL CONDITIONS

Section 00110 – Organization, Conventions, Abbreviations, and Definitions

00110.10 Organization of Specifications – Replace the reference to “2015 Oregon Standard Specifications for Construction, published by the Oregon Department of Transportation, which contain parts 00200 through 03000” with “Technical Specifications, Divisions 01 thru 43, included with the Contract Documents.”

00110.20 Definitions – The definition of “ENGINEER” is modified as follows:

ENGINEER – Murraysmith 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 Collin Stelzig, P.E., 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 **May 24, 2022**. Bids will be publicly opened and read by the Public Works Director at **2:00 PM**, local time on **May 24, 2022** at Warrenton City Hall. Bids may not be submitted by fax or electronic means.

00120.02 Prequalification of Bidders – No prequalification is required.

00120.03 Request for Solicitation Documents – Add the following:

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

00120.04 Pre-Bid Meeting – Add the following:

A voluntary pre-bid meeting will be held on **May 12, 2022**, 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, (b) on City reservoir/ impoundment property contiguous to project limits, and (c) within designated area owned by L&C Timber Company situated immediately south of project limits. CONTRACTOR shall comply with all Restrictions on Use as defined in the General Conditions, Technical Specifications and Drawings.

Section 00130 – Award and Execution of the Contract

00130.90 Notice to Proceed – Delete the existing language and replace with the following:

The AGENCY has made application to the Oregon Department of State Lands (DSL) for Wetland Delineation Concurrence and Removal-Fill Permit. The AGENCY anticipates receiving Concurrence acceptance and approved Permit on or about June 30, 2022. The AGENCY cannot issue the Notice to Proceed until after receiving the Concurrence and Permit.

The AGENCY recognizes select Project Work materials may potentially have extended lead/shipping times. To balance this situation with the anticipated Concurrence and Permit receipt, the AGENCY will award and execute the

RAW WATERLINE REPLACEMENT

CITY of Warrenton

Special Provisions

1

Contract in expeditious manner and in accordance with terms and conditions of Section 00130. The CONTRACTOR shall immediately proceed with Submittal Procedures for Project Work materials, obtaining ENGINEER approvals, and expedite material procurement. Contract Time will not commence until the Notice to Proceed is issued.

Should the Concurrence and Permit not be received by July 31, 2022, and the AGENCY fail to issue the Notice to Proceed by that date, the CONTRACTOR may apply for an adjustment of Contract Time according to Section 00180.80(c).

Section 00150 – Control of Work

00150.30 Deliver of Notices – CONTRACTOR written notice to ENGINEER or AGENCY shall be delivered to:

Collin Stelzig, P.E., Public Works Director
P.O. Box 250
Warrenton, OR 97146

Section 00160 – Source of Materials

00160.20(a) Buy America – Federal highway funds are not involved on the project.

Section 00165 – Quality of Materials

00165.03 Testing by AGENCY - The AGENCY at its own cost shall retain the services of a testing laboratory to conduct field testing on the compaction of subgrade, engineered fill, aggregate base, asphaltic concrete, pipe bedding and trench backfill. Areas failing to meet the density requirements shall be re-compacted and tested again until passing.

Areas showing failing compaction results shall receive further attention without undue delay. Further attention may involve additional compaction efforts, other compaction methods, removal and recompaction of material or removal and replacement of material as required to obtain passing results.

No additional compensation will be made for down-time incurred as a result of testing or waiting for test results.

All additional AGENCY testing costs as a result of failing tests shall be borne entirely by the CONTRACTOR. All associated costs arising from any necessary additional work due to failing compaction test results, including removal and replacement of material, shall be borne by the CONTRACTOR.

Any subsequent settlement of any backfilled area during the Correction Period shall be considered to be the result of improper compaction and shall be promptly corrected by the CONTRACTOR at no cost to the AGENCY.

00165.04 Costs of Testing – Delete the second and third sentences of the first paragraph and add the following:

The CONTRACTOR shall conduct source-review tests of Aggregates for submittal to the AGENCY.

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 environmental Permits:

- Grading, Drainage and Erosion Control Permit from Clatsop County
- Removal-Fill Permit from Oregon Department of State Lands

RAW WATERLINE REPLACEMENT

CITY of Warrenton

Special Provisions

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, 2022) 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 with Pollution Coverage	\$2,000,000 Combined Single Limit Per Occurrence 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:

Collin Stelzig, P.E., 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, 2022)*** 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

PROFESSIONAL OF RECORD CERTIFICATION(S):



RENEWS 12-31-22

Signing as the Professional of Record for the divisions and sections listed below:

Divisions 01, 31, 32, 33, 40

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 GENERAL

This Summary of Work supplements and amplifies certain sections of the General Conditions and Special Provisions. The General Conditions and Special Provisions shall apply except as modified herein. This Section and additional technical specifications included in the Contract Documents may contain occasional requirements not pertinent to the Project. However, these general requirements and technical specifications shall apply in all particulars insofar as they are applicable to this Project.

1.1 APPLICABLE STANDARD SPECIFICATIONS AND PLANS

The City of Warrenton Engineering Design Standards and the 2021 Oregon Standard Specifications for Construction with supplemental City General Conditions and Special Provisions (including all revisions at date of bid opening), apply except as may be modified herein. In the case of discrepancy, unless noted otherwise herein, the more restrictive provisions shall apply.

1.2 SCOPE OF WORK

The work to be performed under these specifications and drawings consists of furnishing all labor, materials and equipment necessary to complete the construction of approximately 2,300 linear feet of buried 24-inch diameter HDPE raw water transmission main, including isolation valves and other appurtenances, and connections to existing fiberglass and HDPE mains. Work also includes abandoning the existing transmission main in place. The project area is within a delineated wetland. All work must comply with the project Oregon Department of State Lands (DSL) permit provisions.

The above general outline of principal features of the work does 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 specifications and drawings. The drawings and specifications shall be considered and used together. Anything appearing as a requirement of either shall be accepted as applicable to both even though not so stated therein or shown.

No attempt has been made in these specifications or drawings to segregate work covered by any trade or subcontract under one specification. Such segregation and establishment of subcontract limits will be solely a matter of specific agreement between the CONTRACTOR and its SUBCONTRACTORS and shall not be based upon any inclusion, segregation, or arrangement in or of these specifications.

1.3 COORDINATION OF DRAWINGS AND SPECIFICATIONS

The drawings and specifications are intended to describe and provide for a complete work. Any requirement in one is as binding as if stated in all. The CONTRACTOR shall provide any

work or materials clearly implied in the Contract Documents even if the Contract Documents do not mention it specifically. If there is a conflict within the Contract Documents, it will be resolved by the following order of precedence:

- A. Permits for outside agencies required by law
- B. OWNER-CONTRACTOR Agreement
- C. Addenda to Contract Documents
- D. CONTRACTOR's Proposal
- E. Contract Drawings
- F. Technical Specifications
- G. Special Provisions
- H. General Conditions of the Contract
- I. 2021 Oregon Standard Specifications for Construction
- J. 2021 Oregon Standard Drawings

Dimensions shown on the drawings or that can be computed shall take precedence over scaled dimensions. Notes on drawings are part of the drawings and govern in the order described above. Notes on drawings shall take precedence over drawing details.

