

CITY OF CANNON BEACH



CANNON BEACH E. HARRISON WATER LINE REPLACEMENT CONTRACT DOCUMENTS

DATE: JUNE 21, 2023



OWNER:
CITY OF CANNON BEACH
PO BOX 368
163 EAST GOWER STREET
CANNON BEACH, OREGON 97110
(503) 436-1581

ENGINEER:
WINDSOR ENGINEERS
27300 NE 10TH AVENUE
RIDGEFIELD, WA 98642
(360) 912-9224



CITY OF CANNON BEACH

**E. HARRISON WATER LINE REPLACEMENT
PROJECT MANUAL**

163 E. GOWER STREET
CITY OF CANNON BEACH, OREGON 97110

DATE: JUNE 21, 2023

PREPARED BY:
WINDSOR ENGINEERS



CITY OF CANNON BEACH
E. HARRISON WATER LINE REPLACEMENT

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PROCUREMENT AND CONTRACTING REQUIREMENTS

Division 00

**SECTION 00 01 02
PROJECT INFORMATION**

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

- A. Project Name: Cannon Beach E. Harrison Water Line Replacement, located at: Harrison Street between South Elm Street and South Spruce Street.
City of Cannon Beach, Oregon
- B. The Owner: City of Cannon Beach

1.02 PROJECT DESCRIPTION

- A. Summary Project Description: In general, the project includes but is not limited to: The abandonment of an existing 2" PVC water main in place, installation of one fire hydrant, installation of an 8-inch HDPE water main along with the associated fittings and reconstruction of 12 service connections, 1 sanitary lateral extension and trench repair and repaving. The Contractor shall construct the improvements as designed, shall provide all necessary materials to complete the work.

1.03 PROCUREMENT TIMETABLE

- A. The Owner reserves the right to change the schedule or terminate the entire procurement process at any time.

1.04 PROCUREMENT DOCUMENTS

- A. Availability of Documents: Complete sets of procurement documents may be obtained electronically:
 - 1. From the Owner available at the City of Cannon Beach – Contact Tessa Schutt – schutt@ci.cannon-beach.or.us or at 503-436-8048.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**SECTION 00 01 07
CERTIFICATE PAGE**

**CITY OF CANNON BEACH
E. HARRISON WATER LINE REPLACEMENT**

The engineering material and data contained in the Plans and Specifications were prepared under the supervision and direction of the undersigned, whose seal as a registered professional engineer is affixed below.



SPECIFICATIONS:
DIVISIONS 00, 01, 31, 32, 33, 40
CHARLES MCDONALD, PE
WINDSOR ENGINEERS

**SECTION 00 01 20
SCHEDULES AND CHECKLIST**

ITEMS	DATE
INVITATION TO BID (ITB) ISSUED	SATURDAY JUNE 24, 2023
REQUEST DEADLINE FOR: SUBSTITUTION, CLARIFICATION, OR CHANGE AND SOLICITATION PROTEST DEADLINE	FRIDAY JULY 7, 2023
LAST ADDENDA ISSUED	MONDAY JULY 10, 2023
BIDS DUE/ BID OPENING	TUESDAY JULY 25, 2023 2:00 PM
FIRST-TIER SUBCONTRACTOR DISCLOSURE	NA IF < \$100,000* TUESDAY JULY 25, 2023 4:00 PM
NOTICE OF INTENT TO AWARD (ESTIMATED)	JULY 25, 2023
CITY COUNCIL APPROVAL OF AWARD (ESTIMATED)	TUESDAY AUGUST 1, 2023
NOTICE OF AWARD (ESTIMATED)	WEDNESDAY AUGUST 2, 2023
ANTICIPATED CONTRACT START / NOTICE TO PROCEED (ESTIMATED)	WEDNESDAY AUGUST 2, 2023
ANTICIPATED SUBSTANTIAL COMPLETION	OCTOBER 31, 2023
ANTICIPATED FINAL COMPLETION (ESTIMATED)	NOVEMBER 6, 2023

NOTE: the City of Cannon Beach reserves the right to deviate from this schedule. With current supply chain issues, the project timeline may need to be adjusted accordingly.

*** SUBCONTRACTOR FORMS ARE ONLY REQUIRED FOR CONTRACTS >\$100,000.**

BID REQUIREMENTS CHECKLIST

The following is a listing of bid submission components.

SECTION	SECTION NAME	SUBMIT TIME
00 41 00	SIGNED BID FORM – ALL PAGES	SUBMIT WITH BID
	CONSTRUCTION CONTRACTORS BOARD LICENSE	SUBMIT WITH BID
00 41 10	BIDDER RESPONSIBILITY INFORMATION FORM – ALL PAGES	SUBMIT WITH BID
00 41 20	BID BOND	SUBMIT WITH BID
00 41 30	BIDDERS WARRANTY	SUBMIT WITH BID
00 41 40	BIDDERS CERTIFICATIONS	SUBMIT WITH BID
00 41 50	FIRST-TIER SUBCONTRACTOR DISCLOSURE	SUBMIT IF REQ'D*
00 41 60	CERTIFICATE OF NON-COLLUSION	SUBMIT WITH BID
00 41 70	CONTRACTOR'S CERTIFICATION REGARDING DRUG TESTING PROGRAM	SUBMIT WITH BID
00 41 80	PUBLIC IMPROVEMENT CONTRACT	SUBMIT WITH BID
00 72 30	OREGON STATUTORY PUBLIC WORKS BOND	SUBMIT WITH BID
00 72 40	CERTIFICATION OF WORKERS COMPENSATION COVERAGE	SUBMIT WITH BID
00 73 00	ANY ADDITIONAL ITEMS SPECIFIED IN SUPPLEMENTARY INSTRUCTIONS TO BIDDERS	SUBMIT WITH BID

*** SUBCONTRACTOR FORMS ARE ONLY REQUIRED FOR CONTRACTS >\$100,000.**

The bid requirements checklist is provided for the bidder's convenience. Bidder is advised to thoroughly review the Invitation to Bid documents to be certain that it has met all requirements and included all required documents, forms and information in its bid. In the event of a conflict between the bid requirements checklist and other Invitation to Bid documents, other Invitation to Bid documents shall take precedence.

END OF SECTION

**SECTION 00 11 13
INVITATION TO BID**

Sealed bids for the **Cannon Beach E. Harrison Water Line Replacement** will be received by Karen La Bonte, Public Works Director, for the Owner, City of Cannon Beach, at 163 E Gower, Cannon Beach, Oregon 97110 **at 2:00 PM, Pacific Time, on Tuesday, July 25, 2023** at which time and place they will be publicly opened and read aloud at the address listed above unless government restrictions prevent that from happening. In that case, the City will arrange for a virtual bid opening via Zoom. No bids will be accepted after this time.

All bidders shall submit, in a separate, sealed envelope, within two working hours of the bid opening time, on the bid date, a completed First-Tier Subcontractor Disclosure Form in compliance with ORS 279C.370.

In general, the elements of work include, but are not limited to:

The abandonment of an existing 2" PVC water main in place, installation of one fire hydrant, installation of an 8-inch HDPE water main along with the associated fittings and reconstruction of 12 service connections, 1 sanitary lateral extension and trench repair and repaving. The Contractor shall construct the improvements as designed, shall provide all necessary materials to complete the work.

Responsive bidders shall demonstrate proven experience working around sensitive, critical infrastructure and work within City limits, etc.

Project bidding documents are available electronically by contacting Tessa Schutt at schutt@ci.cannon-beach.or.us or 503-436-8048, or can be viewed at City of Cannon Beach, at 163 E Gower, Cannon Beach, Oregon 97110.

This PROJECT IS subject to both Prevailing Wage Rates and Davis Bacon. All bidders shall comply with the provisions of ORS 279C.800-870 [workers on public works to be paid not less than prevailing rate of wage for projects over \$50,000.00] and the Federal Department of Labor's Davis-Bacon Wage Determination. Contractors submitting bids are required to be registered with the Construction Contractor's Board.

A mandatory pre-bid conference will not be held for this project.

Bid security in the amount of not less than 5% of the bid must accompany each bid in accordance with the Instructions to Bidders. The Owner reserves the right to reject any bid not in compliance with all prescribed public bidding procedures and requirements, may reject a bid that does not comply with requirement to demonstrate bidder's responsibility under ORS 279C.375(3)(b), and may reject, for good cause, any or all bids upon a finding of the Owner that it is in the public interest to do so in accordance with ORS 279C.395. The Owner reserves the right to waive any bid irregularities or informalities. No bidder may withdraw or modify the bidder's bid after the hour set for the opening thereof, until after the lapse of 30 days from the bid opening.

The selected contractor and all contractors performing work within the City are required to obtain a City business license prior to start of work.

Advertised in The Astorian on June 24, 27, 29; July 1, 4, 6, 8, 11, 13, 15, and 18th.

BY ORDER OF THE CITY OF CANNON BEACH

END OF SECTION

**SECTION 00 21 13
INSTRUCTIONS TO BIDDERS**

1. THE PROJECT: CANNON BEACH E. HARRISON WATER LINE REPLACEMENT

IN GENERAL, THE ELEMENTS OF WORK INCLUDE, BUT ARE NOT LIMITED TO:

The abandonment of an existing 2" PVC water main in place, installation of one fire hydrant, installation of an 8-inch HDPE water main along with the associated fittings and reconstruction of 12 service connections, 1 sanitary lateral extension and trench repair and repaving. The Contractor shall construct the improvements as designed, shall provide all necessary materials to complete the work.

2. ADDENDA AND INTERPRETATIONS:

No interpretation of the meaning of the plans, specifications or other prebid documents will be made to any bidder orally.

Every request for such interpretation should be in writing and either addressed or emailed to City of Cannon Beach Public Works Department, Attn: Tessa Schutt, PO Box 368, Cannon Beach, OR 97110, EMAIL schutt@ci.cannon-beach.or.us and to be given consideration must be received at least ten days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be delivered via email or facsimile transmission to all prospective bidders not later than 72 hours prior to the bid opening, at the respective addresses furnished for such purposes.

Failure of any bidder to receive any such addendum of interpretation shall not relieve such bidder from any obligation under the bidder's bid as submitted. All addenda so issued shall become part of the contract documents.

If a Bidder believes that this solicitation is contrary to law, or that the solicitation document is unnecessarily restrictive, is legally flawed or improperly specifies a brand name they may file a solicitation protest within ten (10) days of the closing date. If a Bidder fails to file the protest within ten days of the closing date, the Bidder may not challenge the contract on grounds under this subsection in any future administrative or legal proceeding.

A solicitation protest must be filed in writing with the City Manager and Public Works Director and contain the information required by ORS 279B.405(4).

If the protest is timely filed and meets the requirements listed above, the Owner shall consider the protest and issue a decision in writing within ten (10) days after receipt. Otherwise, the Owner shall promptly notify the Bidder that the protest fails to meet the requirements of this subsection and give the reasons for the failure.

A. REQUEST FOR APPROVAL OF AN "APPROVED SUBSTITUTION": Bidders shall provide the named product unless another is approved through a substitution request, or a product exemption has been issued (ORS 279C.345). Other brands of quality, merit and utility will be considered upon proper submittal of the request with appropriate documentation:

- 1). Requests must provide all of the information necessary for the City to determine product acceptability.

- 2). Failure to provide sufficient information with the request will cause the request to be rejected.
- 3). Any product subsequently approved for substitution will be listed on an Addenda issued by the City.
- 4). Bidders are advised to use the "Substitution Request" form for such requests (Section 00 21 13.10).

B. REQUEST FOR CLARIFICATION: Any Bidder who finds discrepancies in, or omissions from, any provision of the ITB, Plans, Specifications, or Contract Documents, or has doubt as to the meaning, shall make a request for clarification in writing, to the contact listed on Page 2 of the Information to Bidders (ITB). To be considered, the request for clarification must be received by the Request Deadline as specified in 1.06 B.

C. REQUEST FOR CHANGES TO CONTRACTUAL TERMS OR SPECIFICATIONS OR PLANS: Any Bidder may submit a request for changes to contractual terms, Plans, or Specifications, in writing, to the contact listed on Page 2 of the ITB. To be considered, the request for changes must be received by the Request Deadline specified in 1.07 B. above. The request must include the specific changes requested, and the reason for requested changes supported by factual documentation, and any proposed changes.

D. PROTEST OF CONTRACT TERMS AND CONDITIONS OR SPECIFICATIONS: Any Bidder may submit a protest of solicitation terms and conditions, in writing, in accordance with OAR 137-049-0260 to the contact listed on Page 2 of the ITB. To be considered, the protest must be received by the deadline specified in 1.07 B. above. The protest shall include the legal and factual grounds for the protest, a description of the resulting prejudice to the Bidder if the protest is not granted, and a statement of the relief or changes proposed.

E. RESPONSE TO REQUESTS FOR CLARIFICATION: Clarifications, whether verbal, or in writing, or included in an addendum as "*clarification*", do not change Plans, Specifications, contractual terms, or procurement requirements of an ITB. If a request for clarification raises an issue that the City determines should be handled by formally amending the ITB, the City will do so only by announcing such a change in an Addendum, not through information identified as a "clarification."

F. RESPONSE TO REQUESTS FOR BRAND APPROVAL, REQUESTS FOR SUBSTITUTION, REQUESTS FOR CHANGE, AND PROTESTS: The City shall promptly respond to each properly-submitted written request for brand approval, request for substitution, request for change, and protest. Where appropriate, the City will issue ITB revisions via email.

Failure to protest solicitation terms and conditions, Contract terms and conditions or Specifications, as indicated in this section, precludes appeal or protest of a decision to award based upon such solicitation terms and conditions, Contract terms and conditions, or Specifications.

G. PROTEST OF ADDENDUM: Requests for clarification, requests for change and protests of Addendum must be received by the time and date specified in the Addendum or they will not be considered.

3. TIME OF COMPLETION:

The work to be performed under this contract shall be completed within the timeframe below, after the date of written Notice to Proceed by the Owner to the Contractor with such extensions of time as provided for in the General Conditions.

PROJECT COMPLETION IS SCHEDULED FOR OCTOBER 31, 2023

4. QUALIFICATIONS OF BIDDER AND SUBCONTRACTOR:

Bid security in the amount of not less than 5% of the bid must accompany each bid in accordance with the Instructions to Bidders. The Owner reserves the right to reject any bid not in compliance with all prescribed public bidding procedures and requirements, may reject a bid that does not comply with requirement to demonstrate bidder's responsibility under ORS 279C.375(3)(b), and may reject, for good cause, any or all bids upon a finding of the Owner that it is in the public interest to do so in accordance with ORS 279C.395. The Owner reserves the right to waive any bid irregularities or informalities. No bidder may withdraw or modify the bidder's bid after the hour set for the opening thereof, until after the lapse of 30 days from the bid opening.

Each bid must contain a statement as to whether the bidder is a resident bidder, as defined in ORS 279A.120. Contractors submitting bids are required to be registered with the Construction Contractor's Board. All Subcontractors performing work described in ORS 701.005(2) (i.e., construction work) are required to be registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.026 to 701.035 before the Subcontractors commence work under the contract. Contractors or Subcontractors need not be licensed under ORS 468A.720 [asbestos abatement].

The Contractor and every Subcontractor shall each have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836(7) and (8).

Each Bidder shall submit a completed Bidder's Responsibility Information Form along with its Bid. The Bidder's Responsibility Information Form will be used to evaluate the qualifications of any Bidder whose Bid is under consideration for Contract Award.

Prior to award and execution of a contract, the City will evaluate whether the apparent successful Bidder meets the applicable standards of responsibility identified in ORS 279C.375. In doing so, the City may investigate Bidder and request information in addition to that already required in this document, when the City, in its sole discretion, considers it necessary or advisable. Submission of a signed Bid shall constitute approval for the City to obtain any information that the City deems necessary to conduct the evaluation.

The contract is to be awarded by competitive bid, the City of Cannon Beach shall award the contract to the contractor whose bid will best serve the interests of the City taking into account price as well as any other applicable factor(s) such as, but not limited to: experience, specific expertise, availability, project understanding, contractor capacity and responsibility that is not otherwise disqualified.

The City may postpone the award of the Contract after announcement of the apparent successful Bidder in order to complete its investigation and evaluation. Failure of the apparent successful Bidder to demonstrate responsibility shall render the Bidder non-responsible and shall constitute grounds for Bid rejection.

Any Bidder who fails to submit a complete Bidder Responsibility Information Form will be deemed to be non-responsive and will not be considered for Award of Contract.

If a Bidder is found not to be responsible, documentation of the reasoning will be sent to the Oregon Construction Contractor's Board (OCCB). Such documentation will be based upon the criteria set forth in ORS 279C.375(3).

The City may reject a bid that does not comply with applicable public contracting procedures and requirements, including the requirement to demonstrate the bidder's responsibility under ORS 279C.375 (3)(b).

5. CONDITIONS OF WORK:

Each bidder must investigate and be fully informed of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of the bidder's obligation to furnish all material and labor necessary to carry out the provisions of this contract. Insofar as possible the Contractor, in carrying out the Contractor's work, must employ such methods or means as will not cause any interruption of work.

6. BIDDER'S REPRESENTATION:

Each bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any bidder to do any of the foregoing shall in no way relieve the bidder from any obligation in respect to the bidder's bid. Each bidder, by submitting a bid, represents that:

A. The bidder has read and understands the Bidding Documents and the bidder's bid is made in accordance therewith.

B. The bidder has inspected the site(s), has become familiarized with the site conditions under which the work is to be performed, and has correlated the bidder's observations with the requirements of the proposed Contract Documents.

C. The bidder's bid is based upon the products, systems, and equipment described in the bidding documents without exception.

7. PREBID MEETING:

A mandatory pre-bid conference will not be held for this project.

8. DISCLOSURE OF FIRST-TIER SUBCONTRACTORS:

In accordance with ORS 279C.370, each bidder must submit in a separate sealed envelope, a completed First-Tier Subcontractor Disclosure Form within two working hours after the date and time of the bid opening if the project bid is over \$100,000. The separate envelope must be clearly labeled "FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM" and shall be marked with the bidder's name, address and project title. The list shall identify any first-tier subcontractors that will be furnishing labor or furnishing labor and materials meeting the minimum amount specified in ORS 279C.370. A bidder shall submit the required disclosure form either with its bid submission or within two working hours after the date and time of the bid closing deadline.

Failure to submit a completed disclosure form in a separate sealed envelope by the disclosure deadline of two working hours after the bid opening time will result in a nonresponsive bid. A nonresponsive bid will not be considered by the Owner for award. The Owner will consider for contract award only those bids for which the required disclosure form has been submitted.

The bidder is specifically advised that any person, firm or party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner. Substitution of affected first-tier subcontractors shall be made only in accordance with ORS 279C.585. The Contractor shall notify the Owner in writing of all proposed changes in subcontractors prior to making any changes in subcontractors. No subcontractor doing work in excess of 5% of the total amount of the bid, but

at least \$15,000, and who is not listed on the disclosure form shall be used without the written approval of the Owner.

INSTRUCTIONS FOR FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

Bidders are required to disclose information about certain first-tier subcontractors when the contract value for a Public Improvement project is greater than \$100,000 (see ORS 279C.370). Specifically, when the contract amount of a first-tier subcontractor furnishing labor or furnishing labor and materials on the contract, if awarded, whose subcontract value would be greater than or equal to:

- (i) 5% of the total project bid, but at least \$15,000; or
- (ii) \$350,000 regardless of the percentage of the total project bid;

the bidder must disclose on the disclosure form and submit the following information about the first-tier subcontractors either with the bid submission or within two working hours after bid closing:

- 1) the subcontractor's name,
- 2) the dollar value of the subcontract, and
- 3) the category of work that the subcontractor would be performing.

If the bidder will not be using any subcontractors that are subject to the above disclosure requirements, the bidder is required to indicate "NONE" on the disclosure form.

9. PREPARATION OF BIDS:

Bids shall be submitted on the attached Bid Form. All blanks must be appropriately filled in. Where so indicated by the make up of the Bid Form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount in words shall govern. Bidders shall make no additional stipulations on the Bid Form nor qualify any bid in any manner. Only one copy of the Bid Form is required.

10. BID SECURITY:

Each bid must be accompanied by a cashier's check, a certified check of the bidder, an irrevocable letter of credit issued by an institution as defined in ORS 279C.380, or a bid bond prepared on the form of the bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of 5% of the bid. Such bid security will be returned to all except the three bidders whose bid best serves the interests of the City, consistent with the criteria set out in ORS 279C.414 within seven days after the opening of bids. The remaining bid security will be returned promptly after the Owner and the accepted bidder has executed the contract. If no award has been made within 30 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as the bidder has not been notified of the acceptance of the bidder's bid, the bid shall be returned. The bid security of the successful bidder will be retained until the Performance Bond and Payment Bond have been executed and approved, after which it will be returned.

11. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:

The successful bidder, upon the bidder's failure or refusal to execute and deliver the contract and bonds required within 10 days after the bidder has received notice of the acceptance of the

bidder's bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with the bidder's bid.

Consequently, the contractor agrees to pay the city the sum of \$200 per day, not as a penalty but as liquidated damages, for each day elapsed beyond the substantial completion date set forth in the bid document. The total liquidated damages shall be deducted from the final payment due the contractor. The city may waive its right to claim part or all of the liquidated damages due under this provision, but such full or partial waiver shall not negate or abridge any other right of action the city may have to enforce the provisions of this contract. Contractor will not contest such sums as being other than a reasonable measure of delay damages in the event those damages become payable under these provisions.

12. SUBMISSION OF BIDS:

EACH BID MUST BE SUBMITTED IN A SEALED ENVELOPE MARKED:

"BID ENCLOSED"

PROJECT NAME: **CANNON BEACH E. HARRISON WATER LINE REPLACEMENT**

and bearing on the outside the name and address of the bidder. For mailed bids, this sealed envelope may be enclosed in a mailing envelope addressed to the Owner. Bids shall be submitted at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids or any extension thereof made by Addendum. Bids received after the time and date for receipt of bids (the bid closing deadline) will be returned unopened. Oral, telephonic, faxed, or telegraphic submissions of bids are invalid and will not receive consideration. THE OFFICIAL TIME WILL BE ESTABLISHED BY THE CLOCK AT THE BID RECEIPT DESK.

13. MODIFICATION OR WITHDRAWAL OF BID:

The Contractor may withdraw the Contractor's bid by submitting a written request to withdraw the bid prior to the time of the bid opening. Withdrawn bids may be resubmitted up to the time designated for the receipt of bids provided that they are then fully in conformance with these Instructions to Bidders. Bid Security shall be in an amount sufficient for the bid as modified or resubmitted. A bid may not be withdrawn, modified or canceled by the bidder for 30 days following the time and date designated for the receipt of bids. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder. Per OAR-137-047-0440

14. UNBALANCED BIDS:

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 Owner."

A bid will be considered irregular and may be rejected if the Owner determines that any of the unit prices are significantly or materially unbalanced to the potential detriment of the Owner. The Owner will place specific emphasis on its review of bids that appear to be unbalanced, as it may be to the detriment of the Owner, and other bidders who choose not to unbalance their bids. If the Owner finds that a bid is a detriment to the Owner or not in the best interest of the public, the Owner will act by rejecting all such unbalanced bids.

15. CONSIDERATION OF BIDS AND PROTEST OF INTENT TO AWARD:

The Owner shall have the right to reject any or all bids and to reject a bid not accompanied by the required Bid Security or data required by the Bidding Documents, or to reject a bid, which is in any way incomplete or irregular. The Owner shall have the right to waive any informality or irregularity in any bid received and to accept the bid which, in its judgement, is in its own best interest. All work of this project will be awarded as a single general contract to one Contractor. The contract will be awarded to the contractor whose bid best serves the interests of the City, consistent with the criteria set out in ORS 279C.414." The Owner shall consider all bids immediately after the bid opening.

The Notice of Intent to Award shall serve as notice to all Bidders that the Owner intends to award the contract.

Adversely affected or aggrieved Bidders shall have seven (7) calendar days from the date of the Notice of Intent to Award within which to file a written protest of award. Protests received after that date will not be considered. Protests must specify the grounds upon which the protest is based.

A. Protests must be emailed to Bruce St. Denis - stdenis@ci.cannon-beach.or.us and Karen La Bonte at labonte@ci.cannon-beach.or.us. Protests must comply with CBMC 2.08.160.

B. In order to be an adversely affected or aggrieved Bidder, the Bidder must claim to be eligible for award of the contract as the responsive Bidder that best serves the interests of the City, consistent with the criteria set out in ORS 279C.414 and that any and all lower Bids are ineligible to receive contract award.

C. An actual Bidder who is adversely affected or aggrieved by the award of the contract to another Bidder may protest award, in writing, within the timeline established. The written protest shall state the grounds upon which the protest is based and comply with CBMC 2.08.160(A)(2) No protest of award shall be considered after the deadline.

D. Pursuant to OAR 137-049-0260, no protest against award shall be considered because of the content of Bid Specifications, Plans, or contract Terms after the deadline established for submitting protests of Bid Specifications, Plans or Contract Terms.

The City will respond in writing to intent-to-award protests submitted by adversely-affected or aggrieved Bidders within ten (10) days. The City may also respond to intent-to-award protests submitted by other Bidders for purposes of clarification. However, any response provided by the City is not intended to, and shall not in and of itself constitute, confirmation that the bidder is, in fact, adversely affected or aggrieved, and therefore entitled to protest an intent to award, or that the protest was timely filed.

After expiration of the intent-to-award protest period, and resolution of all protests, the City will proceed with final award. (If the City receives only one Bid, the City may dispense with the intent-to-award protest period and proceed with award of a Contract).

16. SECURITY FOR FAITHFUL PERFORMANCE AND PAYMENT:

Simultaneously with delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner. Performance and Payment bonds shall be in the amount of 100% of the contract amount.

17. POWER OF ATTORNEY:

Attorneys in fact who sign bid bonds or contract bonds must file with each bond a certified and effective dated copy of their power of attorney.

18. LAWS AND REGULATIONS:

The bidder's attention is directed to the fact that all federal, state and local laws, ordinances, rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the same as though herein written out in full. All bidders shall comply with the provisions of ORS 279C.840 (Prevailing Wage Rates).

On federally funded projects, all bidders shall comply with the provisions of the Davis-Bacon Act (40 U.S.C. 276a). No bid will be considered by the Owner unless the bid contains a statement by the bidder that the provisions of ORS 279C.840 or 40 U.S.C. 276a are to be complied with. The public agency shall pay a fee to the Oregon Bureau of Labor and Industries (BOLI) in the amount of one-tenth of 1% of the contract price; however, there is a minimum fee of \$250 and a maximum fee of \$7,500.

19. BID DURATION

The contractor shall provide and maintain their bid prices for 30 days after bid opening. The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 calendar days after the scheduled closing date for receiving bids.

20. EXECUTION OF CONTRACT:

The party to whom the contract is awarded will be required to execute the Contract and obtain the performance bond, payment bond and required insurance within 10 calendar days from the date when Notice of Award is delivered to the bidder. The Notice of Award shall be accompanied by the necessary Contract and bond forms. In case of failure of the bidder to execute the Contract, the Owner may at the Owner's option consider the bidder in default, in which case the Bid Security accompanying the bid shall become the property of the Owner. The Owner within 10 days of receipt of acceptable performance bond, payment bond and Contract signed by the party to whom the Contract was awarded shall sign the Contract and return to such party an executed duplicate of the Contract and a written Notice to Proceed. Should the Owner not execute the Contract and issue a written Notice to Proceed within such period, the bidder may by written notice withdraw the bidders signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

The notice to proceed shall be issued within 10 days of the execution of the contract by the owner. Should there be reasons why the notice to proceed cannot be issued within such period, the time may be extended by mutual agreement between the owner and contractor. If the notice to proceed has not been issued within the 10-day period or within the period mutually agreed upon, the contractor may terminate the contract without further liability on the part of either party.

For state funded projects, the durations for contracting may be extended in order to meet the requirements for agency reviews.

END OF SECTION

**SECTION 00 21 13.10
SUBSTITUTION REQUEST FORM**

ATTENTION:

PROJECT NAME: CANNON BEACH E. HARRISON WATER LINE REPLACEMENT

Date Submitted:

Submitted By: _____ **On behalf of:** _____
Proposer of Substitution Contractor (required if post bid)

We hereby submit for consideration, the following product instead of the specified item for above project:

SECTION	PARAGRAPH	SPECIFIED ITEM
Proposed Substitution:		

If requesting after issuance of Contractor's Notice to Proceed, State reason for request:

Attach complete dimensional information and technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and Specifications which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that specified. Clearly mark Manufacturer's literature to indicate equality or equivalence in performance. Indicate differences in quality of materials and construction.

Fill in blanks below: *(please note – failure to provide a complete and thorough answer to any of the questions below will result in rejection of request. A response of Not Applicable, will also be result in rejection).*

A. Does the substitution affect dimensions shown on Drawings: Yes / No <i>If yes, clearly indicate changes:</i>
B. What effect does substitution have on other trades, other Contracts, and contract completion date?
C. What effect does substitution have on applicable code requirements?
D. Differences between proposed substitution and specified item:
E. Manufacturer's warranties of the proposed and specified items are: Same / Different (explain)
F. List of names and addresses of 3 similar projects on which product was used, date of installation, and A/E's name and address: <i>(Attach list with requested information)</i>
G. Cost impact:
H. Has the submitter informed the Contractor of all changes or impacts to other trades and construction, and have all potential costs impacts have been fully addressed without any cost impact to the Owner? Yes / No

**CERTIFICATION OF EQUAL OR EQUIVALENT PERFORMANCE AND ASSUMPTION OF LIABILITY FOR
EQUAL OR EQUIVALENT PERFORMANCE:**

The contractor shall certify that the substitution requested meets the performance conditions and requirements listed in the contract documents.

The undersigned agrees to pay for costs associated with changes to the project design, including engineering and detailing caused by the requested substitution.

(Signature must be by person having authority to legally bind the Contractor/Subcontractor/Supplier to the above terms)

Signature Printed Name

Firm

Address

Telephone E-mail

For Use by A/E

Remarks:

_____ Accepted _____ Not Accepted _____ Accepted as Noted _____ Received Too Late

For Use by DES PM:

_____ Accepted _____ Not Accepted _____ Accepted as Noted _____ Received Too Late

Other Comments:

**SECTION 00 31 00
AVAILABLE PROJECT INFORMATION**

PART 1 GENERAL

1.01 EXISTING CONDITIONS

- A. Existing conditions are as shown in the plans, based on information gathered from city documents.

1.02 PROJECT FINANCIAL INFORMATION

- A. This project is funded through local funding sources.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 OBTAINMENT OF PERMITS

- A. Owner will obtain the following permits, at no cost to the Contractor; the contractor will provide the necessary information to complete all applications for permits. Costs will be included in other bid items within the contract:
 - 1. Necessary city development permits (Type 2 permit).

END OF SECTION

SECTION 00 41 00
BID FORM

BID OF _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of Oregon, doing business as _____. (Insert "a joint venture", "a corporation", "a partnership" or "an individual" as applicable.)

To City of Cannon Beach [hereinafter called "OWNER"]

1. The undersigned Bidder, in compliance with your invitation for bids, including the ADVERTISEMENT FOR BIDS and the INSTRUCTIONS TO BIDDERS, for

PROJECT NAME: **Cannon Beach E. Harrison Water Line Replacement**

having examined the plans and specifications with related documents and having examined the site of the project work, and being familiar with all the conditions pertaining to the construction of the project, hereby offers to furnish all labor, materials, equipment and supplies necessary to construct the project in accordance with the contract documents within the time set forth therein, and at the unit prices stated below. The prices are to cover all the costs connected with performing the work required under the contract documents, of which this bid is a part.

2. The Bidder submits the unit prices set forth herein as those at which the Bidder will perform the work involved. The extensions in the column headed "Total" are made for the sole purpose of facilitating comparison of bids and if there are any discrepancies between the unit prices and the total amounts shown, the unit prices shall govern.

3. The Bidder certifies, under penalty of perjury, by the submission of this bid, that all requirements of ORS 279C.838-840 (Prevailing Wage Rate Laws) will be complied with throughout the course of this contract. The Bidder further certifies, under penalty of perjury, that the Bidder is a resident bidder, as defined by ORS 279A.120 (1)(b), of the State of Oregon. The Bidder further certifies, under penalty of perjury, that the Bidder is, to the best of the Bidder's knowledge, not in violation of any tax laws described in ORS 305.380 (4).

4. The Bidder acknowledges receipt of the following Addenda numbered _____ through _____. The Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of bid security. The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing date for receiving bids.

5. The Bidder agrees to comply with all the federal, state and local laws, ordinances, rules and regulations that are pertinent to construction contracts of this character even though such laws may not have been quoted or referred to in the contract documents.

6. Upon receipt of written Notice of Award, Bidder will execute the Contract attached within 10 calendar days and deliver a Surety Bond or Bonds as required by the contract documents. The Bid Security accompanying this bid is to become the property of the Owner in the event the contract and bonds are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

7. The Bidder agrees to commence work under this contract within 10 calendar days after issuance to the Bidder of written Notice to Proceed by the Owner. The Bidder agrees to substantially complete the project on or before the dates indicated in Section 2 of the Contract, with such extensions of time as are provided in the General Conditions. The Bidder accepts the provisions of the Contract regarding liquidated damages (Section 20 of the General Conditions of the Agreement) in the event of failure to complete the work of the project on or before the dates or of the Contract, with such extensions of time as are provided in the General Conditions.

8. The Bidder declares that the only persons or parties interested in this bid are those named herein, that this bid is in all respects fair and without fraud, and that it is made without collusion with any other bidder and without collusion with any representatives of the Owner. The Bidder hereby represents that no employee of the Owner, or any partnership or corporation in which an employee of the Owner has an interest, has or will receive any remuneration of any description from the Bidder, either directly or indirectly, in connection, except as specifically declared in writing.

9. The Bidder certifies that the Bidder has not discriminated against minority, women or emerging small business enterprises in obtaining any required subcontracts.

10. The Bidder will complete the work for the following prices in accordance with the Schedule of Contract Prices as follows:

SCHEDULE OF CONTRACT PRICES

Item	Description	Estimated Quantity	Unit	Unit Price Dollars/Cents	Total Price Dollars/Cents
1.	Mobilization	1	LS	\$	\$
2.	Traffic Control	1	LS	\$	\$
3.	Erosion Control and Spill Control Measures	1	LS	\$	\$
4.	Sawcut Pavement	1200	LF	\$	\$
5.	Remove Pavement	1	LS	\$	\$
6.	Verify or Cap abandoned 2" watermain.	2	EA	\$	\$
7.	Connect to Existing Sanitary Structure	1	EA	\$	\$
8.	4-inch PVC Sanitary Sewer including trench excavation, Imported Granular Backfill, Cap, fittings, locate wire and warning tape, and Surface Restoration, Complete-In-Place.	35	LF	\$	\$
9.	8-inch HDPE Watermain including trench excavation and disposal, Imported Granular Backfill, CLSM, locate wire, warning tape and surfacing rock, Complete-In-Place.	375	LF	\$	\$
10.	Std. 1-INCH Water Service w/Reconnect, Complete-In-Place.	12	EA	\$	\$
11.	Std. 1-INCH Water Service w/Meter Box installation (meter set by City)	1	EA	\$	\$
12.	S. Elm St. Connection and Fittings, Complete-In-Place.	1	EA	\$	\$
13.	S. Spruce St. Connection and Fittings, Complete-In-Place.	1	EA	\$	\$
14.	Provide and install one complete Fire Hydrant assembly, Complete-In-Place.	1	EA	\$	\$
15.	Trench Restoration Paving	575	LF	\$	\$
16.	Removal and Replacement of Unsuitable Material	5	CY	\$	\$
17.	Disinfection and testing	1	LS	\$	\$
Computed Total for Base Bid:					\$

The following documents are attached to and made a condition of this bid:

- A. The required Bid Security enclosed with the Bid Form
- B. The First-Tier Subcontractor Disclosure Form submitted in a separate envelope within two hours after the date and time of the bid opening.
- C. The Bidder Responsibility Information Form.

Respectfully Submitted,

Name of Firm _____

Address _____

Federal Employer I.D. No. _____

State Employer I.D. No. _____

State C.C.B. Registration No. _____

Telephone _____

Fax No. _____

By:

Name _____

(Signature)

Title _____

(Please Print)

If Corporation, Attest _____

(Secretary of Corporation)

Dated this _____ day of _____, 2023

END OF SECTION

**SECTION 00 41 10
BIDDERS RESPONSIBILITY INFORMATION FORM**

FAILURE TO SUBMIT THIS FORM WITH BID PROPOSAL PACKET WILL RESULT IN A NON-RESPONSIVE BID

INSTRUCTIONS

1. The information provided in this form is part of The City of Cannon Beach inquiry concerning bidder responsibility. Please print clearly or type. If you need more space, use plain paper.
2. Answer all questions. Submission of a form with unanswered questions, incomplete or illegible answers may result in a determination that your bid is non-responsive.
3. Sign and submit the completed bidder responsibility form with bid proposal.

BIDDER NAME : _____ CCB #: _____

1. **EXPERIENCE:** List the number of years Bidder has been operating its business under its current license. If Bidder's business has been in continuous existence under a current active license and a previous license number, then identify the previous license number. List and briefly describe a minimum of 3 similar projects performed by Bidder in the past 5 years that best characterize Bidder's capabilities. Include relevant data such as the type of work involved and project dates and total contract value. Describe how Bidder meets this experience requirement (use separate sheet if additional space is needed):

2. **LAWSUITS/JUDGMENTS:** Within the past 5 years, has Bidder had any lawsuits filed against it involving contract disputes? For the purposes of this request, "lawsuits" include requests for arbitration and "judgments" includes arbitration awards. **YES / NO** If "YES" indicate dates and ultimate resolution of suit (with regard to judgments, include jurisdiction and date of final judgment or dismissal):

3. **BANKRUPTCY:** Within the past 36 months, has Bidder filed a bankruptcy action, filed for reorganization, made a general assignment of assets for the benefit of creditors, or had an action for insolvency instituted against it? **YES / NO** If "YES" supply filing dates, jurisdictions, type of action, ultimate resolution, and dates of judgment or dismissal, if applicable:

4. LAWSUITS BY CREDITORS: Within the past 24 months, has Bidder had any lawsuits filed against it by creditors? **YES / NO** If "YES" indicate dates and ultimate resolution of suit (with regard to judgments include jurisdiction and date of final judgment or dismissal):

5. ABILITY TO PERFORM WITHIN TIME SPECIFIED: List the project titles, original contract time and change order extensions for three specific projects in the past three (3) years. Bidder shall document that it achieved substantial completion of such three projects of similar size and scope within no more than 105% of the final contracted time for completion (including change ordered adjustments).

6. PROJECTS EXCEEDING COMPLETION DATES: In the past five (5) years, list the number of project and the titles of those projects where Bidder has exceeded the contracted time for substantial completion or exceeded the contracted time for final completion.

7. DEFECTIVE WORK. In the past ten (10) years has your company been ordered to fix defective work on a project? **YES / NO** If "YES," identify the owner, the project and the resolution of the problem.

8. DEBARMENT: Has Bidder been debarred or disqualified by any public agency within the past two (2) years? **YES / NO** If "YES" identify the public agencies:

9. NON-COMPLETION: Has Bidder failed to complete a contract in the last five (5) years? **YES / NO** If "YES" identify the project(s):

10. COMPLETION BY SURETY: Has Bidder ever defaulted on a contract forcing a surety to suffer a loss? **YES / NO** If "YES" identify the project(s):

11. SUSPENSION, DISMISSAL, DEFAULT: Has Bidder been suspended, dismissed or declared in default on a project during the last five (5) years? **YES / NO** If "YES" identify the project(s) and the type of action taken against Bidder:

12. BONDABILITY REQUIREMENT: For the project described under this ITB, Bidder is able to and will obtain a payment bond and a performance bond issued by a surety that is authorized to transact surety business in the State of Oregon and that has an AMBest "A" or better rating. **YES / NO** If "YES" identify name of surety, contact name, address, phone number, & email address:

13. LIENS AND SURETY CLAIMS: Have there been any liens or surety claims against Bidder on any contracts which have been performed or are in the course of being performed? **YES / NO** If "YES" identify the project and explain the nature of the claims:

14. REVOKED LICENSE: Has Bidder's company or any key person in the company, had a license revoked by the Oregon Construction Contractors Board? **YES / NO** If "YES" explain the underlying reason for the revocation of the license:

15. CRIMINAL OFFENSE: Has Bidder's company or any owner of or management employee in the company been convicted of a crime involving fraud, material misrepresentation or any crime involving the awarding of a contract for a government construction project or the bidding or performance of a government contract? **YES / NO**

16. DEMAND ON PERFORMANCE BOND: In the last five years, has an owner ever made a demand on your performance bond? **YES / NO**

17. TERMINATION OF BONDING/INSURANCE COVERAGE: In the last five years, has a surety or insurance company terminated existing bonding and/or insurance coverage due to excessive claims history and/or nonpayment of premiums? **YES / NO**

18. CITATIONS OR ENFORCEMENT ACTIONS. Within the last five years, has the Bidder been cited or subject to any enforcement action for violation of any applicable law or regulations related to its performance of a prior construction contract? For the purposes of this section, "applicable law or regulations" includes without limitation, any building, zoning, environmental, site development, or Oregon Public Contracting Code regulations with which a prior project was required to comply, including non-discrimination regulations and prevailing wage requirements. **YES / NO** If "YES", please state the date, nature, and final resolution of every such citation or enforcement action:

19. BONDING. What is the largest contract you have had bonded through the surety company named in Question #12 above? Please identify the project name, the nature of the project, the date of the project and the original contract price:

BIDDER REFERENCES FOR COMPARABLE PROJECTS IN SIZE AND SCOPE

Bidder shall provide a list of three different project references with their Bid that can be contacted regarding the quality of workmanship and service that the Bidder provided on projects of comparable size and scope within the past 5 years. Bidder must provide all information requested below and may use either the form provided in this section or their own form. The City of Cannon Beach reserves the right to contact other persons, agencies or owners not listed below as part of determining whether Bidder is responsible.