The intent of the drawings and specifications is to prescribe the details for the construction and completion of the work which the CONTRACTOR undertakes to perform according to the terms of the Contract. Where the drawings or specifications describe portions of the work in general terms, but details are incomplete or silent, it is understood that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Unless otherwise specified, the CONTRACTOR shall furnish all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the Contract in a manner satisfactory to the ENGINEER.

The contract drawings are designated by general title, sheet number and sheet title. When reference is made to the drawings, the "Sheet Number" of the drawing will be used. Each drawing bears the ENGINEER's File No. 21-3108.0400 and the general title:

RAW WATERLINE REPLACEMENT

The specific titles of each sheet are contained on Sheet G-1.

1.4 CODE REQUIREMENTS

All work shall be done in strict compliance with the requirements of:

- A. International Building Code
- B. Uniform Mechanical Code
- C. Uniform Plumbing Code
- D. National Electric Code
- E. National Electric Safety Code

- F. Oregon State Department of Labor and Industries
- G. City of Warrenton Municipal Code

In case of disagreement between codes or these specifications, the more restrictive shall prevail.

1.5 TIME OF COMPLETION/LIQUIDATED DAMAGES

The CONTRACTOR shall complete all work shown and specified within the time limits stated in the Agreement (See Section 01 33 00, Submittal Procedures, for Project schedule submittal requirements). The written Notice to Proceed will be sent to the CONTRACTOR after the CONTRACTOR submits the signed Contract, Bonds and insurance certificates to the OWNER and those documents have been approved as to form and executed by the OWNER. The CONTRACTOR's attention is directed to Article 3 of the Agreement, the General Conditions, and Special Provisions regarding liquidated damages.

1.6 COORDINATION WITH OTHER CONTRACTORS AND WITH OWNER

Certain work within this contract may require connection to and coordination with the work of other CONTRACTORS and OWNER. The CONTRACTOR under these specifications shall cooperate fully with all other CONTRACTORS and OWNER and carefully fit its own work to such other work as may be directed by the ENGINEER. The CONTRACTOR shall not commit or permit any act to be committed which will interfere with the performance of work by any other CONTRACTOR or the OWNER.

1.7 ACCESS TO WORK

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.

1.8 PERMITS AND LICENSES

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.

1.9 SITE INVESTIGATION AND PHYSICAL DATA

The CONTRACTOR acknowledges that it is satisfied as to the nature and location of the work and the general and local conditions, including but not limited to those bearing upon transportation, disposal, handling and storage of materials, availability of water, roads,

groundwater, access to the sites, coordination with other CONTRACTORS, and conflicts with pipelines, structures, and other CONTRACTORS. Information and data furnished or referred to herein is furnished for information only. Any failure by the CONTRACTOR to become acquainted with the available information and existing conditions will not be a basis for relief from successfully performing the work and will not constitute justification for additional compensation.

The CONTRACTOR shall verify the locations and elevations of existing pipelines, structures, grades, and utilities, prior to construction. The OWNER assumes no responsibility for any conclusions or interpretations made by the CONTRACTOR based on the information made available.

1.10 TEMPORARY UTILITIES FOR CONSTRUCTION PURPOSES

The CONTRACTOR shall make all arrangements necessary to provide all temporary utilities for construction purposes and shall pay all costs associated those temporary utilities. Water for construction purposes will be furnished by the OWNER at no cost. The CONTRACTOR shall furnish all valves, hoses, connections, and other devices as necessary to obtain enough 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. Backflow protection is required on all connections to potable water systems.

1.11 FIELD SERVICE BY MANUFACTURER'S REPRESENTATIVE

The CONTRACTOR shall furnish the services of a manufacturer's or material supplier's representative for all major equipment and materials furnished by the CONTRACTOR or OWNER under this contract, to check, place in operation and test the installation, and train operating personnel. The manufacturer's representative shall be qualified and authorized to perform repairs and maintenance on the equipment. The above gives a general scope of the services desired from the manufacturer's representative. It will be the responsibility of the CONTRACTOR and the equipment manufacturer to determine detailed requirements. Costs for services of the manufacturer's representative shall be included in the proposal of the CONTRACTOR. The operator training mentioned above shall include enough time during the CONTRACTOR's operation and testing period to fully explain to the operating personnel the features of the equipment and maintenance thereof.

1.12 CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY – NOT USED

1.13 CONSTRUCTION WITHIN PRIVATE EASEMENTS

When portions of the work contemplated are within easements held by the OWNER on private property, the CONTRACTOR shall ascertain for itself to what extent the width, status, and special conditions attached to easements may have on its operations and all costs resulting therefrom shall be included and absorbed in the unit prices of the CONTRACTOR's bid. CONTRACTOR shall coordinate with private property OWNERS and businesses if

required. Landscaping, surface restoration and fence restoration shall be completed within fourteen (14) days following piping and conduit installation and other construction work. Temporary fencing shall be provided continuously until such private fencing is properly restored.

The CONTRACTOR's attention is directed to the General Conditions regarding safety and the protection of property. It is the CONTRACTOR's responsibility to conduct its operations and limit the size of equipment used in such a manner to prevent damage to existing property from excessive vibration or from other direct or indirect CONTRACTOR operations. The cost associated with repairing or replacing property that is damaged by the CONTRACTOR's operations shall be the responsibility of the CONTRACTOR, in accordance with the General Conditions.

1.14 RAILROAD CROSSINGS – NOT USED

1.15 PRIVATE ROADS AND DRIVEWAYS

No private road or driveway may be closed without approval of the ENGINEER unless written authority has been given by the OWNER whose property has been affected. Driveways shall be left open and ready for use at the end of the work shift. All expenses involved in providing for construction, maintenance, and use of private roads or driveways, shall be borne by the CONTRACTOR and the amount thereof absorbed in the unit prices of the CONTRACTOR's bid.

1.16 TRAFFIC CONTROL AND PROTECTION

The CONTRACTOR shall maintain traffic control and protection in the work areas 24 hours per day. Traffic control shall conform to the standards set forth in the "Oregon Manual on Uniform Traffic Control Devices" issued by the Oregon Department of Transportation.

During active construction hours, the CONTRACTOR shall conduct its operations to keep one lane of traffic open at all times on the adjacent privately-owned roadway. During non-construction hours, the CONTRACTOR shall open all lanes to traffic. Permits obtained for the Project may have more stringent requirements than noted in this section.

Prior to beginning construction, the CONTRACTOR shall submit a detailed lane closure and traffic control plan to the ENGINEER for approval. As construction proceeds, the CONTRACTOR shall notify the ENGINEER as to the status of lane closures.

During periods of logging activity, the ENGINEER may require the construction of two-way shoo-fly. These shall be well lighted, surfaced with gravel or crushed rock, and maintained in good condition.

All work shall be carried on with due regard for safety to the public. Open trenches shall be covered and provided with barricades of a type that can be seen at a reasonable distance, and at night they shall be distinctly indicated by adequately placed lights.

1.17 MATERIALS AND COMPACTION TESTING

The CONTRACTOR shall provide the services of a licensed, independent agency to perform materials and compaction testing for this Project. The agency must be approved by the ENGINEER. Materials and compaction tests will be required to show that specified densities of compacted backfill and asphaltic concrete surfacing are being achieved by the CONTRACTOR's compaction methods. The CONTRACTOR shall provide the ENGINEER with copies of recent Proctor tests for the backfill and paving material in addition to copies of compaction tests performed in the field.

After the ENGINEER is satisfied that the CONTRACTOR's method of compaction consistently meets specified compaction requirements, the testing frequency may be reduced. The ENGINEER may direct testing at a higher frequency upon failure to obtain specified densities or if the CONTRACTOR changes compaction equipment or methods of compaction. All test locations shall be determined by the ENGINEER.

1.18 DECHLORINATION AND DISPOSAL OF CHLORINATED WATER

All chlorinated water shall be treated to de-chlorination limits acceptable by the Oregon State Department of Environmental Quality (DEQ) and Oregon Department of State Lands (DSL) for discharge into the adjacent creeks and wetland area. No chlorinated water shall be discharged prior to approved de-chlorination treatment.

1.19 LIMITS OF THE WORK AND STORAGE OF SPOILS

The limits of the site which may be used for construction, storage, materials handling, parking of vehicles and other operations related to the Project shall be confined to the limits of the City-owned easement. Use of easement areas outside the limits shown on the drawings is subject to permission of the OWNER.

1.20 EXISTING WATER SYSTEM SHUTDOWN

The Project will involve temporary shutdown of the existing water transmission system. The CONTRACTOR shall coordinate the work to insure a minimum of shutdown time. The CONTRACTOR shall submit a written shutdown schedule to the ENGINEER for approval. The CONTRACTOR shall provide 72-hour notice preceding each shutdown.

1.21 FIELD CHANGES, ALIGNMENT, AND GRADE

Changes of alignment and grade shall be made during the course of work in order to avoid interference with unforeseen obstructions. The CONTRACTOR shall locate existing utilities to be crossed, by potholing ahead of the pipe installation, of sufficient distance to avoid conflicts through pipe joint deflection if possible. All costs for minor field changes of alignment and grade shall be borne by the CONTRACTOR. The ENGINEER will endeavor to make prompt decisions on such matters. CONTRACTOR shall anticipate a minimum of 72 hours for any decision requiring significant piping change.

1.22 TESTING AND OPERATION OF FACILITIES

It is the intent of the OWNER to have a complete and operable facility. All the work under this contract will be fully tested and inspected in accordance with the specifications. Upon completion of the work, the CONTRACTOR shall operate the completed facilities as required to test the equipment under the direction of the ENGINEER. During this period of operation by the CONTRACTOR, the new facilities will be tested thoroughly to determine their acceptance.

1.23 PROTECTION OF EXISTING STRUCTURES AND WORK

The CONTRACTOR must take all precautions and measures necessary to protect all existing structures and work. Any damage to existing structures and work shall be repaired by removing the damaged structure or work, replacing the work, and restoring to original condition satisfactory to the ENGINEER.

1.24 SALVAGE AND DEBRIS

Unless otherwise indicated on the drawings or in the specifications, all castings, pipe, equipment, demolition debris, spoil or any other discarded material or equipment shall become the property of the CONTRACTOR and shall be disposed of in a manner compliant with applicable Federal, State, and local laws and regulations governing disposal of such waste products. No burning of debris or any other discarded material will be permitted.

1.25 SAFETY STANDARDS AND ACCIDENT PREVENTION

The CONTRACTOR shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The required and/or implied duty of the ENGINEER to conduct construction review of the CONTRACTOR's performance does not, and is not intended to, include review of the adequacy of the CONTRACTOR's safety measures in, on, or near the construction site.

The CONTRACTOR shall comply with the safety standards provisions of applicable laws and building and construction codes. The CONTRACTOR shall exercise every precaution at all times for the prevention of accidents and protection of persons, including employees, and property. During the execution of the work the CONTRACTOR shall provide and maintain all guards, railing, lights, warnings, and other protective devices which are required by law, or which are reasonably necessary for the protection of persons and property from injury or damage.

1.26 PUBLIC SAFETY AND CONVENIENCE

General Rule: The CONTRACTOR shall ensure the safety of the public during its performance of the Work and shall minimize any public inconvenience in addition to any other

requirement imposed by law. These duties include, but are not limited to, the matters listed below.

Access: The CONTRACTOR shall not unreasonably restrict access to public facilities, commercial property, fire hydrants, private property, residential property, and other areas where the public can be expected to be present, such as sidewalks and streets without first obtaining approval of the OWNER. Driveways shall be closed only with the approval of the OWNER or after obtaining specific permission from the property OWNER or OWNERS. In addition, the CONTRACTOR shall not obstruct or interfere with travel over any public street or sidewalk without approval of the OWNER.

Work Site: The CONTRACTOR shall keep the Project site safe in compliance with applicable law. Safety includes, but is not limited to: 1) providing an approved type of secured and adequate barricades or fences that are easily visible from a reasonable distance around open excavations; 2) closing up or covering with steel plates all open excavations at the end of each Working Day in all street areas and in all other areas when it is reasonably required for public safety; 3) marking all open work and obstructions by lights at night; 4) installing and maintaining all necessary signs, lights, flares, barricades, railings, runways, stairs, bridges, and facilities; 5) observing any and all safety instructions received from the OWNER; and 6) following all laws and regulations concerning worker and public safety. In the event that the law requires greater safety obligations than that imposed by the OWNER, the CONTRACTOR shall comply with the law.

Emergency: Emergency vehicles, including but not limited to police, fire, and disaster units shall be provided access to the work site at all times.

Cleanliness: The CONTRACTOR shall, on a continuing basis, keep the surfaces of all public and private roadways, sidewalks, and other pathways free of dirt, mud, cold plane grindings, and other matters that the CONTRACTOR may place upon the road. The cost of performing such work shall be included in the CONTRACTOR's Bid and no additional payment will be made for performing this task.

Accidents: The CONTRACTOR's Project Manager or superintendent shall be in charge of accident prevention. CONTRACTOR shall take all actions necessary to prevent damage, injury and loss to persons and property as a result of accidents.