PROJECT REFERENCE #1
NAME AND DATES OF PROJECT:
PROJECT LOCATION:
PROJECT DESCRIPTION:
CONTACT PERSON #1 NAME:
CONTACT PERSON #1 FIRM NAME:
CONTACT PERSON #1 PHONE:
CONTACT PERSON #2 NAME:
CONTACT PERSON #2 FIRM NAME:
CONTACT PERSON #2 PHONE:

PROJECT REFERENCE #2
NAME AND DATES OF PROJECT:
PROJECT LOCATION:
PROJECT DESCRIPTION:
CONTACT PERSON #1 NAME:
CONTACT PERSON #1 FIRM NAME:
CONTACT PERSON #1 PHONE:
CONTACT PERSON #2 NAME:
CONTACT PERSON #2 FIRM NAME:
CONTACT PERSON #2 PHONE:
PROJECT REFERENCE #3
NAME AND DATES OF PROJECT:
PROJECT LOCATION:
PROJECT DESCRIPTION:
CONTACT PERSON #1 NAME:
CONTACT PERSON #1 FIRM NAME:
CONTACT PERSON #1 PHONE:
CONTACT PERSON #2 NAME:
CONTACT PERSON #2 FIRM NAME:
CONTACT PERSON #2 PHONE:

END OF SECTION

**SECTION 00 41 20
BID BOND**

We, _____, as "Principal,"

(Name of Principal)

and _____, a _____ Corporation,

(Name of Surety)

authorized to transact Surety business in Oregon, as "Surety," hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns to pay unto the City of Cannon Beach ("Obligee") the sum of (\$_____)

_____ dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its bid to an agency of the Obligee in response to Obligee's project identified as:

CANNON BEACH _____ PROJECT, which bid is made a part of this bond by reference, and Principal is required to furnish bid security in an amount equal to five (5%) percent of the total amount of the bid pursuant to ORS 279C.365 (5) and the procurement document.

NOW, THEREFORE, if the bid submitted by Principal is accepted, and if a contract pursuant to the bid is awarded to Principal, and if Principal enters into and executes such contract within the time specified in the procurement document and executes and delivers to Obligee its good and sufficient performance and payment bonds required by Obligee within the time fixed by Obligee, then this obligation shall be void; otherwise, it shall remain in force and effect.

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly

authorized legal representatives this _____ day of _____, 2023.

PRINCIPAL: _____ SURETY: _____

By _____ BY ATTORNEY-IN-FACT: _____

Signature

Official Capacity

Name

Attest: _____

Corporation Secretary

Signature

Address

City

State

Zip

Phone

Fax

END OF SECTION

**SECTION 00 41 21
PAYMENT BOND EXAMPLE**

Bond No. _____

Solicitation _____

Project Name: Cannon Beach E. Harrison Water Line Replacement

_____ (Surety #1) Bond Amount No. 1: \$ _____

_____ (Surety #2)* Bond Amount No. 2:* \$ _____

* *If using multiple sureties* Total Penal Sum of Bond: \$ _____

We, _____, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the City of Hood River the sum of (Total Penal Sum of Bond) _____

(Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the City of Cannon Beach, the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the City of Cannon Beach, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment

Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the State on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Cannon Beach obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this _____ day of _____, 20____.

PRINCIPAL: _____

By: _____
Signature

Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

Name

Signature

Address

City State Zip

Phone Fax

SECTION 00 41 22
PERFORMANCE BOND EXAMPLE

Bond No.: _____

Solicitation: _____

Project Name: Cannon Beach E. Harrison Water Line Replacement

_____ (Surety #1) Bond Amount No. 1: \$ _____

_____ (Surety #2)* Bond Amount No. 2:* \$ _____

** If using multiple sureties* Total Penal Sum of Bond: \$ _____

We, _____ as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the City of Cannon Beach the sum of (Total Penal Sum of _____ Bond)

(Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the City of Cannon Beach, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the City of Hood River, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Cannon Beach, or the above-referenced agency(ies), be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this _____ day of _____, 20_____.

PRINCIPAL: _____

By: _____
Signature

Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

Name

Signature

Address

City State Zip

Phone Fax

**SECTION 00 41 30
BIDDER'S WARRANTY**

By the act of submitting a bid for the proposed contract, the bidder warrants that:

The bidder and all subcontractors he/she intends to use have carefully and thoroughly reviewed the drawings, specifications and other bid documents and have found them to be complete and free from ambiguities and sufficient for the purpose intended; further that,

The bidder and all workmen, employees, and subcontractors he/she intends to use are skilled and experienced in the type of construction represented by the contract documents bid upon; further that,

Neither the bidder nor any of his/her employees, agents, intended suppliers, or subcontractors have relied upon any verbal representations allegedly authorized or unauthorized from the owner, his/her employees or agents including architects, engineers or consultants, in assembling the bid figure; and further that,

The bid figure is based solely upon the bid documents and properly issued written addenda and not upon any other written representation.

DATED: _____, 20____

NAME OF BIDDER: _____

BY: _____

TITLE: _____

END OF SECTION

**SECTION 00 41 40
BIDDER'S CERTIFICATIONS**

THIS CERTIFICATION MUST BE SIGNED IN INK BY AN AUTHORIZED REPRESENTATIVE OF THE BIDDER; ANY ALTERATIONS OR ERASURES TO THIS FORM BID MUST BE INITIALED IN INK BY THE UNDERSIGNED AUTHORIZED REPRESENTATIVE.

THE UNDERSIGNED ACKNOWLEDGES, ATTESTS AND CERTIFIES INDIVIDUALLY AND ON BEHALF OF THE BIDDER THAT:

1. He/she is a duly authorized representative of the Bidder, has been authorized by Bidder to make all representations, attestations, and certifications contained in this Bid and all Bid Documents.
2. Bidder, acting through its authorized representatives, has read and understands all Bid instructions, Specifications, Plans, terms and conditions contained in the Bid Documents (including all addenda, if any, issued).
3. The Bid submitted is in response to the specific language contained in the Bidding Documents, and Bidder has made no assumptions based upon either (a) verbal or written statements not contained in the Bidding Documents, or (b) any previously-issued ITB, if any.
4. The City is not liable for any claims or be subject to any defenses asserted by Bidder based upon, resulting from, or related to, Bidders failure to comprehend all requirements of the Bidding Documents.
5. The City is not liable for any expenses incurred by Bidder in preparing and submitting its Offer or in participating in the Offer evaluation/selection process.
6. The Offer was prepared independently from all other Bidders, and without collusion, fraud, or other dishonesty.
7. Bidder is bound by and will comply with all requirements, Specifications, Plans, terms and conditions contained in this Bid and the Bid Documents (including all addenda, if any, issued).
8. Bidder will furnish the designated item(s) and/or service(s) in accordance with the Bid Specifications, Plans and requirements, and will comply in all respects with the terms of the resulting Contract upon award; and
9. Bidder represents and warrants that Bidder has the power and authority to enter into and perform the Contract and that the Contract, when executed and delivered, shall be a valid and binding obligation of Contractor enforceable in accordance with its terms.
10. Bidder certifies that Bidder is authorized to act on behalf of Contractor in this matter, and attests under penalty of perjury that:

Contractor has not and will not discriminate against minority, women or emerging small business enterprises in obtaining any required subcontracts.

Contractor will not accept a Bid or Bids from sub-contractors to perform work as described in ORS 701.005 under the Contract unless the sub-contractors are registered with the Construction Contractor's Board in accordance with ORS 701.035 to 701.055 at the time they submit their Bid or Bids to the Bidder.

Contractor is not in violation of any Oregon Tax Laws. For purposes of this certification, "Oregon tax laws" are those tax laws listed in ORS 305.380(4), namely ORS Chapters 118, 314, 316, 317, 318, 320, 321 and 323 and Sections 10 to 20, Chapter 533, Oregon Laws 1981, as amended by Chapter 16, Oregon Laws 1982 (first special session); the elderly rental assistance program under ORS 310.630 to 310.706; and any local tax laws administered by the Oregon Department of Revenue under ORS 305.620.

Contractor agrees to be bound by and comply with ORS 279C.838 or ORS 279C.840 or 40 U.S.C. 276a, and all applicable requirements of ORS 279C.800 through ORS 279C.870, and the administrative rules of the Bureau of Labor and Industries (BOLI) regarding prevailing wage rates, maximum hours of labor, and payment of a fee to BOLI.

AUTHORIZED SIGNATURE: _____

TITLE: _____

FEIN ID# OR SSN# (REQUIRED): _____

CONTACT PERSON (TYPE OR PRINT): _____

TELEPHONE NUMBER
(____) _____

FAX NUMBER:
(____) _____

END OF SECTION

**SECTION 00 41 50
FIRST TIER SUBCONTRACTOR DISCLOSURE FORM**

(OAR 137-049-0360)

BIDS WHICH ARE SUBMITTED BY BID CLOSING, BUT FOR WHICH A REQUIRED DISCLOSURE SUBMITTAL HAS NOT BEEN MADE BY THE SPECIFIED DISCLOSURE DEADLINE, ARE NOT RESPONSIVE AND SHALL NOT BE CONSIDERED FOR CONTRACT AWARD

AGENCY SUPPLIED INFORMATION:

PROJECT NAME: **CANNON BEACH E. HARRISON WATER LINE REPLACEMENT**

BID DATE: _____ **TIME: 2:00 PM**

DISCLOSURE DEADLINE DATE: _____ **TIME: 4:00 PM**

DELIVER FORM TO: CITY OF CANNON BEACH

RECIPIENT: TESSA SCHUTT PHONE #: (503) 436-8048
163 E Gower/PO Box 368, Cannon Beach, OR 97110

INSTRUCTIONS:

The contracting agency will insert "N/A" above if the contract value is not anticipated to exceed \$100,000. Otherwise, this form must be submitted either with the bid or within two (2) working hours after the advertised bid closing date and time; but no later than the DISCLOSURE DEADLINE stated above.

UNLESS OTHERWISE STATED IN THE SOLICITATION, THIS DOCUMENT SHALL NOT BE SUBMITTED BY FACSIMILE. IT IS THE RESPONSIBILITY OF BIDDERS TO SUBMIT THIS DISCLOSURE FORM AND ANY ADDITIONAL SHEETS, WITH THE BID NUMBER AND PROJECT NAME CLEARLY MARKED, AT THE LOCATION INDICATED BY THE SPECIFIED DISCLOSURE DEADLINE. SEE "INSTRUCTIONS TO BIDDERS".

List below the Name, Category of Work add Dollar Value for each first-tier subcontractor that would be furnishing labor, or labor and material, for which disclosure is required. Enter the word "NONE" if there are no first-tier subcontractors subject to disclosure.

ATTACH ADDITIONAL SHEETS IF NECESSARY.

BIDDER DISCLOSURE:

	SUBCONTRACTOR NAME	CATEGORY OF WORK	DOLLAR VALUE
1			
2			
3			
4			
5			

The above listed first-tier subcontractor(s) are providing labor, or labor and material, with a Dollar Value equal to or greater than:

A) 5% OF THE TOTAL CONTRACT PRICE, BUT AT LEAST \$15,000. [IF THE DOLLAR VALUE IS LESS THAN \$15,000 DO NOT LIST THE SUBCONTRACTOR ABOVE.]

OR

B) \$350,000 REGARDLESS OF THE PERCENTAGE OF THE TOTAL CONTRACT PRICE.

FORM SUBMITTED BY

(BIDDER NAME): _____

CONTACT NAME: _____ PHONE #: _____

END OF SECTION

**SECTION 00 41 60
CERTIFICATE OF NON-COLLUSION**

CITY OF CANNON BEACH, OREGON

FOR PROJECT: **E. HARRISON WATER LINE REPLACEMENT**

BIDDERS FIRM NAME: _____

I, THE UNDERSIGNED, AS (CIRCLE ONE):

Sole Owner

A Partner

Officer of the Foregoing Corporation

Agent of the Above Bidder

BEING FIRST DULY SWORN ON OATH, DEPOSE AND SAY:

That the attached bid has been arrived at by the bidder, independently, and has been submitted without collusion with, and without any agreement, understanding or planned course of action with, any other contractor, bidder, or vendor on materials, supplies, equipment or services, described in the invitation to bid, designed to limit independent bidding or competition.

The contents of the bid herein presented and made have not been communicated by the bidder or their employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid and will not be communicated to any such person prior to the official opening of the bid.

I have fully informed myself regarding the accuracy of the foregoing statements, and the same are made by me based on my personal information.

I have read and understand the bid booklet and the specifications for the attached Bid.

SIGNATURE: _____

TITLE: _____

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____, 20____

MY COMMISSION EXPIRES: _____

NOTARY PUBLIC FOR OREGON

END OF SECTION

**SECTION 00 41 70
CONTRACTOR'S CERTIFICATION REGARDING DRUG TESTING PROGRAM**

(1) Pursuant to ORS 279c.505(2), contractor certifies by its signature on this document that it has a qualifying drug testing program in place for its employees that includes, at a minimum, the following:

- (a) a written employee drug testing policy,
- (b) required drug testing for all new subject employees or, alternatively, required testing of all subject employees every 12 months on a random selection basis, and
- (c) required testing of a subject employee when the contractor has reasonable cause to believe the subject employee is under the influence of drugs.

(2) A drug testing program that meets the above requirements will be deemed a "qualifying employee drug testing program." an employee is a "subject employee" only if that employee will be working on the project job site.

(3) Contractor agrees that by signing this certification it represents and warrants to the city that its qualifying employee drug testing program is in place and will continue in full force and effect for the duration of the contract. The city's performance obligation (which includes, without limitation, the city's obligation to make payment) shall be contingent on contractor's compliance with this representation and warranty.

(4) Contractor also agrees that, as a condition to city's performance obligation (which includes, without limitation, the city's obligation to make payment), contractor shall require each subcontractor providing labor for the project to:

- (a) demonstrate to the contractor that it has a qualifying employee drug testing program for the subcontractor's subject employees, and represent and warrant to the contractor that the qualifying employee drug testing program is in place at the time of subcontract execution and will continue in full force and effect for the duration of the subcontract; or
- (b) require that the subcontractor's subject employees participate in the contractor's qualifying employee drug testing program for the duration of the subcontract.

CONTRACTOR

FIRM NAME: _____

BY: _____

NAME: _____

(Corporate Officer, Title)

DATE: _____

END OF SECTION

**SECTION 00 41 80
EXAMPLE PUBLIC IMPROVEMENT CONTRACT**

BETWEEN

CITY OF CANNON BEACH, OREGON

AND

CONTRACTOR NAME _____

CONTRACT NO. _____

THIS PUBLIC IMPROVEMENT CONTRACT ("CONTRACT") IS MADE BY AND BETWEEN THE CITY OF CANNON BEACH, A MUNICIPAL CORPORATION OF THE STATE OF OREGON ("CITY"), AND _____ ("CONTRACTOR LEGAL NAME") TO PROVIDE CONSTRUCTION SERVICES ON THE FOLLOWING PROJECT.

PROJECT NAME: _____

("PROJECT"), SERVICES DESCRIPTION:

THE PARTIES AGREE AS FOLLOWS:

1. WORK.

Contractor shall execute fully the Work described by the Contract Documents, unless specifically indicated in the Contract Documents to be the responsibility of others. "Work" means the construction and any related services required by or reasonably inferable from the Contract Documents, whether completed or partially completed, including (except as otherwise expressly stated in this Contract) all other labor, materials, equipment, tools, permits, fees, licenses, facilities, taxes, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to fulfill Contractor's duties by executing and completing this Contract within the Contract Time. The Work may constitute the whole or a part of the Project.

2. EFFECTIVE DATE AND TERMINATION DATE.

The effective date of this Contract shall be the Contract Start Date identified in section 2.1. or the date on which each Party has signed this Contract, whichever is later. Unless earlier terminated as provided below, the termination date shall be the Contract End Date, subject to extension as provided in the Contract Documents.

OFFER AND CONTRACT DATES

2.1. Contract Start Date: _____

“WORK” TIME DATES

2.2. Anticipated Notice to Proceed Date: _____

2.3. Anticipated Substantial Completion Date: _____

2.4. Anticipated Final Completion Date: _____

2.5. Contract End Date: _____

PLEASE NOTE: CONTRACTOR SHALL NOT COMMENCE WORK UNDER THIS CONTRACT UNTIL THE NOTICE TO PROCEED HAS BEEN ISSUED.

3. ENUMERATION OF CONTRACT DOCUMENTS.

THE “CONTRACT DOCUMENTS” INCLUDE THE FOLLOWING:

This Contract with these Terms and Conditions.

EXHIBIT A 00 72 00: City's General Conditions to the Contract

EXHIBIT B: 00 72 10: Insurance Requirements

EXHIBIT C: 00 72 20: BOLI Prevailing Wage Rates: Current Prevailing Wage Rate Book

EXHIBIT D: Contractor Proposal

EXHIBIT E: Project Manual

EXHIBIT F: Drawings

EXHIBIT G: Addenda

4. CONTRACT; CONTRACT DOCUMENTS; ENTIRE AGREEMENT.

This Contract and the other Contract Documents form the entire and integrated agreement between the parties. Unless the context requires otherwise, any reference to the “Contract” includes the Contract Documents.

5. THE CONTRACT TIME.

Contractor shall achieve Substantial Completion of the Work under this Contract within the completion date specified in City's Notice to Proceed, subject to adjustments of this Contract Time as provided in the Contract Documents.

6. THE CONTRACT TOTAL.

6.1 The Contract Total is \$ _____. (Enter total maximum contract value including reimbursable expenses). The Contract Total is the total amount payable by the City to Contractor for the completion of the Work in its entirety under the Contract Documents.

6.2 Unit prices, if any. List or refer to Exhibit.

6.3 Allowances included in the Contract Total, if any: List or refer to Exhibit.

6.4 Notwithstanding any other provision of this Contract or the Contract Documents, the Contract Total includes all construction contingencies for existing site conditions other than for pre-existing Hazardous Materials. Contractor is thoroughly acquainted with and has inspected the Project site without restriction, understands the potential risks in this construction Work, and accepts the full risk of construction contingencies to complete the Work within the Contract Time and Contract Total set out in this Contract.

7. PROGRESS PAYMENTS.

7.1 The Contractor will submit an application for payment to the City Representative as provided in the General Conditions.

7.2 Each application for payment shall be for one calendar month ending on the last day of the month.

7.3 Payments are due and payable 30 days following receipt of the Contractor's complete Application for Payment or 15 days from the date after payment is approved by the City Representative, whichever is earlier. Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate set forth in ORS 279C.570(2).

7.4 The amount of each progress payment shall be determined as provided in the General Conditions, less retainage of 5% pursuant to ORS 279C.550 to 279C.565, ORS 701.420 and 701.430, and less liquidated damages, if any.

7.5 Unless otherwise specified in the Contract Documents, Contractor elects to have the City deposit the retainage as accumulated in an interest-bearing account in a bank, savings bank, trust company, or savings association as outlined in ORS 279C.560(5), OAR 125-249-0820(3), and COH-049-0820(3), from which earnings on such account shall accrue to the Contractor.

8. INDEPENDENT CONTRACTOR STATUS.

By its signature on this contract, Contractor certifies that the service or services to be performed under this Contract are those of an independent contractor as defined in ORS 670.600, and that Contractor is solely responsible for the work performed under this Contract. Contractor represents and warrants that Contractor, its subcontractors, employees, and agents are not "officers, agents, or employees" of the City within the meaning of the Oregon Tort Claims Act (ORS 30.260 through 30.300). Contractor shall be responsible for all federal, state, and local taxes and any and all fees applicable to payments for services under this Contract.

9. REQUEST FOR TAXPAYER IDENTIFICATION NUMBER.

Contractor must be a current vendor with the City or must submit a completed "Request for Taxpayer Identification Number and Certification" (Form W-9) with this signed Contract. Payment information will be reported to the Internal Revenue Service under the name and TIN or SSN provided by Contractor. Contractor shall be responsible for all federal, state, and local taxes and any fees applicable to payments for Work under this Contract.