Project Health and Safety Plan: CONTRACTOR shall develop, publish, and implement an overall Project Health and Safety Program for the Project. This Program shall conform to all applicable codes. CONTRACTOR shall submit the written Safety Program to the OWNER within 30 days after the receipt of the written Notice to Proceed. The Plan shall be assembled to address project specific health and safety issues to both the public and on-site personnel. The plan shall include the following items when they apply:

- Employee Orientation
- Safety Inspections
- Hazardous Materials
- Hazardous Communications Program

- Instruction and Training
- Accident Reporting
- Signs and Barricades
- Fire Prevention and Protection
- Welding, Cutting, and Burning
- Painting and Surface Treatment
- Electricity
- Machinery and Mechanized Equipment
- Excavations
- Sanitation
- Chlorine Safety
- COVID-19 Safety
- Job Hazard Analysis
- First Aid/Medical Facilities
- Personal Protective Equipment
- Confined Space Entry Plan
- Shoring Plan
- Fall Protection Plan
- Emergency Action Plan
- Housekeeping
- Safety Training Requirements and Certification
- Pedestrian Access Around Work Site During Construction and After Hours

If the Project requires other health and safety issues to be addressed, they too shall be included in the Project Health and Safety Plan. The Program shall subsequently be distributed to and implemented by the CONTRACTOR's personnel as well as its SUBCONTRACTORS and Suppliers. CONTRACTOR shall fully implement and comply with the Safety Program and shall submit to the OWNER a letter signed by CONTRACTOR's OWNER/president affirming such implementation and compliance within 15 days after on-site work has started. CONTRACTOR shall notify the OWNER when safety meeting will be held so that OWNER's personnel may attend. A copy of the approved Health and Safety Plan must be maintained on-site at all times during the life of the Project.

The OWNER has no responsibility for Work site safety. Work site safety is the responsibility of the CONTRACTOR. The CONTRACTOR is required to have a competent person on site at all times during construction activities.

The CONTRACTOR shall provide signs on work zone fencing that provide information regarding access to businesses and stating that such businesses are open and in operation. The CONTRACTOR shall furnish and install the signs and provide sign attachments for the various business names.

1.27 WARRANTY PERIOD

The CONTRACTOR shall warrant all furnished materials and equipment for a period of one year from date of final acceptance of the Work by the OWNER. This warranty shall mean prompt attention to the correction and/or complete replacement of the faulty material or equipment. The expiration of the one-year warranty period shall not affect any other claims or remedy available to the OWNER. There may be other warranty provisions in these contract documents in addition to those noted above.

1.28 UTILITY PROPERTIES AND SERVICE

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.

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.

Utilities which may be impacted include the following:

City of Warrenton	Water
Pacific Power (PacifiCorp)	Electric Power
Centurylink/ Spectrum	Telephone/Data

1.29 SANITARY FACILITIES

The CONTRACTOR shall provide and maintain sanitary facilities for its employees and its SUBCONTRACTORS' employees that will comply with the regulations of the local and State Departments of Health and as directed by the ENGINEER.

1.30 STREET CLEANUP

The CONTRACTOR shall clean daily all dirt, gravel, construction debris, and other foreign material resulting from its operations from all streets and roads.

1.31 VEHICLE PARKING

The vehicles of the CONTRACTOR's and SUBCONTRACTORS' employees shall be parked within the project limits or City-owned easement area.

1.32 PROTECTION OF QUALITY OF WATER

The work to be performed includes connections to an existing potable water system. The CONTRACTOR shall take such precautions as are necessary or as may be required to prevent the contamination of the drinking water. Such contamination may include but shall not be limited to deleterious chemicals such as fuel, cleaning agents, paint, demolition and construction debris, sandblasting residue, etc. In the event contamination does occur, the CONTRACTOR shall, at its own expense, perform such work as may be necessary to repair any damage or to clean the affected areas of the water mains to a condition satisfactory to the ENGINEER.

1.33 RECORD DRAWINGS

CONTRACTOR shall maintain at the site one set of specifications, full size drawings, shop drawings, equipment drawings, and supplemental drawings which shall be corrected as the work progresses to show all changes made. Drawings shall be available for inspection by the ENGINEER. Upon completion of the contract and prior to final payment, specifications and drawings shall be turned over to the ENGINEER.

1.34 "OR EQUAL" CLAUSE

In order to establish a basis of quality, certain processes, types of machinery and equipment or kinds of material may be specified on the drawings or herein by designating a manufacturer's name and referring to its brand or product designation. It is not the intent of these specifications to exclude other processes, equipment or materials of a type and quality equal to those designated. When a manufacturer's name, brand, or item designation is given, it shall be understood that the words "or equal" follow such name or designation, whether in fact they do so or not. If the CONTRACTOR desires to furnish items of equipment by manufacturers other than those specified, the CONTRACTOR shall secure the approval of the ENGINEER prior to placing a purchase order.

No extras will be allowed the CONTRACTOR for any changes required to adopt the substitute equipment. Therefore, the CONTRACTOR's proposal for an alternate shall include all costs for any modifications to the drawings, such as structural and foundation changes, additional piping or changes in piping, electrical changes or any other modifications which may be necessary or required for approval and adoption of the proposed alternate equipment. Approval of alternate equipment by the ENGINEER before or after bidding does not guarantee or imply that the alternate equipment will fit the design without modifications.

1.35 SURVEYS

Based upon the information provided by the Contract Documents, the CONTRACTOR shall develop and make all detail surveys necessary for layout and construction, including exact component location, working points, lines, and elevations. Prior to construction, the field layout shall be approved by the OWNER's representative. The CONTRACTOR shall have the responsibility to carefully preserve benchmarks, reference points, and stakes, and in the case of destruction thereof by the CONTRACTOR or resulting from its negligence, the CONTRACTOR shall be charged with the expense and damage resulting therefore and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such benchmarks, reference points, and stakes.

1.36 WORK HOUR LIMITATIONS

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 ENGINEER. No work

shall be conducted outside of the above-described days and hours without prior approval of the ENGINEER.

1.37 DUST PREVENTION

All unpaved streets, roads, detours, haul roads, or other areas where dust may be generated shall receive an approved dust-preventive treatment or be routinely watered to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

1.38 EROSION AND SEDIMENTATION CONTROL

The OWNER has obtained a Clatsop County Grading, Drainage and Erosion Control Permit for this Project. The CONTRACTOR shall be responsible for compliance with all permit provisions.

The CONTRACTOR shall implement and maintain erosion control measures as required to prevent sediment from migrating from the project site. Erosion control measures shall conform to the standards set forth in the latest edition of the "Construction Stormwater Best Management Practices Manual" published by the Water Quality Division of the State of Oregon's Department of Environmental Quality (DEQ), and any modifications to that manual contained herein or any other requirements as prescribed by any agency with authority over the project.

General requirements for providing erosion and sediment control measures or Best Management Practices (BMP's) per DEQ's manual have been provided in the drawings for the CONTRACTOR's benefit. This furnished erosion control info shall not be construed as comprehensive and shall be considered minimum requirements for providing erosion and sediment control during the project work. Additional BMP's will be required to perform the work and the CONTRACTOR shall factor this into their bidding for the project.

Erosion control measures shall be maintained throughout the Project Site until approved permanent cover such as a healthy stand of grass, other permanent vegetation, or other ground covering is established. When approved permanent ground cover is established, all temporary erosion control measures shall be removed from the construction site. Erosion control measures shall be installed as approved, per the erosion control drawing(s) in the above referenced document. Erosion control measures including stabilized construction entrances and sediment barriers must be established in conjunction with site clearing and grading.

During construction, and until permanent vegetation or other ground covering is established, the erosion control facilities shall be upgraded as needed for unexpected storm events or site conditions and with the purpose of retaining sediment and sediment-laden water on the construction site.

1.39 INTERFERENCES, OBSTRUCTIONS, AND SEWER CROSSINGS

At certain places, power, light, and telephone poles may interfere with excavation and the operation of the CONTRACTOR's equipment. Necessary arrangements shall be made with utility companies for moving or maintaining such poles. The utility company affected by any such interferences shall be notified thereof so that the necessary moving or proper care of poles and appurtenances may have appropriate attention.

All costs resulting from any other interferences and obstructions, or the replacement of such, whether or not herein specifically mentioned, shall be included and absorbed in the unit prices of the CONTRACTOR's bid.

1.40 NOISE LIMITATIONS

The Project area is located in a rural area. All applicable County ordinances, and State and Federal regulations shall be complied with.

1.41 STORAGE AND PROTECTION OF EQUIPMENT AND MATERIALS

- A. Materials and equipment stored overnight shall be placed neatly on the job site. Unusable materials (i.e., rejected or damaged liner material, old concrete chunks, metal scraps, etc.) shall be expeditiously removed from the job site.

Provide appropriate barricades, signs, and traffic control devices in like-new condition where necessary to protect the public from any hazards associated with the storage of materials and equipment used for this Project.

- B. No equipment and/or materials shall be stored outside the project limits on private property or the private and public road rights-of-way.

The project limits are as shown on the Drawings and consists of the full width of the City-owned easement. The CONTRACTOR shall immediately move stored material or equipment which causes a nuisance or creates complaints.

1.42 COMPETENT PERSON DESIGNATION

CONTRACTOR shall designate a qualified and experienced "competent person" at the site whose duties and responsibilities shall include enforcement of applicable OSHA regulations regarding excavations, the prevention of accidents, and the maintenance and supervision of construction site safety precautions and programs.

1.43 EMERGENCY MAINTENANCE SUPERVISOR

The CONTRACTOR shall submit to the ENGINEER the names, addresses, and telephone numbers of at least two employees responsible for performing emergency maintenance and repairs when the CONTRACTOR is not working. These employees shall be designated, in

writing by the CONTRACTOR, to act as its representatives and shall have full authority to act on its behalf. At least one of the designated employees shall be available for a telephone call any time an emergency arises.

1.44 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.

1.45 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.

1.46 USE OF EXPLOSIVES

The use of explosives shall not be allowed on this Project. Alternative methods of excavation shall be utilized.

1.47 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 and County street regulations and requirements, and State of Oregon Department of Transportation codes, regulations, and requirements.
- d. The City's and 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.

1.48 EQUIPMENT QUALIFICATION PRIOR TO BIDDING – NOT USED

1.49 SEQUENCE OF CONSTRUCTION REQUIREMENTS – NOT USED

1.50 FACILITY OPERATIONS REQUIREMENTS – NOT USED

1.51 CONSTRUCTION WITHIN STATE WATERS – NOT USED

1.52 CONDITIONAL USE PERMIT – NOT USED

1.53 PROJECT INFORMATION SIGNS – NOT USED

- 1.54 RESERVOIR CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.55 RESERVOIR PRE-STRESSOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.56 TANK PAINTING CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.57 WATER MAIN CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.58 HORIZONTAL DIRECTIONAL DRILLING CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.59 EARTHWORK CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.60 AGGREGATE PIER CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.61 MICROPILE CONTRACTOR QUALIFICATION PRIOR TO BIDDING – NOT USED
- 1.62 SPECIAL INSPECTIONS – NOT USED
- 1.63 EXTENDED WARRANTY PROVISIONS FOR PAVING IN CLATSOP COUNTY AND ODOT RIGHTS-OF-WAY – NOT USED
- 1.64 NPDES 1200-C STORMWATER DISCHARGE PERMIT ACQUISITION BY CONTRACTOR – NOT USED
- 1.65 WORK WITH EXISTING ASBESTOS WATER PIPELINES – NOT USED
- 1.66 INADVERTENT DISCOVERY PLAN FOR CULTURAL RESOURCES – 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.

1. 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:
 - A. 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.
 - B. 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.

2. 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.
3. Construction Survey Work: Payment for construction survey will be on a lump sum basis and shall include all labor, materials and equipment necessary to complete the work.
4. 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.
5. Erosion and Sediment Control: No measurement of quantities will be made. Payment for providing erosion and sediment control will be on a lump sum basis and shall include all labor, materials and equipment necessary to complete the Work as specified, including but not limited to the following: preparing site for construction operations including; removing vegetation where required, installation of approved erosion control devices (sediment barriers, check dams, construction entrance, and other items); implementing devices and materials for filtering trench and pit dewatering effluent prior to discharge to prevent

migration of sediment off-site; and removal of temporary erosion control devices after construction and establishment of permanent erosion control features. The CONTRACTOR shall provide a breakdown of contract price as required by Section 01 33 00, Submittal Procedures.

6. 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.
7. 24-inch HDPE (IPS) DR-17 Waterline: Payment for furnishing and installing HDPE (IPS) DR-17 pipe, including all work and materials, excavation to the depths shown, all required fused or mechanical joint connections not paid for under other bid items, standard concrete thrust blocks (including concrete, excavation, and thrust plates), dewatering, pipe zone bedding and backfill, and trench backfill will be on a per linear foot basis for the pipe diameters and trench backfill specified. Measurement will be based on total length of piping constructed as indicated on the plans without deduction for fittings and valves. Bedding and pipe zone material is understood to be imported granular material, compacted in place as shown on the plans. Trench backfill material is understood to be imported or select native material, compacted in place, or imported granular material, compacted in place, where indicated on the plans. Pipe bedding, pipe zone, and trench backfill material classifications shall be as specified within Section 31 23 17, Trenching.

Where pipe is laid on a continuous slope greater than 10 percent for a distance greater than 100 feet, payment will be made upon the average slope distance between 100-foot stations. When water mains intersect, the measurement of each main shall be to the intersection of the center lines of the connecting fittings.

The unit price shall include any incidental excavation, backfill and additional work required to cutting existing piping, installation of branch-line fittings, and/or connection to existing pipelines. Unit price shall also include as incidental the removal of existing fittings and piping as shown on the plans.

8. Class 50 Ductile Iron Waterline: Payment for furnishing and installing Class 50 ductile iron (DI) pipe, including all work and materials, excavation to the depths shown, all required joint restraint systems for pipe, fittings, valves, and appurtenances, standard concrete thrust blocks (including concrete, excavation, and thrust plates), dewatering, pipe zone bedding and backfill, and trench backfill will be on a per linear foot basis for the pipe diameters and trench backfill specified. Measurement will be based on total length of piping constructed with restrained joints as indicated on the plans without deduction for fittings and valves. Bedding and pipe zone material is understood to be imported granular material, compacted in place as shown on the plans. Trench backfill material is understood to be imported or select native material, compacted in place, or imported granular material, compacted in place, where indicated on the plans. Pipe bedding, pipe zone, and trench backfill material classifications shall be as specified within Section 31 23 17, Trenching.

The unit price shall include any incidental excavation, backfill and additional work required to cutting existing piping, installation of branch-line fittings, and/or connection to existing pipelines. Unit price shall also include as incidental the removal of existing fittings and piping as shown on the plans.