10. COMPLIANCE WITH APPLICABLE LAW.

Contractor shall comply with all federal, state, and local laws applicable to the Work under this Contract, and all regulations and administrative rules established pursuant to those laws, including without limitation, the following requirements of the Oregon Public Contract Code:

10.1 ORS 279A.110 (Non-discrimination Certification): Contractor shall certify that Contractor has not discriminated and will not discriminate against a Subcontractor in the awarding of a subcontract because the Subcontractor is a minority, women, or emerging small business enterprise (certified under ORS 200.055.), or a business that is owned or controlled by, or employs a disabled veteran (as defined in ORS 408.225).

10.2 ORS 279C.380 (Performance and Payment Bonds): Unless exempted by the City in writing pursuant to the City's local public contracting rules, prior to starting work under this Contract, Contractor or its Subcontractor shall execute and deliver to City a good and sufficient performance bond, in a form acceptable to City, in a sum equal to 100% of the construction portion of the Contract Price, and Contractor or its Subcontractor shall execute and deliver to City a good and sufficient payment bond, in a form acceptable to City, in a sum equal to 100% of the construction portion of the Contract Price, solely for the protection of claimants under ORS 279C.600.

10.3 ORS 279C.505 (Prompt Pay Requirement, Liens, Taxes, and Drug Testing): Contractor shall make payment promptly, as due, to all persons supplying to such Contractor labor or material for the performance of the Work provided for in such Contract; pay all contributions or amounts due the Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract; not permit any lien or claim to be filed or prosecuted against the state or a county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished; and pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167. Contractor shall further demonstrate that an employee drug testing program is in place.

10.4 ORS 279C.510 (Recycling/Composting): If this Contract includes demolition work, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective. If this Contract includes lawn or landscape maintenance, the Contractor shall compost or mulch yard waste material at an approved site, if feasible and cost-effective.

10.5 ORS 279C.515 (Failure to Pay Promptly): If Contractor fails, neglects, or refuses to make prompt payment of any Claim for labor or services furnished to the Contractor or a Subcontractor by any person in connection with this Contract as such Claim becomes due, the City may pay such Claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due the Contractor by reason of this Contract. The payment of a Claim in the manner authorized in this section shall not relieve the Contractor or the Contractor's surety from any obligation with respect to any unpaid Claims. Unless the payment is subject to a good-faith dispute as defined in ORS 279C.580, if Contractor or any first-tier Subcontractor fails to pay any Claim for materials or labor furnished under this Contract within 30 days after being paid by City, interest shall be due on such claim as specified in ORS 279C.515(2) at the end of the 10-day period that payment is due under ORS 279C.580(4). A person with any such unpaid

Claim may file a complaint with the Construction Contractor's Board unless the complaint is subject to a good-faith dispute as defined in ORS 279C.580.

10.6 ORS 279C.515(3) (Right to File Complaint): If the Contractor or a Subcontractor fails, neglects or refuses to pay a person that provides labor or materials in connection with the Contract, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580.

10.7 ORS 279C.520 and 279C.540 (Hours of Labor, Holidays, and Overtime): Except as otherwise provided in an applicable collective bargaining agreement with a labor organization, Contractor shall not employ and shall require that its Subcontractors not employ any person to perform construction work for more than ten hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases, except in cases of Contracts for personal services as defined in ORS 279A.055, the laborer shall be paid at least time and a half pay:

10.7.1 For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; and

10.7.2 For all overtime in excess of ten hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and

10.7.3 For work performed on Saturday and on any legal holiday specified in any applicable collective bargaining agreement or ORS 279C.540(1)(b).

10.7.4 The requirement to pay at least time and a half for all overtime worked in excess of 40 hours in any one week shall not apply to individuals who are excluded under ORS 653.010 to 653.261 or under 29 U.S.C. Section 201 to 209 from receiving overtime. Contractor shall and shall require its Subcontractors to give notice in writing to their employees who work under this Contract, either at the time of hire or before commencement of Work on the Contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.

10.8 ORS 279C.525 (Notice of Environmental Regulations): State law requires that solicitation documents for a public improvement contract make specific reference to federal, state, and local agencies that have enacted ordinances, rules, or regulations dealing with the prevention of environmental pollution or the preservation of natural resources that may affect the performance of this Contract. These agencies include, but are not limited to:

10.8.1 Federal Agencies: Department of Agriculture, Forest Service, Soil and Water Conservation Service, Coast Guard, Department of Defense, Army Corps of Engineers, Department of Emergency, Federal Energy Regulatory Commission, Environmental Protection Agency, Department of Health and Human Services, Department of Housing and Urban Development, Solar Energy and Energy Conservation Bank, Department of Interior, Bureau of Land Management, Bureau of Indian Affairs, Bureau of Mines, Bureau of Reclamation, Geological Survey, Minerals Management Service, U.S. Fish and Wildlife Service, Department of Labor, Mine Safety and Health Administration, Occupational Safety and Health Administration, Department of Transportation, Federal Highway Administration, and Water Resources Council.

10.8.2 State Agencies: Department of Administrative Services, Department of Agriculture, Soil and Water Conservation Commission, Columbia River Gorge Commission, Department of Energy, Department of Environmental Quality, Department of Fish and Wildlife, Department of Forestry, Department of Geology and Mineral Industries, Department of Human Resources, Department of Consumer and Business Services, Land Conservation and Development Commission, Department of Parks and Recreation, Division of State Lands, and Department of Water Resources.

10.8.3 Local Agencies: City councils, county courts, county boards of commissioners, metropolitan service district councils, design commissions, historic preservation commissions, planning commissions, development review commissions, special district boards of directors, and other and special governmental agencies such as Tri-Met, urban renewal agencies, and Port districts.

10.8.4 Tribal Governments.

10.9 ORS 279C.530 (Payment for Medical Care and Workers' Compensation): Contractor shall promptly, as due, make payments to any person, co-partnership, association, or corporation furnishing medical, surgical, and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract, or agreement for the purpose of providing or paying for such service. All employers, including the Contractor, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required workers' compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

10.10 ORS 279C.545 (Time Limitations on Claims for Overtime): Construction workers employed by the Contractor or its Subcontractor shall be foreclosed from the right to collect for any overtime under this Contract unless a claim for payment is filed with the Contractor or Subcontractor within 90 days from the completion of the Contract, providing the Contractor or Subcontractor has:

10.10.1 Caused a circular clearly printed in blackface pica type and containing a copy of this section 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 on the Work; and

10.10.2 Maintained such circular continuously posted from the inception to the completion of the Contract on which workers are or have been employed.

10.11 ORS 279C.580(3) (Prompt Payment of First-Tier Subcontractors): Contractor shall include in each subcontract for property or services with a first-tier Subcontractor a clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten days out of such amounts as are paid to the Contractor by the City. Contractor shall also include in each subcontract a clause that states that if the Contractor fails to pay any claim for materials or labor furnished under this Contract within 30 days after being paid by City, interest shall be due on such claim as specified in ORS 279C.515(2) at the end of the ten-day period that payment is due under ORS 279C.580(3). Contractor shall require each first-tier Subcontractor to include a payment clause and interest clause conforming to the requirements of ORS 279C.580 in each of its subcontracts, and to require each of its Subcontractors to include a similar clause in each contract with a lower-tiered subcontractor or supplier.

10.12 ORS 279C.605 (Notice of Claim on Bond): Any person claiming a right of action under ORS 279C.600 must file a notice of claim as provided in ORS 279C.605.

10.13 ORS 279C.800 to 279C.870 (Payment of Prevailing Wage Required):

10.13.1 The hourly rate of wage to be paid by Contractor or any Subcontractor to workers in each trade or occupation required for the public works employed in the performance of this Contract shall not be less than the specified minimum rate of wage in accordance with ORS 279C.838 and ORS 279C.840 for each trade or occupation as defined by the Commissioner of the Oregon Bureau of Labor and Industries in the applicable publication entitled Definitions of Covered Occupations for Public Works Contracts in Oregon available at http://www.boli.state.or.us/BOLI/WHDPWR/pwr_state.shtml.

10.13.2 This contract is subject to the prevailing wage rates published as specified in the City's Invitation to Bid document included in this contract as Exhibit C.

10.13.3 Contractor and all Subcontractors shall keep the prevailing wage rates for this Project posted in a conspicuous and accessible place in or about the Project.

10.13.4 The City shall pay a fee to the Commissioner of the Oregon Bureau of Labor and Industries as provided in ORS 279C.825. The fee shall be paid to the Commissioner under the administrative rule of the Commissioner.

10.13.5 If Contractor or any Subcontractor also provides for or contributes to a health and welfare plan or a pension plan, or both, for its employees on the Project, it shall post notice describing such plans in a conspicuous and accessible place in or about the Project. The notice shall contain information on how and where to make claims and where to obtain future information.

10.14 ORS 279C.836 (Public Works Bond Required): Contractor shall:

10.14.1 File a public works bond with the Construction Contractors Board pursuant to ORS 279C.836 before starting work on the Project, unless exempt under ORS 279C.836(2), (7) or (8); and

10.14.2 Include in every subcontract a provision requiring the Subcontractor to file a public works bond with the Construction Contractors Board pursuant to ORS 279C.836 before starting work on the Project, unless exempt under ORS 279C.836(2), (7) or (8).

10.15 ORS 279C.845 (Prevailing Wage Certification; Additional Retainage):

10.15.1 Contractor and every Subcontractor shall file certified statements with City in writing in the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker whom Contractor or Subcontractor has employed upon such public work, and further certifying that no worker employed upon such public work has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of Contractor or Contractor's surety or Subcontractor or Subcontractor's surety that Contractor and any Subcontractor has read such statement and certificate and knows the contents thereof, and that the same is true to Contractor or Subcontractor's knowledge. The certified statements shall set out accurately and completely the payroll records for the prior week including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid.

10.15.2 The certified statement shall be delivered or mailed by Contractor or Subcontractor to City. Certified statements for each week during which the Contractor or Subcontractor employs a worker upon the public work shall be submitted once a month, by the fifth business day of the following month. Information submitted on certified statements may be used only to ensure compliance with the provisions of ORS 279C.800 to 279C.870. Notwithstanding any other provision of this Contract and in addition to any other retainage required under this Contract, the City shall retain 25% of any amount earned by the Contractor until the Contractor has filed the certified statements with the City as required by this Section. The City will pay the retainage required under this Section within 14 days after Contractor files the certified statements required by this Section.

10.15.3 Contractor and each Subcontractor shall preserve the certified statements for a period of three years from the date of completion of the Contract.

10.16 ORS 671.560, 701.026 (Landscape/Construction Contractors License Required): If Contractor is performing work as a landscape contractor as defined in ORS 671.520(2), Contractor must have a current, valid landscape contractor's license issued under ORS 671.560. If Contractor is performing work as a Contractor as defined in ORS 701.005(2), Contractor must have a current, valid construction contractor's license issued under ORS 701.026. Contractor shall further certify that all Subcontractors performing Work described in ORS 701.005(2) are registered with the Construction Contractors Board or licensed by the State Landscaping Contractor's Board as required by the above-noted statutes before they commence Work under this Contract. Contractor shall maintain in effect all licenses, permits, and certifications required for the performance of the Work. Contractor shall notify City immediately if any license, permit, or certification required for performance of this Contract shall cease to be in effect for any reason.

10.17 ORS 305.385 (Oregon Tax Law Compliance): Contractor must, throughout the duration of this Contract and any extensions, comply with all tax laws of this state and all applicable tax laws of any political subdivision of this state. Contractor (to the best of Contractor's knowledge, after due inquiry), for a period of no fewer than six calendar years preceding the date of this Contract, faithfully has complied with:

10.17.1 All tax laws of this state, including but not limited to ORS 305.620 and ORS chapters 316, 317, and 318;

10.17.2 Any tax provisions imposed by a political subdivision of this state that applied to Contractor, to Contractor's property, operations, receipts, or income, or to Contractor's performance of or compensation for any work performed by Contractor.

10.18 ORS 279B.230(2) (Oregon Workers' Compensation Law): Contractor and its subcontractors, if any, are subject to Oregon Workers' Compensation Law, which requires all employers that employ subject workers who work under this Contract in the State of Oregon to comply with ORS 656.017 and provide the required workers' compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors, if any, complies with these requirements (ORS 279B.230(2)).

11. NOTICE.

Except as otherwise expressly provided in this Contract, any communications between the parties hereto or notices to be given hereunder shall be given in writing by personal delivery or mailing with postage prepaid to Contractor or City at the address set forth below. Any communication or notice so addressed and mailed shall be deemed to be given five (5) days after mailing. Any communication or notice by personal delivery shall be deemed to be given when actually delivered.

FOR THE CITY OF CANNON BEACH

CONTRACT ADMINISTRATOR NAME: _____, TITLE: _____

ADDRESS: PO BOX 368 CANNON BEACH, OR 97110

TELEPHONE: _____

EMAIL: _____@CI.CANNON-BEACH.OR.US

FOR THE CONTRACTOR

CONTRACT ADMINISTRATOR NAME: _____

TITLE: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE _____

EMAIL: _____

12. CONTRACTOR INFORMATION AND CERTIFICATION.

Contractor shall provide Contractor's Social Security number or Contractor's federal tax ID number and the additional information set forth below. This information is requested pursuant to ORS 305.385 and OAR 125-246-0330. Social Security numbers provided pursuant to this paragraph will be used for the administration of state, federal and local tax laws.

LEGAL NAME (INCLUDE DBA IF APPROPRIATE):

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

Citizenship if applicable: non-resident alien? (check one) ☐ Yes ☐ No

Business Designation (check one):

☐ Professional Corporation ☐ Partnership ☐ Limited Partnership

☐ Limited Liability Company ☐ Limited Liability Partnership ☐ Sole Proprietorship ☐ Other

Federal Tax ID#: _____ or SSN: Enter SSN if no Federal Tax ID

Oregon CCB License Number: _____

City may report the information set forth above in conjunction with any reports it makes to the Internal Revenue Service (IRS) under the name and Social Security number or taxpayer identification number provided.

The individual signing on behalf of Contractor hereby certifies and swears under penalty of perjury that: (a) the number shown on this form is Contractor's correct taxpayer identification; (b) Contractor is not subject to backup withholding because (i) Contractor is exempt from backup withholding, (ii) Contractor has not been notified by the IRS that Contractor is subject to backup withholding as a result of a failure to report all interest or dividends, or (iii) the IRS has notified Contractor that Contractor is no longer subject to backup withholding; (c) s/he is authorized to act on behalf of Contractor, s/he has authority and knowledge regarding Contractor's payment of taxes, and to the best of her/his knowledge, (d) Contractor is not in violation of any Oregon tax laws named in ORS 305.380(4). Contractor is an independent contractor as defined in ORS 670.600; and (e) the supplied Contractor data is true and accurate.

Contractor has the power and authority to enter into and perform this Contract. The persons executing this Contract on behalf of Contractor have the actual authority to bind Contractor to the terms of this Contract.

FOR THE CITY OF CANNON BEACH	FOR CONTRACTOR NAME
SIGNATURE	SIGNATURE
NAME (PRINTED)	NAME (PRINTED)
TITLE	TITLE
DATE	DATE

ATTACHMENTS BELOW:

EXHIBIT A: 00 72 00: CITY'S GENERAL CONDITIONS TO THE CONTRACT

EXHIBIT B: 00 72 10: INSURANCE REQUIREMENTS

EXHIBIT C: 00 72 20: BOLI PREVAILING WAGE RATES

EXHIBIT D: CONTRACTOR PROPOSAL

EXHIBIT E: PROJECT MANUAL

EXHIBIT F: DRAWINGS

EXHIBIT G: ADDENDA

**SECTION 00 72 00
GENERAL CONDITIONS**

1. GENERAL PROVISIONS.

1.1. Contract Documents. The "Contract Documents" are enumerated in Item 3. ("Enumeration of Contract Documents") of the Public Improvement Contract between City and Contractor ("Contract") and consist of the Contract, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, additions or deletions to, material changes in, or general interest explanations of a Solicitation Document ("Addenda") (other than Addenda relating to bidding requirements) issued prior to the bid, other documents listed in the Contract, and Modifications issued after execution of the Contract. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. Performance by Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

1.2. Contract Schedule. The "Contract Schedule" is the graphical representation of the practical plan for carrying out the Work and completing the Work within the Contract Time as set forth in the Contract Documents. The Contract Schedule provides a list of intended events and times to complete each event as set forth in the Contract Documents.

1.3. Drawings. The "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.4. Knowledge. The terms "knowledge," "recognize" and "discover" their respective derivatives and similar terms in the Contract Documents, when used in reference to the Contractor, means that which the Contractor knows or should know, recognizes or should recognize and discovers or should discover. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents means reasonably inferable by a contractor familiar with the Project and exercising the care, skill and diligence required of the Contractor by the Contract Documents.

1.5. Modification. A "Modification" is

1.5.1. a written amendment to this Contract signed by both parties;

1.5.2. a Change Order;

1.5.3. a Construction Change Directive; or

1.5.4. a written order for a minor change in the Work issued by the Engineer.

1.6. Organization of Drawings and Specifications. "Organization of Drawings and Specifications" into divisions, sections, articles, or otherwise arranged will not control Contractor in dividing the Work among subcontractors or in establishing the extent of Work to be performed by any trade subcontractor.

1.7. Project. The "Project" is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by City and by separate Contractors.

1.8. Project Site. The "Project Site" is the property upon which the Project lies and City's property that surrounds the Project, extending to the City's property boundary.

1.9. Specifications. The "Specifications" are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards, and workmanship for the Work and performance of related services.

2. CITY'S RESPONSIBILITIES.

2.1. Authorized Representative. City shall designate a person in writing to be the authorized representative with express authority, to the extent permitted by law, to bind and communicate on behalf of City with respect to all matters requiring City's approval or authorization ("City Representative"). The term "City" includes City Representative.

2.2 Contract Administration. City shall provide contract administrative services for the Project through City's authorized representative. The City Representative may engage and delegate authority to such additional staff and professional and technical consultants as City deems necessary to assist in performing its administrative tasks. Contractor shall direct all Project communications to City and in accordance with the Contract Documents, or as City directs in writing.

2.2.1. City may engage professional Engineers to assist City during construction of the Project to interpret technical contract provisions and to determine the amount, quality, acceptability, and fitness of the Work. Such Engineers will be authorized to act on behalf of City only to the extent expressly provided in the Contract Documents or as City otherwise directs in writing. If no Engineer is included on the project, all referrals to 'Engineer' will apply to the Engineer.

2.2.2. City may engage a consulting construction manager to provide Project administrative services on City's behalf. Such construction manager will be authorized to act on behalf of City to the extent expressly provided in the Contract Documents or as City otherwise directs in writing.

2.2.3. City may retain certain project inspectors to monitor compliance with Drawings and Specifications for the Project, as well as applicable codes and ordinances. Such project inspectors will be authorized to act on behalf of City to the extent expressly provided in the Contract Documents or as City otherwise directs in writing. If no Engineer is included on the project, all referrals to 'Engineer' will apply to the Engineer.

2.3. Access to the Work. City and its designated representatives shall have free access to the Work at all times. Contractor shall not carry on Work except with the knowledge of City and its designated representatives. City may require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Inspection or observation of Work shall not relieve Contractor from any obligation to fulfill the Contract.

2.4. Right to Stop or Reject Work. City may reject Work that fails to conform to the Contract Documents, as determined by City. If Contractor fails to promptly correct such defective Work, City may issue a written order directing Contractor to stop the Work, or designated portion thereof, until the cause for such order is eliminated. The right of City to stop the Work shall not give rise to a duty on the part of City, or any of its representatives, to discover nonconforming Work or to exercise the right to stop the Work for the benefit of Contractor or any other person or entity.

2.5. Permits and Access. Except for permits and fees that are Contractor's responsibility under the Contract Documents, City shall secure and pay for all other necessary approvals, easements, assessments and charges required to complete the Work.

2.6. Subsurface Surveys. City shall make available to Contractor, and Contractor shall study, the results of such test borings and information that City has concerning subsurface conditions and site geology. Contractor shall inform City of any other site investigation, analysis, study, or test conducted by or for Contractor or its agents and shall make the results available to City upon City's request.

2.7. City's Rights. The rights stated in this section and elsewhere in the Contract Documents are cumulative and do not limit any rights City may have under the Contract Documents, at law or in equity. Without limiting the generality of the foregoing sentence, any right City has under the Contract Documents to compel Contractor to fix defective Work, up to and including any warranty

period the Contract Documents may establish, does not operate to shorten or otherwise limit statutes of limitations applicable to the Work.

3. CONTRACTOR'S RESPONSIBILITIES.

3.1. General Responsibilities.

3.1.1. Authorized Representative. Contractor shall designate a person in writing to be the authorized representative with express authority to bind and communicate on behalf of Contractor with respect to all matters requiring Contractor's approval or authorization ("Contractor Representative"). The term "Contractor" means the Contractor or the Contractor Representative.