9. Butterfly Valves: Payment for furnishing and installing buried valves of the size and type noted in the Bid Form and on the plans, not included in other pay items, including valve boxes, covers, risers, and extensions if required complete will be on a per each valve basis.
10. 2-in Combination Air Release/Vacuum Valve Assembly: Payment for furnishing and installing 2-inch combination air release/vacuum valve assembly for HDPE pipe including excavation, pipe zone bedding and backfill, trench backfill, electrofusion or mechanical tapping saddle and any other items as shown on the Drawings and as specified will be on a per each assembly basis, complete.
11. Fire Hydrant Assembly: Payment for furnishing and installing fire hydrant assemblies will be on a per each basis. The unit price for hydrants shall include all costs for shackles, tie rods, pier blocks, gravel, painting, and all other items for the complete installation of the hydrant including the HPDE branch piping, HDPE/DI Transitions, DI fittings and isolation gate valve at the main. Payment will also include all excavation, bedding and trench backfill from the main to the hydrant assembly. Ductile iron tees or electrofusion branch outlets for connecting hydrant assembly to the main will be paid for at the unit contract price per each under the appropriate bid items.
12. Temporary Dewatering System: No measurement of quantities will be made. Payment for providing temporary dewatering will be on a lump sum basis and shall include all labor, materials and equipment 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.
13. Connections to Existing Waterline: Payment for labor and equipment not previously included under other bid items to install tie-in connection to existing water mains shall be on a per each basis, complete. Bid item 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. Piping, fittings, and couplings to complete connections to be paid for under their applicable bid items.
14. Abandon Existing Waterline: No measurement of quantities will be made. Payment for providing abandoning the existing waterline will be on a lump sum basis and shall include all labor, materials and equipment 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.

15. Stone Surfacing Pad: Measurement of stone surfacing pad will be the finished surface, limited to the neat lines shown or as directed by ENGINEER. Unit of measure shall be per square foot. Payment will be payment in full for furnishing and placing all materials, and or furnishing all equipment, labor and incidentals necessary to complete the Work as specified.

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 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.

2.13 OPERATION AND MAINTENANCE (O&M) INSTRUCTIONS – NOT USED

2.14 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. Tree Removal Plan.
 5. 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.
Material to be Tested	Payment Responsibility	Minimum Testing Frequency
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 Disinfecting 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. Temporary provisions for telephone service and internet access, portable generator, and portable lighting equipment as needed.
 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. Field office for CONTRACTOR's personnel.
 11. 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.
 - 2. 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.
 - 3. 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.

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.

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. See Section 01 10 00, Summary of Work for additional requirement.

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. See Section 01 10 00, Summary of Work and Section 01 55 26, Temporary Traffic Control.

1.17 CONTRACTOR'S FIELD OFFICES AND BUILDINGS

- A. If required by CONTRACTOR, erect where designated by OWNER, and maintain temporary field office and tool and storage buildings for CONTRACTOR's use.
- B. As part of the temporary field office, CONTRACTOR shall provide a meeting room with adequate area, tables, and seating to conduct weekly progress meetings.
- C. Buildings or trailers shall be neat and well-constructed, surfaced with plywood, siding, hardboard, or other similar material, well painted and void of advertisements.

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 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 excavation work.
- B. Related Sections:
 - 1. Section 31 10 00 - Site Clearing.
 - 2. Section 31 23 17 - Trenching.
- C. This specification shall be applied concurrently and in conjunction with other plant material protection measures herein described and specified.

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 OWNER's Representative 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 OWNER's Representative must be present during demolition of existing conditions occurring within the drip line of trees designated to remain.
- D. Notify OWNER's Representative 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 OWNER's Representative before proceeding, and comply with directives of OWNER's Representative.

3.3 EXCAVATION AROUND TREES

- A. Excavate within drip lines of trees only where indicated on the Drawings or as directed by OWNER's Representative.
- 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 one 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 OWNER's Representative.
 - 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 OWNER's Representative 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" caliper or roots smaller than 2" 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 OWNER's Representative.
 - 4. The OWNER's Representative 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 OWNER's Representative 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 OWNER's Representative.

2. Furnish replacement trees and plant life to the Site and plant, maintain, and warranty as directed by the OWNER's Representative.
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. CONTRACTOR shall furnish labor, material, and equipment necessary for removing and/or salvaging existing trees as designated on the Drawings for removal.
 1. Verify location and species with OWNER's Representative prior to removal.
- B. Salable logs or timber shall be salvaged and transported to OWNER's reservoir site or as otherwise directed by OWNER.
- C. See Section 31 10 00, Site Clearing for additional requirements.

3.6 DESIGNATED TREE TRANSPLANTING PROCEDURES

- A. If designated tree transplanting is specified by OWNER's Representative, 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 OWNER's Representative, for review and approval.
- D. Warranty for transplanted trees shall be determined and directed on a case by case basis by the OWNER's Representative, 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 approved 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 OWNER's Representative 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 OWNER's Representative.

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 OWNER's Representative.

END OF SECTION

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 23 17 - Trenching

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 six (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 STM 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, brush, trees, and other plant life in preparation for excavation work.
- B. Related Sections:
 - 1. Section 01 56 39 – Temporary Tree and Plant Protection

1.2 DEFINITIONS

- A. Clearing: Removal of trees and other 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, including trees to be removed.
 - 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. Clearly identify trees to remain and verify with OWNER's Representative.
- 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 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. Avoid injury to trees, shrubs, vines, plants, grasses, and other vegetation growing outside of the areas to be cleared and grubbed and those trees and shrubs designated to be preserved.
 - 2. See Section 01 56 39, Temporary Tree and Plant Protection for additional requirements.
- 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 beyond the limits as shown on the Drawings or as specified in project permits:
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 ENGINEER.
- 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 OWNER's reservoir site 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 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 31 05 13 - Soils for Earthwork
 - 3. Section 31 05 16 - Aggregates for Earthwork
 - 4. Section 31 10 00 - Site Clearing
 - 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 T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5-lb (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, consisting of Subsoil Type S1 or Type S2 as specified in Section 31 05 13, Soils for Earthwork.

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. Not Used
- 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: Not Used.
- 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: Not Used.
- D. Allowable Tolerances: Final grades shall be plus or minus 0.1-foot.

1.6 QUALIFICATIONS – 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 or 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. CLSM: Not Used.
- 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; DryConn™ 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 thirty (30) 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 B 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..

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 at the end of each day for all roadway crossings.
4. Unless otherwise approved, backfill excavations at the end of each day.