3.1.2. Materials, Equipment, and Services. The Contractor will provide all labor, materials, equipment, and services necessary to complete the Work, all of which will be provided in full accord with the Contract Documents.

3.1.3. Supervision and Coordination. Unless otherwise expressly provided in the Contract Documents, the Contractor will be solely responsible for the supervision and coordination of the Work, including the construction means, methods, techniques, sequences, and procedures utilized.

3.1.4. Project Correspondence. Contractor shall provide City with a copy of all written communications between Contractor and City's consultants at the same time as that communication is made to such consultants, including, without limitation, all requests for information, correspondence, submittals, notices, and change order proposals. Contractor shall confirm oral communications in writing.

3.1.5. Project Boundary. Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.1.6. Taxes. Contractor shall pay all applicable taxes for the Work provided by Contractor that are legally applicable at the time the bid is submitted, whether or not yet effective or merely scheduled to go into effect.

3.1.7. Permits, Fees and Notices. Except as otherwise provided in the Contract Documents, Contractor shall secure and pay for all permits, licenses, and certificates that are the Contractor's responsibility under the Contract Documents and that are necessary for prosecution of Work before the date of the commencement of the Work or before the permits, licenses, and certificates are legally required to continue the Work without interruption. Contractor shall obtain and pay, when legally required, for all licenses, permits, inspections, and inspection certificates required by any authority having jurisdiction over any part of the Work included in the Contract. Contractor shall deliver all final permits, licenses, and certificates to City before demand is made for final payment.

3.1.8. Withholding of Retainage shall be in accordance with Oregon Administrative Rule 137-049-0820.

3.1.8.1 The amount of each progress payment shall be determined as provided in the General Conditions, less retainage of 5% pursuant to ORS 279C.550 to 279C.565, ORS 701.420 and 701.430, and less liquidated damages, if any.

3.1.8.2 Unless otherwise specified in the Contract Documents, Contractor elects to have the City deposit the retainage as accumulated in an interest-bearing account in a bank, savings bank, trust company, or savings association as outlined in ORS 279C.560(5), OAR 125-249-0820(3), and COH-049-0820(3), from which earnings on such account shall accrue to the Contractor.

3.2. Worksite Conditions.

3.2.1. Benchmarks and Monuments. Contractor shall protect and preserve established benchmarks and monuments and shall not change locations of benchmarks and

monuments without City's prior written approval. Contractor shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of City and with City's approval.

3.2.2. Field Verification. Prior to the commencement of the Work, Contractor shall review the Project Site with City in detail and identify the area of the Work, staging areas, connections or interfacing with existing structures and operations, and restrictions on the Work site area. Contractor shall ensure that all forces on the Project Site are instructed about the acceptable working and staging areas and restrictions on use of the site. Contractor, with advance consent of City, shall erect such barriers and devices as are necessary to restrict access within the Work site to authorized areas and to prevent unauthorized access to non-Work areas.

3.2.3. Utility Locates. Contractor will be responsible to locate existing utilities and underground facilities that are indicated in the Contract Documents or that are known or reasonably should be known to exist in proximity to the Work. Contractor shall provide timely notice and locate requests with any affected utility or through contact with appropriate notification centers before commencing excavation or demolition Work that Contractor knows or reasonably should know is in proximity to such utilities or facilities. Contractor assumes the sole risk and will be responsible for all delay and expense arising out of Contractor's failure to do so. Contractor acknowledges that utility companies and other third parties owning or managing facilities that may need to be relocated are not City's agents and do not act for the City.

3.3. Responsibility for Performance.

3.3.1. Before beginning the Work, Contractor shall examine and compare the drawings and specifications with information furnished by City that are Contract Documents, relevant filed measurements made by the Contractor, and any visible conditions at the worksite affecting the Work.

3.3.2. Reporting Inconsistencies. Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, but Contractor shall promptly report any nonconformity it discovers to City. Contractor will be liable to City for damages if it fails, in the exercise of normal diligence, to recognize any error, inconsistency, omission or difference between field conditions and the Contract Documents. Contractor shall promptly report any errors, inconsistencies, or omissions it discovers, as a request for information, in such a form as City or Engineer may require. Contractor will not be entitled to any modification in Contract Total or Contract Time solely by the request for information. Contractor shall carefully study and compare all Contract Documents, including Drawings, Specifications, and other instructions and shall at once report, in writing to City any error, inconsistency, or omission that Contractor or its employees or subcontractors may discover. In the event of an inconsistency within or between parts of the Contract Documents, or between the Contract Documents and applicable law, and regardless of whether Contractor reports the inconsistency to the City, the Contractor must: (i) provide the better quality or greater quantity of Work; or (ii) comply with the more stringent requirement as applicable.

3.3.3. Unnecessary Inquiries. Contractor is liable for costs incurred by City for professional services for interpretations or decisions of matters where the information sought is equally available to the party making the request.

3.4. Construction Materials and Supplies.

3.4.1. Quantities of Materials. Contractor shall provide materials in sufficient quantities on hand at such times as to ensure uninterrupted progress of Work and shall store materials properly and protect materials as required.

3.4.2. Complete Assembly. For all materials and equipment specified or indicated in the Drawings, Contractor shall provide all labor, materials, equipment, and services

necessary for complete assemblies and complete working systems, functioning as intended. Contractor shall furnish incidental items not indicated on Drawings, nor mentioned in the Specifications, that can be legitimately and reasonably inferred to belong to the Work described, or necessary in good practice to provide a complete assembly or system, as though itemized here in every detail. In all instances, Contractor shall install material and equipment in strict accordance with each manufacturer's most recent published recommendations and specifications. Contractor shall be responsible for appropriately sequencing the Work and for verification of suitability of prior work before subsequent construction activities.

3.4.3. Timely Ordering of Materials. Contractor shall coordinate submittal approvals and place orders for materials and/or equipment so that delivery of same will be made without delays to the Work. Contractor shall, upon City's reasonable request, provide documentary evidence that orders have been placed.

3.4.4. No Right to Lien. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the site to City, together with all improvements and appurtenances constructed or placed thereon by it, and free from any claims, liens, or charges. Because City's property is public property, Contractor and any person, firm, or corporation furnishing any materials or labor for any Work covered by this Contract, will not have any right to lien any portion of the Project Site or any improvement or appurtenance thereon.

3.4.5. Storage. Contractor and its subcontractors shall obtain City approval before delivering or storing materials or tools on City's premises. Upon approval, Contractor shall store materials and tools so that they do not hamper the operation of equipment or persons and do not present a fire or safety hazard.

3.5. Construction Personnel and Supervision.

3.5.1. Supervision. During progress of the Work, Contractor shall keep on the Project Site, and at all other locations where any Work related to this Contract is being performed, a competent project manager, construction superintendent and staff, who are employees of Contractor, to whom City does not object and at least one of whom is fluent in English, written and verbal. Contractor shall provide efficient supervision to the Work, using its best skill and attention. Before commencing the Work, Contractor shall give written notice to City of the name of its project manager and construction superintendent. Contractor is bound by all directions given to Contractor's project manager and/or construction superintendent as if such direction was given to Contractor.

3.5.2. Replacement of Supervision. Contractor shall not otherwise remove or replace the construction superintendent or project manager for any reason, including their need to work on other projects, or to take extended vacations, without submitting thirty (30) days' written notice to City. If Contractor's project manager, construction superintendent, or support staff member is no longer employed by Contractor, Contractor shall provide City with notice of the termination of the employment relationship and shall consult with City with respect to replacement personnel.

3.5.3. Discipline and Removal. Contractor shall at all times enforce strict discipline and good order among its subcontractors and employees and shall not employ or work any unfit person, or anyone not skilled in work assigned to that person. City may require Contractor to permanently remove unfit persons from Project Site. Contractor shall not employ any person whom City may deem incompetent or unfit on the Project except with the prior written consent of City. City may require removal and replacement of any or all construction superintendents or project managers upon ten (10) days' notice to Contractor.

3.5.4. Acts or Omissions. Contractor is responsible to City for acts and omissions of Contractor's employees, subcontractors and their agents and employees, and other

persons or entities performing portions of the Work for or on behalf of Contractor or any of its subcontractors.

3.5.5. Identification Badges. The Contractor and its subcontractors, and the employees and the agents of any of them shall comply with City's policies and requirements to obtain, display, and return identification badges at any time while they are present on City's property.

3.6 Contractor's Construction Master Schedule.

3.6.1. Schedule Required. Within no more than ten (10) days of being awarded the Contract, and before commencing the Work, Contractor shall prepare and submit to City for City's approval a construction master schedule for the Work. The construction schedule shall be in a detailed precedence-style critical path method (CPM) type format, which will include any interim dates that are critical in insuring the timely completion of the Work as provided in the Contract Documents. City shall provide approval or comment on the submitted schedule within seven (7) days. Contractor shall be responsible for amending construction schedule in response to City comments.

3.6.2. Logic. Schedule shall use retained logic during the development and updating of the schedule. Any function that would cause the retained logic of the logic network to be overridden is prohibited unless approved, in writing and in advance, by the Engineer and City.

3.6.3. Schedule shall include: date of Notice to Proceed, date of Substantial Completion, and date of Final Completion in accordance with Contract Documents.

3.6.4. Schedule Maintenance. The schedule shall not exceed the Contract Time for the Work. Contractor shall revise and update the schedule at appropriate intervals, no greater than monthly, or as required by City or the conditions of the Work and Project. Should the Contractor fail to meet any scheduled date as shown on the current Construction Progress Schedule, the Contractor shall promptly notify the City, and if requested, be required at its own expense to submit within five (5) days of the request an updated Construction Progress Schedule. If the Contractor's progress indicates to the City that the Work will not be Substantially Completed within the Contract Time, the Engineer and City may require the Contractor develop a Recovery Schedule that adequately demonstrates how the Contractor will, at its own expense, increase its work force and/or working hours to bring the actual completion dates of the activities into conformance with the Construction Progress Schedule and Substantial Completion within the Contract Time. Neither the City nor the Engineer will, however, be obligated to review the substance or sequence of the Construction Progress Schedule or otherwise determine whether it is correct, appropriate or attainable.

3.6.5. Submittal Schedule. Contractor shall prepare and keep current, for City's review and acceptance, a schedule of submittals that is coordinated with the construction schedule and allows City and its consultants reasonable time to review submittals and to provide information necessary for procurement and installation of Work for which allowances are provided under the Contract Documents. City may require Contractor to include preparation of Contract submittals as a line item payment in the schedule of values.

3.6.6. Execution of Schedule. Contractor shall perform the Work in general accordance with the most recent schedules submitted to and accepted by City. Contractor shall indicate in the schedule updates any Work that is not proceeding according to the schedule and shall provide a written plan of action to bring the Work into compliance with the schedule or to otherwise ensure that the Work will be completed within the Contract Time.

3.7. Documents and Records.

3.7.1. Record Documents. Contractor shall update at least weekly, at the Project Site, or at such other location as City may authorize in writing, one legible copy of all Contract Documents annotated with all changes ("Record Documents"), including but not limited to Addenda, RFIs, ASIs, and Change Orders. Contractor shall also maintain on site a complete record and copy of all approved submittals, shop drawings and product samples. Failure to update in a timely manner as required by this section may result in withholding payment by City. Contractor shall keep these documents in good order and available to City's consultants or representatives and all authorities having jurisdiction. Contractor shall coordinate with City's representatives and consultants and shall submit its verified report(s) according to Oregon law or as required by authorities having jurisdiction. The Contractor shall submit the completed and finalized project record to City in accordance with the contract documents prior to Final Acceptance.

3.7.2. Daily Job Reports. Contractor shall maintain at least one (1) set of reports on the Project prepared by Contractor's employee(s) present on site, and which includes following information: a brief description of all Work performed on that day; a summary of all pertinent events and/or occurrences on that day including records of all tests and inspections; a list of all subcontractor(s) working on that day; a list of each Contractor employee working on that day; the total hours worked for each employee; a complete list of all equipment on the Project that day, whether in use or not; the time Work commenced and ended; weather conditions; accidents or injuries; and Work progress made for that day ("Daily Job Reports"). Contractor shall keep the Daily Job Reports current and in good order and shall make current copies available to City upon request.

3.7.3. Maintenance of Records after Final Payment. Contractor shall make available at its office at all reasonable times the materials described in this paragraph for the examination, audit, or reproduction until six (6) years after final payment under this Contract: (a) all Daily Job Reports or other Project records of Contractor's project manager(s), construction superintendent(s), and/or project foreperson(s); (b) all certified payroll records and/or related documents including, without limitation, payroll, payment, timekeeping and tracking documents; (c) all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports, and other data of Contractor, any subcontractor, and/or supplier, including computations and projections related to bidding, negotiating, pricing, or performing the Work or Contract modification, in order to evaluate the accuracy, completeness, and currency of the cost, manpower, coordination, supervision, or pricing data at no additional cost to City. These documents may be duplicative and/or be in addition to any bid documents held in escrow by City.

3.7.4. Submittals. Contractor shall submit shop drawings, product data, samples and mock ups as required by the Contract Documents that have been verified and coordinated with the requirements of the Work and of the Contract Documents. Contractor shall not perform any portion of the Work until the submittals for that portion have been approved by City.

3.7.5. Professional Design Services. City will not require Contractor to perform professional services which constitute the practice of engineering, or surveying unless such services are specifically required by the Contract Documents as a part of the Work or unless Contractor must provide such services in order to carry out Contractor's responsibilities under the Contract. City shall specify performance and design criteria that such professional services must satisfy.

3.7.6. Ownership of Documents. All copies of Drawings, Specifications, and copies of other incidental engineering work, or copies of other Contract Documents furnished by City or generated by Contractor, including those in electronic form, are the property of City.

3.7.7. Copyright and License. Neither Contractor nor any subcontractor, or material or equipment supplier, will own or claim a copyright in the documents prepared by the City's consultants. City hereby grants Contractor, subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings and Specifications prepared for the Project in the execution of their Work under the Contract Documents.

3.7.8. Royalties, Licenses and Copyrights. Contractor shall obtain and pay, when required by law, all royalties and license fees necessary for prosecution of Work before the earlier of the date of the commencement of the Work or the date the license is legally required to continue the Work without interruption. Contractor shall defend suits or claims of infringement of patent, copyright, or other rights and shall hold City, City's consultants, and City's representatives harmless and indemnify them from loss on account of claims for infringement to the extent Contractor knew, or with reasonable diligence should have known, that the use of a specified design, process, or product would constitute infringement.

3.7.9. Intellectual Property. The review by City or Engineer of any method of construction, invention, appliance, process, article, device, or material of any kind is limited to a review for adequacy for the Work and is not approval for use by Contractor in violation of any patent or other rights of any person or entity.

3.8. Tests and Inspections.

3.8.1. Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities.

3.8.2. Unless otherwise provided, Contractor shall arrange for such tests, inspections, and approvals, and shall bear the associated costs. Contractor shall notify City of scheduled tests and/or inspections and approvals, so that City or its designated representative may be present for such procedures, which presence shall be at City's expense.

3.8.3. Contractor shall not incorporate any material into the Work that has not satisfied all testing, inspection, or approval requirements of the Contract Documents.

3.8.4. Contractor shall secure and promptly deliver required certificates of testing, inspection or approval to City, unless otherwise provided by the Contract Documents.

3.8.5. If testing, inspection, or approval required by the Contract Documents, or otherwise required by City, reveal failure of the Work to comply with requirements of the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation of City's costs, shall be at Contractor's expense.

3.9. Work Under the Contract.

3.9.1. Defective Work. At City's sole option, Contractor shall repair or replace any and all Work, together with any other Work that may be displaced in doing so, that may prove defective in workmanship and/or materials within a one (1) year period from Substantial Completion of the Work without expense whatsoever to City. In the event Contractor fails to commence and diligently pursue such replacements or repairs within ten (10) days after being notified in writing, Contractor hereby acknowledges and agrees that City may correct such defects, without voiding any guarantee or warranty, at Contractor's expense. Payment shall become due upon City's demand, and shall be an obligation secured by Contractor's performance bond.

3.9.2. Correction of Work. If, in the opinion of City, defective Work creates an exigent or dangerous condition or requires immediate correction or attention to prevent injury to persons or property or to prevent interruption of City operations, City may, upon making a good faith attempt to notify Contractor, proceed to make some or all replacements or

repairs as may be reasonably required in the circumstances. The costs of such work will be charged against Contractor and shall become due upon City's demand.

3.9.3. Manufacturer's Warranties. The above provisions do not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish to City all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by City. Contractor shall obtain and preserve for the benefit of City, manufacturer's warranties on material, fixtures, and equipment incorporated into the Work. Contractor shall furnish City with all guarantee or warranty certificates as indicated in the Specifications or upon City's request.

3.9.4. Cutting and Patching. Contractor shall do all cutting, fitting, patching, and preparation of Work as required to make its several parts come together properly, to fit it to receive, or be received by work of other Contractors, and to coordinate tolerances to various pieces of work, showing upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and shall conform them as City may direct.

3.9.5. Alteration of Work by Contractor or Others. Contractor shall not endanger any Work performed by it or anyone else by cutting, excavating, or otherwise altering Work and shall not cut or alter Work of any other Contractor except with consent of City.

3.9.6. Cleaning up. Contractor shall keep the Project Site and surrounding area, including public rights of way, free from dust, mud, dirt, or accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, Contractor shall clean the site, streets, and sidewalks and shall remove from the Project waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials.

3.9.7. Access to Work. Contractor shall provide City and its representatives access to the Work in preparation and progress wherever located.

3.10. Allowances.

3.10.1. Contractor shall include all allowances stated in the Contract Documents in the Contract Total. Unless the Contract Documents provide otherwise, Contractor shall include in the Contract Total, separate from allowances, amounts necessary to cover the cost of materials and equipment delivered at the site and all required taxes, less applicable trade discounts, Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance. City shall adjust the Contract Total through a Change Order whenever costs are more than allowances. City shall provide a Change Order amount that reflects the difference between the actual cost and the allowance.

3.11. Warranty.

3.11.1. Contractor warrants to City and Engineer that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by Engineer or City, Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.11.2. Contractor guarantees all work against defects in material or workmanship for a period of one (1) year from the date of substantial completion.

3.11.3. If, after 10 days' notice, Contractor fails to proceed to cure any breach of this warranty, City may have the defects corrected and Contractor and its surety shall be liable for all expenses incurred. In case of an emergency, where, in the opinion of City or Engineer, delay would cause serious loss or damage, corrective work may be undertaken without advance notice to Contractor; but Contractor and its surety shall remain liable for all expenses incurred. The remedies stated in this subsection are not exclusive, but are cumulative of any other remedies City may have.

3.11.4. Contractor shall assign, and shall obtain from subcontractors and assign, all manufacturers' warranties to City and all guarantees and warranties of goods supplied under this Contract shall be deemed to run to the benefit of City. Contractor shall provide City with all manufacturers' warranty documentation and operations and maintenance manuals not later than the date of Final Acceptance of the Work by the City.

4. SUBCONTRACTORS.

4.1. Subcontractor Disclosure. Contractor shall provide City a list of all subcontractors and major suppliers with a name, address, telephone and fax numbers, Oregon license number(s), classification, and monetary value of each subcontract for labor, material, or equipment. If City objects, City shall promptly provide a written notice of objection. Contractor shall not contract with a proposed person or entity to which City reasonably objects or that is ineligible to receive a subcontract under ORS 279C.860, and shall procure a replacement subcontractor that is acceptable to City. City shall provide a Change Order before commencement of substitute subcontractor's Work for the increase or decrease in the Contract Total and Contract Time occasioned by such change, unless the subcontractor is ineligible under ORS 279C.860, and Contractor shall be fully responsible for performance of the substituted subcontractor under the Contract Documents. Contractor shall be solely responsible to determine whether any proposed subcontractor is eligible.

4.2. Pass-Through. Contractor shall require each subcontractor, by written agreement, to be bound to Contractor by terms of this Contract to the extent it applies to the Work performed by subcontractor. Contractor shall provide copies of subcontract agreements upon City's request.

4.3.No Waiver. City's consent or failure to object to any subcontractor does not relieve Contractor of any obligations under this Contract and is not a waiver of any provisions of this Contract. A waiver is not effective unless it is in writing and is signed by the City.

4.4. Substitution and Assignment. Contractor shall not, without City's written consent:

4.4.1. Substitute any person as a subcontractor in place of the subcontractor designated in the original bid.

4.4.2. Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the subcontractor listed in the original bid; or

4.4.3. Sublet or subcontract any portion of the Work in excess of one-half of one percent (1/2 of 1%) of Contractor's total bid as to which his original bid did not designate a subcontractor.

4.5. Coordination of Work. Contractor shall coordinate the trades, subcontractors, sub-subcontractors and material or equipment suppliers working on the Project.

4.6. Subcontractor Dispute Resolution. Contractor shall settle any difference between Contractor and its subcontractor(s) or between subcontractors.