5. If approved, short open trench sections may be covered at the end of each working day with the following provisions:
 - 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, including secured barriers to keep out animals.
 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. Unless otherwise provided for in the Bid Form, 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 sides of the trench shall not exceed 12 inches on either side of the pipe or as shown on the Drawings.
 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 minimum depth of 4 inches below the bottom of the pipe or utility vault or as shown on the Drawings. 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 TUNNELING – NOT USED

3.9 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, new and existing structures, and adjacent and neighboring properties and to prevent caving, erosion, settlement, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- D. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.
- E. Design sheeting and shoring to be removed at completion of excavation work, unless shown otherwise in the Drawings.
- F. Construction Sheeting Left in Place:
 - 1. Furnish, install, and leave in place construction sheeting and bracing when specified or when indicated or shown on the Drawings.
 - 2. Construction sheeting and bracing originally intended for temporary installation, placed by the CONTRACTOR to protect adjacent and neighboring structures, may be left in place if desired by the CONTRACTOR and approved by the ENGINEER. All such sheeting and bracing left in place shall be included in the cost for excavation.
 - 3. Any construction sheeting and bracing which the CONTRACTOR has placed to facilitate its work may be ordered in writing by the ENGINEER to be left in place. The right of the ENGINEER to order sheeting and bracing left in place shall not be construed as creating an obligation on its part to issue such orders. Failure of the ENGINEER to order sheeting and bracing left in place shall not relieve the CONTRACTOR of its responsibility under the contract.
 - 4. For sheeting and shoring to be left in place as part of the completed Work, cut off minimum 18 inches below finished grade.

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 A 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: Not Used.

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.

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 will be paid for by the CONTRACTOR, including any subsequent testing after failed tests.
- 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 the surface and on each lift of backfill for every 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 SCHEDULE – NOT USED

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 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.
- K. Dewatering of trenches and other excavations shall be considered as incidental to the construction of the work and all costs thereof shall be included in the various contract prices in the bid forms.

END OF SECTION

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 05 16 - Aggregates for Earthwork

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 75 μ m (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 – NOT USED

2.3 OPEN-GRADED BASE AGGREGATES – NOT USED

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: Not Used.

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. Remove soft substrate and replace with compacted fill.

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: Not Used
- 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, or to existing thickness.

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	Production output or stockpile
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 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 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.

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	5.2
Glyceria occidentalis	Western Mannagrass	0.9
Beckmania syzigachne	American Sloughgrass	0.9
TOTALS:		43.38

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 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 31 23 17, Trenching.
 - 2. Section 31 23 19, Dewatering.

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.
- D. CLSM: Not Used.

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 – NOT USED

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 – NOT USED

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 11 10 - WATER UTILITY DISTRIBUTION AND TRANSMISSION PIPING

PART 1 GENERAL

1.1 SUMMARY

- A. Work under this Section applies to furnishing and installing pipe materials, fittings, and appurtenances normally encountered with water distribution and transmission main 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 31 05 13 - Soils for Earthwork
2. Section 31 05 16 - Aggregates for Earthwork
3. Section 31 23 17 - Trenching
4. Section 33 11 10.30 – HDPE Water Utility Piping
5. Section 33 12 16 - Water Utility Distribution and Transmission Valves
6. Section 33 12 19 - Fire Hydrants
7. 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
- G. SUBMITTALS
1. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
 2. Product Data: Submit data on pipe materials, pipe fittings, restrained joint systems, and accessories.
 3. Shop Drawings: Indicate piping layout, including piping specialties.
 - a. 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.
 4. Lining and coating data.
 5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 6. Manufacturer's handling, delivery, storage, and installation requirements.
 7. Field Quality-Control Submittals:
 - a. Pipeline hydrostatic testing plan.
 - b. Indicate results of CONTRACTOR-furnished tests and inspections.
 8. Preconstruction Photographs:
 - a. Submit digital files of colored photographs of Work areas and material storage areas.

9. Construction Photographs:

- a. Submit digital files of colored photographs of work progress.

1.3 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.

1.4 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.

1.5 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. Gauged Pipe:
 - a. All ductile iron pipe 24-inch diameter or greater to be cut in the field shall be gauged full length. The select piping shall meet the outside diameter standard

dimensions and tolerances required for spigot ends along the full length of pipe to within 2 feet of the bell end.

- b. In addition to pipe supplied for anticipated cutting, a minimum of 5 percent of each size of piping 24-inch diameter or greater shall be provided gauged full length as described above.
 - c. Pipe shall be externally marked, in Manufacturer's color, indicating gauged pipe.
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, regardless of flange class type. 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) Gaskets must be rated for the maximum working pressures for the piping systems as specified.
- b) Flanged gaskets for 150 psi rated ductile iron piping system shall be full faced, composed of synthetic rubber and 1/8-inch-thick conforming to ASME B21.1 and AWWA C111. Gasket shall be Garlock 98206 or approved equal.
- c) Flanged gaskets for pipe sizes 6-inch to 24-inch diameter with working pressures over 150 psi shall be Garlock 3760-U or approved equal.
- d) Flanged gaskets for pipe sizes 4-inch diameter and under with working pressures over 150 psi shall be Garlock GYLON 3505 or approved equal.
- e) Insulating flanged joint gaskets, regardless of pipe size, shall be non-asbestos, full faced, Garlock GYLON 3505 or approved equal.
- f) Ring gaskets will be permitted only where specifically noted in the Drawings and Specifications.

C. PVC: NOT USED.

D. HDPE Pipe: See Section 33 11 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 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, Grade B7.
 2. Nuts: Comply with ASTM A194, Grade 2H.
 3. Washers: Comply with ASTM F436.
 4. Bolting materials shall have product marking in accordance with ASTM A193 and ASTM A962
- C. For operation pressures of 150 psi or less:
1. Bolts: Low-carbon steel composition. Comply with ASTM A307, Grade B requirements per AWWA C111 and C115.
 2. Nuts: Comply with ASTM A563A, Heavy Hex.
 3. Washers: Comply with ASTM F844.
 4. Bolts and nuts shall have product markings to identify material and producer as specified in AWWA C111.
- D. Higher-strength (Grade A) bolts and higher torque values as specified above for operation pressures greater than 150 psi shall not be used gray-iron fittings.

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.

C. Insulating Flexible Couplings: NOT USED.

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. Minimum working pressure: 250 psi.

2. Manufacturers:
 - a. For ductile iron pipe (sizes 4-inch through 24-inch diameters):
 - 1) Romac Industries, Inc. – Style 400RG
 - 2) EBAA Iron – 3800 MEGA-COUPLING
 - b. For HDPE pipe (size 4-inch through 12-inch diameters):
 - 1) 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 bolt pattern.
 - 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 bolt pattern.
 - 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 bolt pattern.
- 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 – NOT USED

2.7 FLEXIBLE EXPANSION JOINTS – NOT USED

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 ACCESSORIES

- A. Concrete for Thrust Restraints: As specified in the Drawings.
- B. Manhole and Cover: As specified 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 every 100 feet of pipe trench, or more frequent as needed to document existing conditions.
 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. 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. 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.
 10. 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.
 11. 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.
12. Prevent foreign material from entering pipe during placement.
13. Install pipe to allow for expansion and contraction without stressing pipe or joints.
14. Close pipe openings with watertight plugs during Work stoppages.
15. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.
16. Install access fittings to permit disinfection of water system performed under Section 33 13 00 – Testing and Disinfecting of Water Utility Piping.
17. 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.
18. Pipe Markers:
- a. Install as specified in Section 31 23 17, Trenching.
- C. Tapping Sleeves and Valves: Not Used.
- 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, 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 State Department of Environmental Quality (DEQ) 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 DEQ'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 install of branch saddle on HDPE pipe via electrofusion, from branch saddle manufacturer/supplier.
 - 3. Manual records, 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 where 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 where 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 – NOT USED

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 mains, including fire hydrants and tapping sleeves.
- B. Section Includes:
 - 1. Valves.
 - 2. Valve boxes.
 - 3. Valve operator extensions.
- C. Related Sections:
 - 1. Section 33 11 10 - Water Utility Distribution and Transmission Piping: Piping trenching, backfilling, and compaction requirements.
 - 2. Section 33 12 19 - Fire Hydrants: Execution requirements for fire hydrants.
 - 3. Section 33 13 00 - Testing and Disinfecting of Water Utility Piping: Flushing and disinfection requirements.
 - 4. Section 40 05 51.15 – Gate Valves
 - 5. Section 40 05 51.18 – 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 the OWNER of Warrenton Engineering Design Standards.