4.7. Assignment. Contractor shall include assignment provisions in each subcontract as indicated in the termination provisions set forth in these General Conditions.

4.7.1. Contingent Assignment of Subcontractors. Contractor shall assign to City each subcontract agreement for a portion of the Work provided that:

4.7.1.1. Assignment is effective only after termination of this Contract by City for cause or stoppage of the Work by City, and only for those subcontract

agreements which City accepts in its sole discretion by notifying the subcontractor and Contractor in writing; and

4.7.1.2. Assignment is subject to the prior rights of the surety, if any, obligated under bond relating to this Contract.

4.7.2. Upon such assignment, if the Work has been suspended for more than thirty (30) days, City shall equitably adjust subcontractor's compensation for increases in cost resulting from the suspension.

4.8. Prompt Payment of Subcontractors. Contractor shall promptly pay subcontractors as required by the Contract.

5. CONSTRUCTION BY CITY

5.1. Other Contractors. City may let other contractors perform work with its own forces, in connection with the Project. Contractor shall afford other contractors reasonable opportunity for introduction and storage of materials and execution of their work and shall properly coordinate and connect the Work with the work of other contractors. If Contractor claims that delay or additional cost is involved because of such action by City, Contractor shall make such claim in the manner provided in the Contract Documents.

5.1.1. Contractor shall protect the work of other contractors that it encounters while working on the Project.

5.1.2. If any part of Contractor's Work depends upon completion of the work of City or others for proper execution, Contractor shall inspect and promptly report to City any discrepancy or defective condition in such work. Contractor's failure to inspect and report will be deemed acceptance of all work of others as fit and proper for reception of Contractor's Work. Contractor is liable for damages for work of others that Contractor failed to inspect, except for defects that were not discoverable and may develop in City's or any other contractor's work after execution of Contractor's Work.

5.2. Mutual Responsibility. Contractor shall reimburse City for costs incurred by City which are payable to a separate contractor because of delays, improperly timed activities or defective construction of Contractor. City shall reimburse Contractor for costs incurred by Contractor because of delays, improperly timed activities, and damage to the Work or defective construction of a separate contractor.

5.3. City's Right to Clean Up. If a dispute arises among Contractor, separate contractors and City as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, City may clean up and the City shall allocate the cost among those responsible.

6. CHANGES IN THE WORK.

6.1 Change Orders.

6.1.1. Change Order. A document prepared by the City Representative and signed by the City, the City Representative, the Engineer, and the Contractor or assigned designee, stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Total, including all costs, overhead and profit, if any; and (3) the extent of the adjustment in the Contract Time, if any, issued after the effective date of the Contract.

6.1.2. A Proposed Change Order (PCO) is a document prepared by the Contractor to seek additional compensation and/or time from the City. The Contractor shall provide a written PCO narrative explaining its reasons for requesting additional compensation or time. The written PCO narrative shall reference all related schedule activities and contract specification sections and drawings directly pertaining to the PCO, include all costs, overhead and profit.

6.1.3. Change Pricing. In the absence of applicable unit prices or other agreement, the changed work will be priced in accordance with the following provisions:

6.1.3.1. In no case shall the sum of the individual markups applied to a General Contractor's Modification exceed fifteen percent (15%), regardless of the number of Subcontractor tiers involved in performing the Work.

6.1.3.2. The total combined mark-up for a Subcontractor and his lower-tier Subcontractor shall not exceed ten percent (10%). Costs of tax and insurance shall not be marked up.

6.1.3.3. For work performed by a subcontractor, the subcontractor will receive 10% markup for direct costs. The General Contractor shall receive a five percent (5%) of the subcontractor's direct costs for processing.

6.1.3.4. For self-performed work by the General Contractor, the markup shall equal fifteen percent (15%) of the direct cost as defined herein.

6.1.3.5. Bonding may be increased a maximum of one percent (1%) provided the Contractor demonstrates to the City a requirement to increase bonding.

6.1.3.6. If the net value of a change results in a credit from the Contractor or subcontractor, the credit shall be the actual net cost, plus five percent (5%) for overhead and profit. When both additions and credits covering related work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase or decrease, if any, with respect to the change.

6.1.4. Equipment Costs:

6.1.4.1. The allowance for equipment costs (both rental as well as Contractor owned equipment) shall be based on actual and verified rental company rates. Hourly, daily, weekly, or monthly rates shall be used, whichever is lower. Hourly rates including operator shall not be used. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for determination of applicable rental rates.

6.1.4.2. The actual time to be paid for equipment shall be the time that the equipment is in productive operation on the Work under Contract Modification. In computing the hourly rental of equipment, any time less than thirty (30) minutes shall be considered one half (1/2) hour. No payment will be made for time while equipment is inoperative due to breakdown, or for non-workdays. In addition, the rental time shall not include the time required to move the equipment to and from the Project Site. No mobilization or demobilization will be allowed for equipment already on site. If such equipment is not moved by its own power, then loading and transportation costs will be paid in lieu of rental time thereof. However, neither moving time nor loading and transportation costs will be paid if the equipment is used on the Project Site in any other way than upon the work directly related to the Contract Modification.

6.1.5. Small Tools. Individual pieces of equipment having a replacement value of two thousand dollars (\$2,000) or less shall be considered to be small tools or small equipment, and no payment will be made since the costs of these tools and equipment is included as part of the markup for overhead and profit defined herein.

6.1.6. Labor rates will not be recognized when in excess of the applicable prevailing wage rate pursuant to ORS 279C.800 to 279C.870 or wage established in any applicable collective bargaining agreement, whichever is higher. The costs for all supervision, including general superintendents and foreman, shall be included in the markup defined herein. Working foreman will be considered a direct cost if the individual is on the Project Site only installing Work under Contract Modification with no other work being performed

at the time. A breakdown of the payroll rates for each trade used for Contract Modifications shall be furnished to the City within thirty (30) calendar days of the Contract Notice to Proceed.

6.1.7. Premium Time Rate. Shall be the difference between the Overtime Hourly Rate and Straight Time Rate per specific trade and classification as more fully defined herein. City will pay taxes on the Premium Time Rate only. The Premium Time Rate shall be paid without overhead and profit calculated against the differential.

6.1.8. Material costs directly required for the performance of the Contract Modification. Such costs may include the cost of transportation. If a trade reduction by an actual supplier is available to the Contractor, it shall be credited to the City. If the materials are obtained from a supplier or source owned wholly by or in part by the Contractor, payment thereof will not exceed the current wholesale price for the materials. The term trade reduction includes the concept of cash discounting.

6.1.9. Agreement on Change Order. Agreement on any Change Order is a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Total and the construction schedule.

6.1.10. Additional Credits. Contractor shall credit all trade discounts, rebates, refunds, and returns from the sale of surplus material to City

6.1.11. Cost Accounting Records. Contractor shall provide all cost accounting records to City upon City's request.

6.2. Construction Change Directives. A Construction Change Directive is a written order signed by City, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Total or Contract Time, or both. City may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, the Contract Total and Contract Time being adjusted accordingly. City and Contractor may use a Construction Change Directive in the absence of total agreement on the terms of a Change Order. Upon receipt of a Construction Change Directive, Contractor shall promptly proceed with the change in Work directed and shall advise City of Contractor's agreement or disagreement with the proposed method, if any, provided in the Construction Change Directive for adjustment in the Contract Total or Contract Time.

6.2.1. Force Account. When a definite price has not been agreed upon in advance and it is to be paid on a force account basis, City may establish a not-to-exceed budget. Contractor shall submit daily all direct costs necessarily incurred and paid for labor, material, equipment, permit fees, taxes, and increased costs of bonds and insurance related to the Work for approval by City. Contractor shall not exceed the budget unless City specifically authorizes the overrun in writing. City shall pay only for actual costs verified in the field by City on a daily basis. When City and Contractor reach agreement upon the adjustment for price and time, Contractor and City shall prepare and execute an appropriate Change Order.

6.2.2. Negotiating Changes. If City and Contractor are unable to agree upon change order terms, or if in the opinion of City the Work must proceed before an agreement can be negotiated, City may order Contractor to proceed with the changes, and Contractor shall comply. In such event, Contractor shall keep detailed daily records as to all labor employed in connection with the changes. Contractor's records will itemize costs for labor, materials, equipment rental, and transportation. Contractor shall submit the records for approval to the City. If Contractor fails to keep such records, all such Work will be deemed to have been performed at Contractor's own expense. City and Contractor shall attempt to negotiate fair and reasonable adjustments to the Contract for changes in the Work. Contractor shall submit to City all evidence in support of Contractor's proposals.

6.2.3. Markup. No fee or other markup of any kind will be applicable to any premium portion of wages, taxes, or related benefits. In the event of addition or deletion of like items in a change order or change directive, the like item quantity will be summed and the unit prices or the percentage fee will be applied to the total.

6.2.4. Written Authorization Required. In no event shall Contractor proceed with changes in the Work without a written order from City to so proceed. City will be under no obligation to pay for unauthorized extra, additional, or changed Work performed by Contractor without a written Change Order, Construction Change Directive, or other written order to proceed duly authorized and executed by City.

6.2.5. Minor Changes. Contractor shall promptly carry out minor changes in the Work issued through written order of City's representative, through the authority granted to it by City, not involving adjustment in the Contract Total or extension of the Contract Time, and not inconsistent with the intent of the Contract Documents.

7. TIME.

7.1. Time is of the Essence. Time limits stated in the Contract Documents are of the essence of the Contract. Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

7.2. No Work Without Insurance. Contractor shall not, except by written direction by City, prematurely commence operations on the site or elsewhere prior to the effective date of insurance to be furnished by City and Contractor. The date of commencement of the Work is not changed by the effective date of insurance.

7.3. Notice to Proceed. City shall issue a Notice to Proceed within a reasonable time following the date of execution of this Contract. To the maximum extent permitted by law, Contractor is not entitled to additional compensation as a result of a postponement of the issuance of Notice to Proceed. The Parties acknowledge the sole remedy for the Contractor in such circumstances is an extension of Contract Time to achieve Substantial Completion.

7.4. Working Hours. Contractor shall perform Work during regular working hours as permitted by City; 7:00 am to 5:00 pm during normal weekdays. Contractor shall, when required to achieve Substantial Completion within the Contract Time, Work outside of regular working hours such as evenings and/or weekends at no additional cost to City. Contractor shall perform all evening and/or weekend work only upon City's advance approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations.

7.5. Delays and Extensions of Time. Float and Slack.

7.5.1. Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity in the schedule. Any float time to activities not on the critical path shall belong to the Project, and may be used by the Project to optimize its construction process. Any float time between the end of the final construction activity and the final completion date shall belong to the City, and may be used by the City in determining if additional contract days are to be awarded for changes in the contract or for delays to the contract caused by the City. The Contractor will not be entitled to any adjustment in the Contract Time, the Construction Schedule, or the Contract Total, or to any additional payment of any sort by reason of the City's use of float time between the end of the final construction activity and the final completion date or by reason of the loss or use of any float time, including time between the Contractor's anticipated completion date and end of the Contract Time, whether or not the float time is described as such on the Construction Progress Schedule.

7.5.2. Adverse Weather. Contract Time is determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located during any given month as published by the National Oceanic and Atmospheric Administration (NOAA) and averaged over the past 10 years. Contractor may request a

time extension for adverse weather if it causes delays that unreasonably increase the labor required to complete the scheduled tasks on the day affected by adverse weather not reasonably anticipated. Contractor shall not be allowed an increase in Contract Total for the delay. Contractor shall work additional days if necessary at no cost to City, irrespective of adverse weather, to maintain access and the Contract Schedule, and to protect the Work from the effects of Adverse Weather.

7.5.3. Extensions of Time. Extensions of Contract Time will be permitted for a delay only to the extent the delay: (1) is not caused or could not have been anticipated by the Contractor; (2) could not be limited or avoided by the Contractor's timely notice to the City of the delay or reasonable likelihood that a delay will occur; and (3) is of a duration not less than one day. Such occurrences may include industry-wide labor dispute, fire, unavoidable casualties, adverse weather conditions not reasonably anticipated, or other occurrences that City determines may justify delay. Any extension the City grants will be net of any delays caused by or due to the fault or negligence of Contractor, and net of any contingency or "float" allowance included in the Progress Schedule. Contractor will not be allowed an increase in Contract Total for an extension of Contract Time. The Contractor shall be deemed to have control over the supply of labor, materials, equipment, methods, techniques and over the Contractor's subcontractors and suppliers.

7.5.4. Requests for Extension. Contractor shall submit requests for extension of time in writing and shall include (a) the duration of the activity relating to changes in the Work and the resources, including manpower, equipment, and material, required to perform the activities within the stated duration; (b) specific logical ties to the Contract Schedule for the proposed change showing the activities that are affected by the change and/or delay; and (c) recovery schedule.

8.0 PROTECTION OF PERSONS, PROPERTY, AND THE ENVIRONMENT.

8.1. Safety Program. Contractor shall initiate, maintain, and supervise all safety precautions and programs in connection with performance of the Contract. Contractor is solely and completely responsible for conditions of the Work site, including safety of all persons and property during performance of the Work, including the property of third-parties and real and personal property outside the Project area. This requirement will apply continuously and is not limited to normal working hours.

8.2. City's Policies. This Contract and all individual contracts and purchase orders incorporate by this reference City's safety policies current as of the date of commencement of Work, which have been or will be made available to Contractor.

8.3. Subcontractor Safety. Contractor shall review with all subcontractors the methods, materials, tools, and equipment to be used to verify their compliance with all safety standards and laws and Contractor shall comply with them, to ensure safe, hazard-free conditions for all persons visiting or working on the entire Project Site and City's adjoining facilities. Contractor shall implement and maintain a safety program that is specifically adapted for the Project and complies with all applicable requirements of Oregon OSHA. Contractor shall furnish a copy of the safety program to City before commencing Work.

8.4. SDS Sheets. Contractor shall provide Safety Data Sheets to City for all chemicals used on the Project Site as required by law.

8.5. Safety Coordinator. Contractor shall designate a responsible member of its organization on the Project, whose duty is to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. Contractor shall report the name and position of person so designated to City.

8.6. Correction of Unsafe Conditions. Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Contractor shall correct violations promptly upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health.

8.7. Personal Protection Equipment. Contractor's personnel and all workers shall wear personal protective equipment at all times. Contractor shall maintain supplies of protective equipment sufficient to properly equip all employees and visitors.

8.8. Safety Devices. Contractor shall take, and require subcontractors to take, all reasonably necessary precautions for safety of workers on the Project. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, nets, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of the Work.

8.9. Barricades and Signage. Contractor shall post necessary warning signs and barricades to ensure the safety of all occupants. Contractor shall not display any signs not required by law or the Contract Documents without City's prior written approval.

8.10. Labeling of Containers. Contractor shall ensure proper labeling of substances on the Project Site.

8.11. Storage. Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of City, and shall not interfere with the Work or unreasonably encumber the Project Site or overload any structure with materials. Contractor shall enforce all instructions of City regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site

8.12. Protection of Work. Contractor shall protect the Work, including stored materials and equipment, from all damage or harm, including damage from heat, cold, rain, snow, wind, flooding, and dampness. Contractor shall provide and maintain temporary roofs, window and door coverings, enclosures, or other construction reasonably required to protect the Work at all times during the course of construction. Contractor shall take all additional steps reasonably necessary, or as directed by City, to protect the Project, the Site, and the Work from damage associated with anticipated extreme weather events. Contractor shall not be entitled to additional payment or time to the extent its costs or delays would have been avoided if Contractor had complied.

8.13. Protection of Existing Structures. Contractor shall protect existing structures, walks, curbs, pavements, roads, trees, landscaping, survey markers, monuments, or other devices marking property boundaries or corners, and/or improvements in working areas, utilities, and adjoining property (including, without limitation, protection from settlement or loss of lateral support). Contractor shall replace same at his expense with same kind, quality, and size of Work or item if temporary removal is necessary, or damage occurs due to the Work.

8.14. Water Quality. Contractor shall comply with all applicable water quality laws and regulations, including permitting, monitoring, and reporting of storm water discharge applicable to the Work, at no additional cost to City. Contractor shall indemnify and hold City harmless from loss, cost, or liability arising out of Contractor's violation of such laws or regulations.

8.15. Neighborhood Impacts. Contractor shall take all reasonable precautions to protect neighborhood property from damage or nuisance associated with the Work. Contractor shall promptly respond to complaints by neighbors or authorities concerning impacts to neighboring properties and public facilities and shall be solely responsible for cleaning, repair, or replacement of property soiled or damaged by Contractor's operations and settlement of claims or demands of neighbors associated with conduct of its personnel.

8.16. Housekeeping. Contractor shall maintain good housekeeping practices to reduce the risk of fire damage and shall make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

8.17. Security and Site Access. Contractor shall ensure that all existing or operating systems, utilities, existing on-site services and access avenues are on and in operating condition before leaving the Project Site each day. If any system, utility, or access avenue is not operable, Contractor shall notify City before Contractor leaves the Project Site that day.

9. HAZARDOUS MATERIALS.

9.1. With respect to Hazardous Materials to be used during the course of the Work, the Contractor will implement and enforce a program to inventory and properly store and secure all Hazardous Materials that may be used or present on the Project Site, maintain available for inspection at the Project Site all material safety data sheets, and comply with all regulations required by law for the storage, use, and disposal of Hazardous Materials. The program must provide for notification of all personnel of potential chemical hazards. Review of these hazards must be included in the Contractor's safety training program. The Contractor shall submit to the City a list of all Hazardous Materials to be brought by the Contractor or its Subcontractors onto the City's property, including the purpose for their use on the Project.

9.2. In the event of a release or discovery of a preexisting release of Hazardous Materials, or if it is foreseeable that injury or death to persons may occur because of any material or substance (including without limitation Hazardous Materials) encountered on the Project Site, the Contractor shall immediately (a) stop the Work or the portion of the Work affected; (b) notify the City orally and in writing; and (c) protect against exposure of persons to the Hazardous Materials. The Contractor shall provide all written warnings, notices, reports, or postings required at law or by contract for the existence, use, release, or discovery of Hazardous Materials.

9.3. With respect to any Hazardous Materials or other material or substance reported to the City under the above that was not introduced to the Project Site by the Contractor or its Subcontractors of any tier, the City shall obtain the services of a qualified environmental consultant to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify it to be rendered harmless. Unless otherwise required by the Contract Documents, the City shall furnish in writing to the Contractor and Engineer the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Engineer will promptly reply to the City in writing stating whether or not either has reasonable objection to the persons or entities proposed by the City. If either the Contractor or Engineer has an objection to a person or entity proposed by the City, the City shall propose another to whom the Contractor and the Engineer have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the City and Contractor. By Change Order, the Contract Time may, subject to agreement by the City and the Contractor, be extended appropriately and the Contract Total shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up, which adjustments shall be accomplished as provided in the Contract.

9.4. With respect to any Hazardous Materials or other material or substance reported to the City under the above that was introduced to the Project Site by the Contractor or its Subcontractors of any tier, the Contractor shall be responsible to carry out the duties of (a) proposing to the City and the Engineer a qualified environmental consultant; (b) obtaining and paying for the services of the environmental consultant; and (c) verifying that the material is rendered harmless, as otherwise set forth in the above. The Contractor will not be entitled to an increase in the Contract Total if the Contractor or its Subcontractors of any tier are responsible for the condition requiring the testing of the material and the stoppage of the Work. Remediation work must be conducted by properly qualified contractors approved in advance by the City. Generally, the City may at its option contract directly with environmental consultants, and remediation contractors, regardless of whether the work will be performed at the Contractor's expense.

9.5. To the extent permitted by the Oregon Constitution and the Oregon Tort Claims Act, the City shall indemnify and hold harmless the Contractor, Subcontractors, Engineer, Engineer's consultants and the agents and employees of the Contractor, Subcontractors, Engineer, and Engineer's consultants from and against claims, damages, losses and expenses, including without limitation attorney fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance was not introduced to the Project Site by the Contractor or its Subcontractors of any tier, presents the risk of bodily injury or death, and has not

been rendered harmless. No indemnification provided by the City under this Section will be required to indemnify the Contractor, Subcontractors, or their employees or agents to the extent of liability for death or bodily injury to persons or damage to property caused in whole or in part by the Contractor's own negligence, but will require indemnity to the extent of the fault of the City or its agents or representatives.

9.6. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the City, the City's Representatives, and the employees of the City from and against claims, damages, losses, and expenses, including without limitation attorney fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance was introduced to the Project Site by the Contractor or its Subcontractors of any tier, presents the risk of bodily injury or death, and has not been rendered harmless. No indemnification provided by the Contractor under this Section will be required to indemnify the City or its agents or representatives to the extent of liability for death or bodily injury to persons or damage to property caused in whole or in part by the City's own negligence, but will require indemnity to the extent of the fault of the City or its agents or representatives.

9.7. Hazardous Materials are any substance defined or designated as being radioactive, infectious, hazardous, dangerous, or toxic by any federal, state, or local statute, regulation, or ordinance presently in effect or subsequently enacted. For purposes of Article 9, the term "introduce" means the physical placement or transportation of Hazardous Materials in or on the Project Site regardless of whether the Hazardous Material was specified, required, or otherwise addressed in the Contract Documents.

10. INSURANCE AND BONDS.

10.1. Contractor's Insurance. Contractor shall procure, prior to commencement of Work, and maintain for the duration of this Contract, or such longer time as may be provided, insurance against claims for injuries to persons or damages to property that may arise from or in connection with the performance of the Work by Contractor, its agents, representatives, employees and subcontractors as set forth in the Contract Documents. Contractor's liabilities, including but not limited to Contractor's indemnity obligations, under this Contract, will not be deemed limited in any way to the insurance coverage required herein. Maintenance of insurance coverage is a material requirement of this Contract and Contractor's failure to maintain or renew coverage or to provide evidence of renewal during the term of this Contract, as required or when requested, may be treated as a material breach.

10.1.1. Workers' Compensation and Employers' Liability Insurance. Contractor and its subcontractors, if any, are subject to Oregon Workers' Compensation Law, which requires all employers that employ subject workers who work under this Contract in the State of Oregon to comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors, if any, complies with these requirements (ORS 279B.230(2)). Unless otherwise exempt, Contractor shall provide the City with certification of Workers' Compensation Insurance and shall maintain Employers' Liability Insurance with limits not less than \$1,000,000 for each accident, \$1,000,000 for disease each employee and \$1,000,000 each policy limit.

10.2. Performance Bond and Payment Bond. Contractor shall provide a performance bond and a payment bond as required by the Contract prior to start of Work.

11. UNCOVERING AND CORRECTION OF WORK.

11.1. Uncovering of Work. If a portion of the Work is covered without Project Inspector and/or Engineer approval or not in compliance with the Contract Documents, Contractor shall, if required in writing by City, Project Inspector, or Engineer, uncover the Work for observation and replace it at Contractor's expense without change in Contract Total or Contract Time.

11.2. Correction of Work. Contractor shall, at its own expense, promptly correct Work that is rejected by City, Engineer, or any governmental authority or otherwise fails to conform to the

requirements of the Contract Documents, regardless of when it is discovered and regardless of whether the Work is fabricated, installed or completed. Contractor shall pay for all additional testing, inspection, or other compensation including City and Engineer's additional services required for the correction of Work.

11.3. Correction of Work after Substantial Completion. If, after Substantial Completion, any Work is not in accordance with the requirements of the Contract Documents, City shall provide Contractor with written notice to correct the Work promptly after discovery of the condition. Contractor shall correct the nonconforming Work within a reasonable time after receipt of notice.

12. RIGHTS AND REMEDIES.

12.1. No Waiver. The duties and obligations imposed by the Contract Documents and rights and remedies available are in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law. No action or failure to act by any party shall constitute a waiver of a right or duty afforded the party under this Contract, nor does any act or omission constitute approval of or acquiescence in a breach, except as may be specifically agreed in writing.

12.2. Independent Contractor.

12.2.1. Contractor is engaged as an independent Contractor. Although City reserves the right: (a) to determine (and modify) the delivery schedule for the Work; and (b) to evaluate the quality of the completed performance, City cannot and will not control the means or manner of Contractor's performance, nor provide any tools or equipment for the performance of the Work, except as provided elsewhere in this Contract. Contractor shall determine the appropriate means and manner of performing the Work.

12.2.2. Contractor is wholly responsible for the manner in which it and its subcontractors perform the Work required of it by the Contract Documents. City may monitor Contractor's activities to determine compliance with the terms of this Contract.

12.2.3. Contractor shall pay all federal, state and local taxes applicable to compensation or payments paid to Contractor under this Contract and, unless Contractor is subject to backup withholding, City shall not withhold from such compensation or payments any amount(s) to cover Contractor's tax obligations.

12.2.4. Contractor is not an employee of the federal government or the State of Oregon.

12.2.5. Contractor is not a contributing member of the Public Employees Retirement System.

12.2.6. Neither Contractor, nor any of Contractor's subcontractors, agents or employees are "officers," "employees," or "agents" of City or any of City's employees or agents, as those terms are used in ORS 30.265. Contractor bears exclusive responsibility for the acts of its employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its subcontractors, agents, and its employees are not entitled to any rights or privileges of City employees.

13. COMPLIANCE WITH LAWS.

13.1. Contractor shall comply with all laws, codes, regulations, and applicable requirements imposed by governmental authorities having jurisdiction over the Work, including but not limited to, environmental, zoning, building code, public contracting, and other related laws.

13.2. Environmental Mitigation. Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the environmental protections laws of the State of Oregon.

13.3. Work Performed Illegally. Contractor will bear all costs arising from Work performed that it knew, or through exercise of reasonable care should have known, was contrary to any applicable laws, ordinance, rules, or regulations.

13.4. Prior Approvals. Contractor shall obtain approval of material, processes, or procedures by the Oregon state agencies or other body or agency where required by the Specifications or Drawings.

14. CLAIMS AND DISPUTES.

14.1. Claim. A Claim is a demand or assertion by a party seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. Claim includes other disputes and matters in question between City and Contractor arising out of or relating to the Contract. Parties will initiate Claims only by written notice. The party making the Claim is responsible for substantiating the Claim.

14.2. Time to Initiate Claim. The party making a Claim shall initiate the Claim within fourteen (14) days after the occurrence of the event giving rise to such Claim or within fourteen (14) days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. The party making the Claim shall submit written notice to the other party that identifies the known bases for each Claim and the nature and amount of relief sought.

14.3. Written Notice of Claim. If Contractor claims that any instructions issued after the effective date of this Contract, by Drawings or otherwise, involve extra costs, Contractor will be entitled to reimbursement for such extra costs only to the extent Contractor so notifies City in writing before proceeding to execute the affected Work and within five (5) days after receipt of such instructions. Claims and demands for any other cause, whatsoever, by Contractor against City must be served in writing upon City within five (5) days from the occurrence of the cause giving rise to the claim. Timely compliance with the written claim requirements of this Contract is a condition precedent to Contractor's right to payment on account of any claim and failure to provide such written claim or demand or notice will constitute a waiver of such claim.

14.4. No Work Stoppage. Contractor shall proceed diligently with performance of this Contract and City shall continue to make payments in accordance with the Contract Documents pending final resolution of a Claim, except as otherwise agreed in writing or provided for in this Contract.

14.5. Differing Site Conditions. A party shall give notice to the other party promptly, and in no event later than five (5) days after first observation, before conditions encountered at the site are disturbed that are: (a) subsurface or otherwise concealed physical conditions that differ materially from those indicated on the Contract Documents; or (b) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents. The parties shall promptly investigate such conditions, and if they differ materially and cause an increase or decrease in the cost of or time required for performance of any part of the Work, City will propose an equitable adjustment in the Contract Total, Contract Time, or both. If City does not find that the conditions differ materially and cause an increase or decrease in the cost of or time required for performance of any part of the Work, City will notify Contractor in writing. If Contractor disputes City's determination, Contractor shall proceed with the Work and may initiate a Claim no later than twenty one (21) days after receiving notice of the decision.

14.6. Claim for Additional Cost. Contractor shall file a Claim for additional cost under this section if Contractor believes additional cost is involved for reasons including: (a) City's written interpretation of the Contract Documents; (b) City's order to stop Work where Contractor is not at fault; (c) written order for a minor change in Work issued by City's consultant or representative; (d) failure of payment by City; (e) termination of Contract by City; (f) City's suspension; or (g) other reasonable grounds.

14.7. Claim for Delay. If Contractor wishes to make a Claim for a delay, written notice shall be given within fourteen (14) calendar days of the occurrence of the event giving rise to the delay. Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. Contractor will not be entitled to additional Contract Time for delays that do not affect the critical path of the Work.

14.8. Claim for Additional Time (Adverse Weather). If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction. Contractor shall not be entitled to additional compensation for delays caused by adverse weather conditions or any causes beyond City's control. If the Oregon Office of Emergency Management orders Contractor to halt the Work for reasons beyond Contractor's control and that were not reasonably anticipated, the Contract Time shall be equitably extended by Change Order, but only on condition that Contractor provides City with written notice of the delay in accordance with the notice requirements of this Contract.

14.9. Claim for Injury or Damage to Person or Property. If any person suffers physical injury or property damage arising from the Work, regardless of the cause, the party shall immediately give notice of such injury or damage, whether or not insured, to City and Contractor with sufficient detail to enable City and any other party affected to investigate the matter.

14.10. Acceptance of Claim. Upon timely receipt of a properly completed Claim and all documentation and/or evidence necessary to substantiate the Claim, City shall evaluate the Claim and provide Contractor with its written decision either accepting the Claim (in whole or in part) or rejecting the Claim (in whole or in part) within twenty (20) days. Should City reject the Claim in whole or in part, City shall generally explain the reasons for such rejection.

14.11. Mediation. Contractor and City agree that any dispute that may arise under the Contract will be submitted to a mediator agreed to by both parties as soon as such dispute arises, but in any event prior to commencement of arbitration or litigation. This provision shall be specifically enforceable in any arbitral or judicial proceeding through stay or abatement of the proceeding upon petition of a party. Mediation shall be conducted in Portland, Oregon, and the mediation fee and expenses shall be shared equally by the parties who agree to exercise their best efforts in good faith to resolve all disputes in mediation.

15. TERMINATION OR SUSPENSION BY CONTRACTOR.

15.1. Termination by Contractor for Work Stoppage. Contractor may terminate this Contract if the Work is stopped for a period of thirty (30) consecutive days through no act or fault of Contractor, subcontractor, or sub subcontractor, or their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor, for any of the following reasons: (a) issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped; (b) an act of government, such as a declaration of a national emergency which requires all Work to be stopped; (c) because the Engineer has not issued a Certificate of Payment and has not notified Contractor of the reason for withholding certification, or because City has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or (d) City failed to furnish to Contractor reasonable evidence that financial arrangements have been made to fulfill City's obligations under this Contract.

15.2. Termination by Contractor for Work Interruption. Contractor may terminate this Contract if, through no act or fault of Contractor, subcontractor, or sub subcontractor, or their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor, repeated suspensions, delays or interruptions of the entire Work by City constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365 day period, whichever is less, or if Work is stopped for a period of sixty (60) consecutive days.

15.3. Compensation. Contractor may recover from City payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery including reasonable profit and overhead if it provides seven (7) days' written notice to Engineer and City prior to termination for the reasons set forth above.

16. TERMINATION OR SUSPENSION BY CITY.

16.1. Termination by City for Cause. City may terminate Contract and/or terminate Contractor's right to perform the Work of this Contract without prejudice to any other rights or remedies by providing seven (7) days' written notice to Contractor and Contractor's surety if Contractor:

16.1.1. refuses or fails to execute the Work or any separable part with sufficient diligence to ensure its completion within the time specified or any extension;

16.1.2. persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

16.1.3. fails to make payment to subcontractors in accordance with respective agreements;

16.1.4. persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;

16.1.5. files a petition for relief as a debtor, or a petition is filed against Contractor without its consent, and the petition is not dismissed within sixty (60) days;

16.1.6. makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency; or

16.1.7. is otherwise guilty of a substantial breach of a provision of the Contract Documents or fails to observe the training, safety, and other precautions including City's policies and Contractor's own safety policies for the Project.

16.2. City's Right to Take Possession. Upon termination for cause, City may take possession of the site and of all materials, equipment, tools, and construction equipment and machinery on the site owned by Contractor, accept assignment of subcontracts, and finish the Work by whatever reasonable method City may deem expedient. Upon request, City shall provide Contractor a detailed accounting of the costs incurred in finishing the Work.

16.3. Compensation. Contractor will not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Contract Total exceeds City's costs to finishing the Work, including compensation for City's consultants and representatives for services made necessary by Contractor's default, and other damages incurred by City which have not been expressly waived, City shall pay the excess to Contractor. If City's costs and damages exceed the unpaid balance, Contractor shall pay the difference to City.

16.4. Suspension for Convenience. City may, without cause, order Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as City may determine. City shall adjust Contract Total and Contract Time for increases in the cost (including profit) and time caused by the suspension, delay, or interruption so long as the performance would not have been suspended, delayed, or interrupted by another cause for which Contractor is responsible and City has not already made or denied another equitable adjustment under another provision of this Contract for the suspension, delay, or interruption.

16.5. Termination for Convenience. City may terminate all or part of this Contract for City's convenience at any time and without cause. Contractor shall, upon written notice of such termination, cease operations as directed by City, take actions necessary to protect and preserve the Work, and terminate all existing subcontracts and purchase orders that are not required to perform the Work up to the effective date of termination and the portion of Work not terminated, and enter into no further subcontracts or purchase orders for the portion of this Contract that was terminated. City shall pay Contractor for Work executed and costs reasonably incurred by reason of such termination, along with reasonable overhead and profit on the Work completed. City will not pay profit or overhead allocable to Work which is not performed at the time of termination. If the City terminates Contractor for cause and a court or other tribunal finds that City did not have cause to terminate Contractor, then the court or other tribunal will deem the City's termination a termination for convenience under this section.

17. PAYMENTS AND COMPLETION.

17.1. Contract Total. The Contract Total is stated in the Contract, and including authorized adjustments, is the total amount payable by City to Contractor for performance of Work under the Contract Documents.

17.2. Schedule of Values. Prior to submission of the first Application for Payment, Contractor shall submit a preliminary schedule of values for all of the Work, including quantities and prices of items aggregating the Contract Total and subdividing the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Contractor shall include, at a minimum: (a) overhead and profit; (b) supervision; (c) general conditions; (d) layout; (e) mobilization; (f) scheduling; (g) submittals; (h) bonds and insurance; (i) close-out documentation; (j) demolition; (k) installation; (l) rough-in; (m) finishes; (n) testing; and (o) punch list and acceptance ("Schedule of Values").

17.3. Applications for Payment. Contractor shall submit an itemized application for payment for operations completed in accordance with the Schedule of Values and reflecting applicable retainage ("Application for Payment"). Applications for Payment shall be prepared using forms provided by the City. Contractor shall submit data substantiating Contractor's right to payment where required, such as copies of requisitions from subcontractors and material suppliers, Construction Change Directives, Change Orders, and/or force account information. Contractor shall provide:

17.3.1. The amount paid to the date of the Application for Payment to Contractor, all its subcontractors, and all others furnishing labor, material, or equipment for this Contract;

17.3.2. The amount being requested by Contractor on its own behalf and separately stating the amount requested on behalf of each of the subcontractors and all others furnishing labor, material, or equipment for this Contract;

17.3.3. The balance that is due to each of such entities after payment is made;

17.3.4. Certification that the Record Documents are current;

17.3.5. Itemized breakdown of Work done for the purpose of requesting partial payment;

17.3.6 Updated construction schedule;

17.3.7. Additions and subtractions from the Contract Total and Contract Time;

17.3.8. Total of retainage held;

17.3.9. Material invoices, evidence of equipment purchases, rentals, and other support City may request;

17.3.10. Percentage complete of Contractor's Work by line item;

17.3.11. A Schedule of Values updated from the preceding Application for Payment; and

17.3.12. Contractors' Certified Payroll.

17.4. Waivers and Releases. Contractor shall submit conditional waivers and releases upon progress payment from Contractor and each subcontractor of any tier and supplier to be paid from current progress payment along with an unconditional waiver and release upon progress payment from Contractor and each subcontractor of any tier that received payment from the previous progress payment. Contractor shall certify as follows: "Contractor warrants title to all Work performed and materials purchased as of the date of the payment application; and Contractor warrants that all Work performed and materials purchased as of the date of the payment application are free and clear of liens, claims, security interests, or encumbrances in favor of any persons or entities making a claim by reason of having provided labor, materials, or equipment relating to the Work, except those of which City has been informed."

17.5. False Claims. Contractor is subject to the False Claims Act set forth under ORS Chapter 180 for information provided with any Application for Payment.

17.6. Certificates for Payment.

17.6.1 City shall review the Contractor's Application for Payment within a reasonable time after receipt not to exceed seven (7) days for the purpose of determining that it is properly submitted. City shall either return the Application for Payment to Contractor with a document setting forth the reasons why the Application for Payment is not proper, or shall issue a Certificate for Payment for the amounts properly due.

17.6.2 City's issuance of a Certificate for Payment is a representation by City, based upon City's evaluation of the Work and the data comprising the Application for Payment, that Contractor is entitled to payment in the amount certified because the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. City's approval of the certified Application for Payment is based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

17.7. Decisions to Withhold Certification.

17.7.1 City shall notify Contractor in writing if any amounts are not due, and the reasons for withholding certification in whole or in part. If Contractor and City cannot agree on a revised amount, City shall promptly issue a Certificate for Payment for the amount for which City determines that Contractor is entitled to payment. City may withhold Certificate for Payment or nullify the whole or part of a Certificate for Payment previously issued, to such extent as may be reasonably necessary to protect City from loss for which Contractor is responsible, including loss resulting from acts and omissions because of defective Work not remedied, third party claims filed or reasonable evidence indicating probable filing of such claim unless security acceptable to City is provided by Contractor, failure of Contractor to make payments properly to subcontractors or for labor, materials, or equipment, reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Total, damage to City or another contractor, reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay, persistent failure to carry out the Work in accordance with the Contract Documents, or failure to maintain Record Documents.

17.7.2. Contractor shall not receive any interest on any retainage or amounts withheld due to the failure of Contractor to perform in accordance with the Contract Documents.

17.7.3. City may apply any withheld amount to pay outstanding claims or obligations on behalf of Contractor, without prior judicial determination of the claim or obligation. If any payment is made by City, that amount is deemed a payment made under this Contract by City to Contractor.

17.3.4. City shall promptly issue a Certificate for Payment for amounts previously withheld when the reasons for withholding certification are removed.

17.8. Progress Payments.

17.8.1. City shall make payment in the manner and within the time provided in the Contract Documents. City may withhold the portion of any progress payment for which certified payroll statements have not been received until such certified statements are submitted.

17.8.2. contractor shall promptly pay each subcontractor, upon receipt of payment from City, out of the amount City paid to Contractor on account of each subcontractor's portion of the Work. Contractor shall, by written agreement, require each subcontractor to make payments to sub-subcontractors in a similar manner.

17.8.3. City may issue joint checks made payable to Contractor, subcontractor(s) and material or equipment suppliers. Joint check payees are responsible for the allocation and disbursement of funds included as part of any such joint check payment. Joint check

payment does not create a contract, rights, or obligations between City and any subcontractor or material or equipment supplier.

17.8.4. Certificate for Payment, progress payment, or partial or entire use or occupancy of the Project does not constitute acceptance of Work not in accordance with the Contract Documents.

17.9. Substantial Completion.

17.9.1. Substantial Completion. Substantial completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that City can occupy or utilize the Work for its intended purpose.

17.9.2. Punch List. When Contractor considers the Work or a designated portion of the Work to be substantially complete, Contractor shall prepare and submit to City a comprehensive list of items to be completed or corrected prior to final payment ("Punch List"). The Punch List does not alter Contractor's responsibility to complete the Work in accordance with the Contract Documents.

17.9.3. Certificate of Substantial Completion. Upon receipt of Contractor's Punch List, City shall make an inspection to determine whether the Work or designated portion thereof is substantially complete. If City determines that the Work is not substantially complete, City shall notify Contractor of any Work to be completed in accordance with the Contract Documents before the Work or designated portion can be certified as such, and Contractor shall complete all such items. Upon determining that the Work or designated portion thereof is substantially complete, City and Contractor shall execute a Certificate of Substantial Completion.

17.9.4. Commencement of Warranty. Contractor's general and special warranties shall be effective as of the date that the Work is deemed finally complete.

17.9.5. Close-Out Documentation. Contractor shall assemble for City's approval within thirty (30) days of Substantial Completion all close-out documentation as required by the Contract Documents, including the required number of copies of operating, maintenance, and warranty data from all manufacturers whose equipment is installed in the Work, and Record Documents of the Work.

17.10. Final Completion.

17.10.1. The Work will be deemed finally complete when all conditions set out in the Contract Documents are satisfied and City accepts such Work. Final completion is achieved when all punchlist work is complete, all close-out documentation has been received, all final testing, equipment calibration and training have been completed, and the Contractor is entitled to Final Payment. Unless special circumstances exist that are defined at the time of Punch List creation, Contractor shall achieve Final Completion within 45 days of Substantial Completion.

17.10.2. Final Inspection. When Contractor considers all of the Punch List Work to be complete, Contractor shall notify City which shall inspect such Work.

17.10.3. Final Application for Payment. If City finds the Punch List Work complete and acceptable under the Contract Documents, City shall notify Contractor, who shall then submit its Final Application for Payment.