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 – NOT USED

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 51.15, 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 51.18, 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: Vancouver style model 910; 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: traffic-rated; labeled "W" or "Water".
 - 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: Provide concrete pier blocks and thrust blocks as shown on the Drawings.

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, unless otherwise shown on the Drawings.
- 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 ATTACHMENTS – 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 31 05 16 - Aggregates for Earthwork
 - 2. Section 31 23 17 - Trenching
 - 3. 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
- 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: Provide pier block and thrust blocks as shown on the Drawings.
- 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 hardener 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 (450 millimeters) above finished grade, and with safety flange not more than 6 inches (150 millimeters) nor less than 2 inches (50 millimeters) 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 HYDRANTS

- 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. Disinfection of raw water systems piping, fittings, and valves is not required.
- B. Section Includes:
 - 1. Pressure testing raw water transmission piping systems and appurtenances.
 - 2. Testing and reporting of results.
- 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 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 M55 – PE Pipe, Design and Installation

1.3 SUBMITTALS

- A. Section 01 33 00 –Submittals Procedures: Requirements for submittals.
- B. Product Data: Submit procedures, proposed chemicals, and treatment levels.
- 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 QUALITY ASSURANCE – 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 and disinfection 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 DISINFECTION CHEMICALS – NOT USED

2.3 DECHLORINATION CHEMICALS – 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 portions. Contractor 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 Piping:
 - 1. Ductile Iron: In accordance with AWWA C600.
 - 2. 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.
3. 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.

4. 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.

5. 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 DISINFECTION OF WATER PIPING – NOT USED

3.3 DISINFECTION AND TESTING OF WATER MAIN END CONNECTIONS AND TIE-INS – NOT USED

3.4 FIELD QUALITY CONTROL – NOT USED

END OF SECTION

SECTION 40 05 51.15 - GATE VALVES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes gate valves for buried service use in 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 12 16, Water Utility Distribution and Transmission Valves
 - 2. Section 33 11 10, Water Utility Distribution and Transmission Piping

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.

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 51.18 - 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.
- B. Section Includes:
 - 1. Rubber-seated butterfly valves.
- C. Related Sections:
 - 1. Section 33 12 16, Water Utility Distribution and Transmission Valves
 - 2. Section 33 11 10, Water Utility Distribution and Transmission Piping.

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 (300-millimeter) Diameter and Smaller: 200 pounds per square inch (gauge) (psig).
 - b. Sixteen-inch (400-millimeter) 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: Wafer.
 - 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 - MISCELLANEOUS VALVES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes miscellaneous valves not included in other Sections for use in air release/vacuum valve assemblies.
- B. Section Includes:
 - 1. Air release valves.
 - 2. Combination air/vacuum valves.
 - 3. Ball valves, 2 inches and under.
- C. Related Sections:
 - 1. Section 33 11 10, Water Utility Distribution and Transmission Piping.

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 B16.11 - Forged Fittings, Socket-Welding and Threaded.
 - 4. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
 - 5. 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 A536 - Standard Specification for Ductile Iron Castings.
 - 3. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.

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.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit installation instructions and special requirements, including storage and handling procedures.
- E. Lining and coating data.
- F. Valve Labeling Schedule: Indicate valve locations and nametag text.
- 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, 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.

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 MUD VALVES – NOT USED

2.3 SOLENOID VALVES – NOT USED

2.4 AIR RELEASE VALVES – NOT USED

2.5 COMBINATION AIR/VACUUM VALVES

- A. Description:
1. Construction: Two independent valves: one air/vacuum valve, one air release valve.
 2. Inlet Size: 2-inch diameter.
 3. Body and cover: stainless steel or ductile iron ASTM A536 Grade 60-40-18.
 4. All inner metal parts made of stainless steel. Float shall be made of polypropylene.
 5. Valve seats and o-rings: Buna-N.
- B. Manufacturers:
1. ARI USA, Inc., Model D26 Combination Air Valve or equal.

2.6 BLOW-OFF HYDRANT ASSEMBLIES – NOT USED

2.7 FLAP VALVES – NOT USED

2.8 SHEAR GATES – NOT USED

2.9 BALL VALVES, 2 INCHES AND UNDER

A. Description:

1. Four hundred-pound. Water, oil, and gas rating (WOG) with bronze body and trim, unless otherwise shown on the Drawings.
2. Seat ring: Tetrafluoroethylene (TFE).
3. O-ring seals: Fluorocarbon.
4. Three-piece construction so that maintenance can be performed without distributing the valve body after installation.

B. Manufacturer:

1. Nibco T-590-Y or equal.

2.10 SOURCE QUALITY CONTROL

A. Testing Pressure-Reducing and Pressure-Sustaining Valves:

1. Leakage Testing:

- a. Test each assembled valve hydrostatically at 1-1/2 times rated working pressure for minimum five minutes.
- b. Test each valve for leakage at rated working pressure against closed valve.
- c. Permitted Leakage: None.

2. Functional Testing:

- a. Test each valve to verify specified performance.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install valves per Manufacturer requirements and recommendations.
- B. Install all valves with valve seats level.

- C. Install protective strainers upstream of solenoid valves, pressure-reducing valves, and pressure-sustaining valves.

3.2 ATTACHMENTS

- A. The attachments listed below, following “END OF SECTION”, are part of this Section.

- 1. Attachment 1 – Schedule for Miscellaneous Valves.

END OF SECTION

SCHEDULE FOR MISCELLANEOUS VALVES							
VALVE NUMBER	LOCATION	DESCRIPTION	VALVE TYPE	MEDIA	SIZE	OPERATOR	REMARKS
	STA 25+90	Installed on 24" HDPE	CARV		2-inch		
	STA 26+10	Installed on 6" waterline to fire hydrant	GV		6-inch		
	STA 29+38	Installed on 24" HDPE	CARV		2-inch		
	STA 30+35	Installed on 18" DIP	BFV		18-inch		
	STA 32+89	Installed on 24" HDPE	BFV		24-inch		
	STA 32+95	Installed on 16" DIP	BFV		16-inch		