17.10.4. Payment of Retainage. City shall make payment of retainage applying to such Work or designated portion thereof after receiving all Close Out Documentation, an affidavit that bills for indebtedness connected with the Work for which City's property might be encumbered have been satisfied; a certificate to indicate that insurance required by the Contract Documents shall remain in force after final payment is in effect and will not be cancelled or expire until thirty (30) days' prior written notice is given to City and that Contractor knows of no substantial reason that the insurance will not be renewable to

cover the period required by the Contract Documents; the consent of surety to final payment; and valid waivers of all construction lien claims, bond claims, and other claims by Contractor and each subcontractor in a form acceptable to City.

17.10.5. Bond in Lieu of Waiver. If a subcontractor refuses to furnish a release or waiver required by City, Contractor may furnish a bond satisfactory to City to indemnify City against such lien. If such lien remains unsatisfied after payments are made, Contractor shall refund to City all money that City may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

17.10.6. Delay in Final Completion. City shall make payment of the balance due for any portion of the Work fully completed and accepted if final completion is materially delayed through no fault of Contractor or by issuance of Change Orders affecting final completion. In the event that final completion is not accomplished within thirty (30) days after the date of Substantial Completion due to any fault of Contractor, City may withhold from the final payment 150 percent of the reasonable cost to complete the unfinished Work and to attain final completion. In the event Contractor fails to complete the Work necessary to attain final completion after forty-five (45) days from Substantial Completion, City may, without waiving other remedies it may have, complete the Work and deduct the actual cost thereof from the funds withheld.

17.10.7. Contractor's Waiver of Claims. Contractor's acceptance of final payment constitutes a waiver of claims except those previously made in writing and identified by Contractor as unsettled at the time of final Application for Payment.

18. INDEMNITY AND LIABILITY.

18.1. To the fullest extent permitted by Oregon law, Contractor shall indemnify, defend with legal counsel reasonably acceptable to City, and hold harmless City and its consultants and separate contractors, and their respective council members, board members, officers, representatives, agents, trustees, volunteers, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, damages, losses, and expenses, including but not limited to attorney's fees, caused by, arising out of, resulting from, or incidental to, the performance of the Work under this Contract by Contractor, its subcontractors, vendors, or suppliers, including, without limitation, any such suit, claim, damage, loss, or expense attributable to, without limitation, bodily injury, sickness, disease, death, alleged patent violation or copyright infringement, or to injury to or destruction of tangible property (including damage to the Work itself) including the loss of use resulting therefrom, except to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or to any extent that would render these provisions void or unenforceable. This agreement and obligation of Contractor will not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist as to any party or person described herein. This indemnification, defense, and hold harmless obligation includes any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms.

18.2. Contractor shall fully indemnify, defend, and hold harmless City, and each person, entity, firm, or agency that owns or has any interest in adjacent property in any action arising out of any agreement between Contractor and adjacent property owners that is made for the purpose of entering upon the adjacent property to perform the Work. Contractor shall obtain City's approval of the form and content of the agreement prior to the commencement of any Work on or about the adjacent property.

18.3. Severability of Indemnity Provisions. Contractor shall give prompt notice to City in the event of any injury (including death), loss, or damage included herein. Without limitation of the provisions herein, if Contractor's agreement to indemnify, defend, and hold harmless the Indemnitees as provided herein against liability for damage arising out of bodily injury to persons or damage to property caused by or resulting from the negligence of any of the Indemnitees will to any extent be or be determined to be void or unenforceable, it is the intention of the parties that

these circumstances will not otherwise affect the validity or enforceability of Contractor's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein, and in the case of any such suits, claims, damages, losses, or expenses caused in part by the default, negligence, or act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, and in part by any of the Indemnitees, Contractor shall be and remain fully liable on its agreements and obligations herein to the full extent permitted by law.

18.4. In any and all claims against any of the Indemnitees by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, Contractor's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts, unless it is limited by ORS 30.140.

18.5. Contractor's defense and indemnification obligations survive the completion of Work, including any warranty period and/or termination of this Contract.

19. SECURITY.

19.1. Security. Contractor shall not use or disturb City's property, materials or documents except for the purpose of responding to City's request for proposal or invitation to bid or pursuant to completion of the Work under this Contract. Contractor shall treat all documents as confidential and shall not disclose such documents without approval from City. Any unauthorized disclosure of documents or removal of City property will be deemed a substantial breach of this Contract. Contractor shall bear sole responsibility for any liability including, but not limited to, attorneys' fees, resulting from any action or suit brought against City as a result of Contractor's willful or negligent release of information, documents, or property contained in or on City property. City hereby deems all information, documents, and property contained in or on City property privileged and confidential.

19.2. Employee Removal. At City's request, Contractor shall immediately remove any employee from all City properties in cases where City determines in its sole discretion that removal of that employee is in City's best interests.

20. MISCELLANEOUS PROVISIONS.

20.1. Non-Appropriation; Adequate Funding. City shall, at Contractor's written request, prior to commencement of Work, provide Contractor with reasonable evidence that financial arrangements have been made to fulfill City's obligations under the Contract. If payment for Work under this Contract extends into City's next fiscal year, City's obligation to pay for such Work is subject to approval of future city council appropriations to fund this Contract. Continuation of this Contract at specified levels is specifically conditioned on adequate funding under City's budget adopted in June of each year. City may adjust the Work provided for in this Contract in accordance with funding levels adopted by the City Council.

20.2. Law and Venue. Any dispute under this Contract or related to this Contract is governed by all provisions of the Oregon Constitution and laws of Oregon governing, controlling, or affecting City, or the property, funds, operations, or powers of City, which are incorporated herein by reference. This Contract is deemed to include any provision that the law requires to be included. Any litigation arising out of this Contract shall be conducted in in the Circuit Court for Clatsop County, Oregon. The Contractor consents to the personal jurisdiction of this court.

20.3. Severability. If any term or provision of this Contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions are not affected, and the rights and obligations of the parties are construed and enforced as if this Contract did not contain the particular term or provision held to be invalid.

20.4. No Waiver. The failure of City in any one or more instances to insist upon strict performance of any of the terms of this Contract or to exercise any option herein conferred is not a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any

future occasion. No action or failure to act by City, Engineer, or Construction Manager waives any right or duty afforded City under this Contract, nor does action or failure to act constitute an approval of or acquiescence in any breach, except as specifically agreed in writing.

20.5. Non-discrimination. Contractor shall comply with all applicable federal, state and local laws, rules and regulations regarding nondiscrimination in employment because of race, color, ancestry, national origin, religion, sex, marital status, age, medical condition, or disability.

20.6. No Third Party Beneficiaries. City and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract provides any benefit or right, directly or indirectly, to third persons unless they are individually identified by name in this Contract and expressly described as intended beneficiaries of this Contract. The Contract Documents shall not be construed to create a contractual relationship of any kind: (a) between Contractor and City's representatives or consultants, (b) between City and a subcontractor or a sub-subcontractor, (c) between City and a supplier; or (d) between any persons or entities other than City and Contractor.

20.7. Media Contacts. Contractor shall issue no news release, press release, or other statement to members of the news media or any other publication regarding this Contract or the Project within one (1) year of Project completion without City's prior written authorization. Contractor shall not post or publish any textual or visual representations of the Project without approval of City.

20.8. Successors in Interest. This Contract will bind, and inure to the benefit of, the parties, their successors, and approved assigns, if any.

20.8.1. Contractor shall not assign all or any part of this Contract including, without limitation, any services or money to become due under this Contract without the prior written consent of City. Assignment without City's prior written consent is null and void. Any assignment of money due or to become due under this Contract is subject to a prior lien for services rendered or material supplied for performance of Work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to Oregon law, and is also subject to deductions for liquidated damages or withholding of payments as determined by City in accordance with this Contract. Contractor shall not assign or transfer in any manner to a subcontractor or supplier the right to prosecute or maintain an action against City.

20.8.2. Contractor shall first notify City prior to any change in the name or legal nature of Contractor's entity. City shall determine if Contractor's intended change is permissible while performing this Contract.

20.9. Liquidated Damages.

20.9.1 Failure to complete the Project by the specified time will result in damages to the City. The parties to this contract agree that establishing the exact amount of damages the City will incur will be difficult. In order to compensate the City, the parties to this contract have estimated the amount the City would be damaged for every calendar day completion is delayed. Consequently, the Contractor agrees to pay the City the sum of \$200 per day, not as a penalty but as liquidated damages, for each day elapsed beyond the Substantial Completion date set forth in the bid document. The total liquidated damages shall be deducted from the final payment due the Contractor. The City may waive its right to claim part or all of the liquidated damages due under this provision, but such full or partial waiver shall not negate or abridge any other right of action the City may have to enforce the provisions of this Contract. Contractor will not contest such sums as being other than a reasonable measure of delay damages in the event those damages become payable under these provisions.

20.10. Workers' Compensation.

20.10.1. All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under

ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than \$1,000,000 for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

END OF SECTION

**SECTION 00 72 10
INSURANCE REQUIREMENTS**

1. ADDITIONAL INSURANCE.

Contractor shall maintain all insurances required of it by law. In addition, the Contractor shall maintain the following:

1.1 Required Coverage. Without waiver of any other requirement of the Contract Documents, the Contractor will provide, pay for, and maintain in full force and effect at all times during the performance of the Work until final acceptance of the Work or for such further duration as required, the following policies of insurance issued by a responsible carrier. All of the Contractor's insurance carriers shall be rated A VII or better by A.M. Best's rating service, unless otherwise approved by the City.

1.1.1 Workers' Compensation. Workers' compensation coverage sufficient to meet statutory liability limits.

1.1.2 Employer's Liability. The Contractor shall purchase and maintain employer's liability insurance in addition to its workers' compensation coverage with at least the minimum limits in section 1.2 below.

1.1.3 Commercial General Liability. The Contractor shall purchase and maintain commercial general liability ("CGL") insurance for off-site exposures on an occurrence basis, written on ISO Form CG 00 01 (12/04 or later) or an equivalent form approved in advance by the City. CGL coverage shall include all major coverage categories including bodily injury, property damage and products/completed operations coverage. The CGL insurance will also include the following: (1) separation of insureds; (2) incidental medical malpractice; and (3) per-project aggregate for premises operations.

1.1.4 Professional Liability/Errors and Omissions. To the extent that the Contractor accepts design or design/build responsibilities, the Contractor shall purchase and maintain professional liability/errors and omissions insurance or cause those Subcontractors providing design services do so.

1.1.5 Automobile Liability. The Contractor shall purchase and maintain automobile liability insurance with coverage for owned, hired, and non-owned vehicles on ISO form CA 00 01 or an equivalent form approved in advance by the City. The automobile liability insurance shall include pollution liability coverage resulting from vehicle overturn and collision.

1.2 Limits. The insurance required by this exhibit shall be written for at least the limits of liability specified in this Section or required by law, whichever is greater.

WORKERS' COMPENSATION	STATUTORY LIMITS
EMPLOYER'S LIABILITY	
Each Accident:	\$1,000,000
Each Bodily Injury Disease:	\$1,000,000
Aggregate Bodily Injury Disease:	\$1,000,000
COMMERCIAL GENERAL LIABILITY	
Each Occurrence:	\$2,000,000
General Aggregate:	\$3,000,000
Product/Completed Operations:	\$2,000,000
Personal & Advertising Injury:	\$2,000,000
Fire Damage Limit:	\$100,000
Medical Expense Limit:	\$5,000
Automobile Liability	

WORKERS' COMPENSATION	STATUTORY LIMITS
COMBINED SINGLE LIMIT:	\$2,000,000
PROFESSIONAL LIABILITY/ERRORS & OMISSIONS	
Single Limit:	\$1,000,000
Aggregate:	\$1,000,000

1.3 Additional Insureds. The Contractor's third-party liability insurance policies shall include the City and its officers, employees, and agents as additional insureds. The policy endorsement must extend premises operations and products/completed operations to the additional insureds. The additional insured endorsement for the CGL insurance must be written on ISO Form CG 20 10 (11/85), a CG 20 37 (07/04) together with CG 20 33 (07/04), or the equivalent; but shall not use the following forms: CG 20 10 (10/93) or CG 20 10 (03/94).

1.4 Joint Venture. If the Contractor is a joint venture, the joint venture shall be a named insured for the liability insurance policies.

1.5 Primary Coverage. The Contractor's insurance shall be primary insurance coverage and may not seek contribution from any insurance or self-insurance carried by the City or the Architect including any property damage coverage carried by the City. Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought. The Contractor's insurance shall not include any cross-suit exclusion or preclude an additional insured party from asserting a claim as a third party.

1.6 Contractor's Failure to Maintain Insurance. If the Contractor for any reason fails to maintain required insurance coverage, such failure shall be deemed a material breach of the Contract and the City, at its sole discretion, may suspend or terminate the Contract pursuant to Section 108.11 of the General Conditions. The City may, but has no obligation to, purchase such required insurance, and without further notice to the Contractor, the City may deduct from the Contract Total any premium costs advanced by the City for such insurance. Failure to maintain the insurance coverage required by this exhibit shall not waive the Contractor's obligations to the City.

1.7 Certificates of Insurance. Prior to commencement of the Work, and before bringing any equipment or construction equipment on to the Project Site, the Contractor shall provide Certificates of Insurance, to the City Representative, for the insurance policies required by this contract.

1.7.1 Additional Certificates. To the extent that the Contractor's insurance coverage's are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment. Information concerning reduction of coverage on account of revised limits or claims paid under the general aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

1.7.2 Prohibition Until Certificates Received. The City shall have the right, but not the obligation, to prohibit the Contractor and its Subcontractors from entering the Project Site until the required certificates (or other competent evidence that insurance has been obtained in complete compliance with this exhibit) are received and approved by the OCIP Administrator and or City.

1.7.3 Deductibles/Self-Insured Retentions. Payment of deductibles or self-insured retentions is a Cost of the Work within the Guaranteed Maximum Price and does not justify a Change Order. Satisfaction of all self-insured retentions or deductibles will be the sole responsibility of the Contractor.

1.8 SUBCONTRACTORS INSURANCE. The Contractor shall cause each Subcontractor to purchase and maintain in full force and effect policies of insurance as specified in this exhibit, except for coverage limits, which will be agreed upon between the City and the Contractor. The Contractor will be responsible for the Subcontractors' coverage if the Subcontractors fail to purchase and maintain the required insurance. When requested by the City, the Contractor will furnish copies of certificates of insurance establishing coverage for each Subcontractor.

1.9 LIMITATIONS ON COVERAGE.

1.9.1 No insurance provided by the Contractor under this exhibit will be required to indemnify the City, the Architect, the engineer, or their employees or agents to the extent of liability for death or bodily injury to persons or damage to property caused in whole or in part by their own negligence, but will require indemnity to the extent of the fault of the Contractor or its agents, representatives, or Subcontractors.

1.9.2 The obligations of the Contractor under this exhibit shall not extend to the liability of the Architect or its consultants for (1) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs, or specifications, or (2) the giving or failure to give directions or instructions, to the extent that the directions, or failure to provide directions, are the cause of the injury or damage.

1.9.3 By requiring insurance, the City does not represent that coverage and limits will necessarily be adequate to protect the Contractor. Insurance in effect or procured by the Contractor will not reduce or limit the Contractor's contractual obligations to indemnify and defend the City for claims or suits that result from or are connected with the performance of the Contract.

2. PROPERTY INSURANCE.

2.1 Builder's Risk: (For new construction or building additions) During the term of this Contract, the City will maintain builder's risk and property coverages to the City's standards.

2.3 Such insurance shall be maintained until the City has occupied the facility.

2.4 Contractor must provide insurance for its own machinery, tools, equipment, or supplies that are not to become a part of the Project.

END OF SECTION

SECTION 00 72 20
BOLI PREVAILING WAGE RATES

The April 5, 2023 Prevailing Wage Rates, and any addenda issued to Prevailing wage rates for Public Contracts in Oregon shall be used for this project. A copy of the Prevailing Wage Rates can be obtained from the Oregon Bureau of Labor and Industries located at:

800 NE Oregon Street, Suite 1045
Portland, OR 97232

or via their website at:

<https://www.oregon.gov/boli/employers/Pages/prevailing-wage-rates.aspx>

END OF SECTION

SECTION 00 72 30
OREGON STATUTORY PUBLIC WORKS BOND

Surety bond #: _____ CCB # (if applicable): _____ We,

_____ as principal, and

_____ a corporation qualified and

authorized to do business in the State of Oregon, as surety, are held and firmly bound unto the State of Oregon for the use and benefit of the Oregon Bureau of Labor and Industries (BOLI) in the sum of thirty thousand dollars (\$30,000) lawful money of the United States of America to be paid as provided in ORS chapter 279C, as amended by Oregon Laws 2005, chapter 360, for which payment well and truly to be made, we bind ourselves, our heirs, personal representatives, successors and assigns, jointly and severally, firmly by this agreement.

WHEREAS, the above-named principal wishes to be eligible to work on public works project(s) subject to the provisions of ORS chapter 279C, as amended by Oregon Laws 2005, chapter 360, and is, therefore, required to obtain and file a statutory public works bond in the penal sum of \$30,000 with good and sufficient surety as required pursuant to the provisions of section 2, chapter 360, Oregon Laws 2005, conditioned as herein set forth.

NOW, THEREFORE, the conditions of the foregoing obligations are that if said principal with regard to all work done by the principal as a contractor or subcontractor on public works project(s), shall pay all claims ordered by BOLI against the principal to workers performing labor upon public works projects for unpaid wages determined to be due, in accordance with ORS chapter 279C, as amended by Oregon Laws 2005, chapter 360, and OAR Chapter 839, then this obligation shall be void; otherwise to remain in full force and effect.

This bond is for the exclusive purpose of payment of wage claims ordered by BOLI to workers performing labor upon public works projects in accordance with ORS chapter 279C, as amended by Oregon Laws 2005, chapter 360.

This bond shall be one continuing obligation, and the liability of the surety for the aggregate of any and all claims, which may arise hereunder, shall in no event exceed the amount of the penalty of this bond.

This bond shall become effective on the date it is executed by both the principal and surety and shall continuously remain in effect until depleted by claims paid under ORS chapter 279C, as amended by Oregon Laws 2005, chapter 360, unless the surety sooner cancels the bond. This bond may be cancelled by the surety and the surety be relieved of further liability for work performed on contracts entered after cancellation by giving 30 days' written notice to the principal, the Construction Contractors Board, and BOLI. Cancellation shall not limit the responsibility of the surety for the payment of claims ordered by BOLI relating to work performed during the work period of a contract entered into before cancellation of this bond.

IN WITNESS WHEREOF, the principal and surety execute this agreement. The surety fully authorizes its representatives in the State of Oregon to enter into this obligation.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 20____

SURETY BY:

PRINCIPAL BY:

COMPANY NAME

NAME

SIGNATURE

SIGNATURE

TITLE (E.G. ATTORNEY-IN-FACT)

TITLE

ADDRESS

CITY

STATE

ZIP

SEND BOND TO:

CONSTRUCTION CONTRACTORS BOARD
PO BOX 14140
SALEM, OR 97309-5052
TELEPHONE: 503-378-4621

END OF SECTION

**SECTION 00 72 40
CERTIFICATION OF WORKERS' COMPENSATION COVERAGE**

The contractor, for the purposes of this contract, hereby certifies that it is currently providing Oregon Workers' Compensation coverage for all its employees and will maintain coverage throughout the course of the project through one of the following methods:

1. ☐ "CARRIER-INSURED EMPLOYER" (STATE ACCIDENT INSURANCE FUND CORP. OR OTHER AUTHORIZED INSURER)

INSURANCE COMPANY NAME _____

ID/POLICY NUMBER _____

2. ☐ "SELF-INSURED EMPLOYER" (CERTIFIED BY THE WORKERS' COMPENSATION DIVISION)

ID NUMBER AS ASSIGNED BY THE WORKER'S COMPENSATION DIVISION:

3. ☐ I AM AN INDEPENDENT CONTRACTOR AND WILL PERFORM ALL WORK UNDER THIS CONTRACT WITHOUT THE ASSISTANCE OF OTHERS.

IN THE EVENT OF CANCELLATION OR CHANGE IN THE INFORMATION ABOVE, CONTRACTOR CERTIFIES THAT IT WILL IMMEDIATELY NOTIFY THE DEPARTMENT OF SAID CANCELLATION OR CHANGE AND WILL OBTAIN ALTERNATE COVERAGE.

DATED: _____, 20_____

CONTRACTORS SIGNATURE

REMINDER: ADDITIONAL INFORMATION NEEDED

HAS YOUR INSURANCE CARRIER FILED WITH OREGON WORKERS' COMPENSATION DIVISION A GUARANTY CONTRACT AS PROOF OF COVERAGE FOR YOUR EMPLOYEES WORKING IN OREGON? ☐ YES ☐ NO

FOR FILING INFORMATION, CONTACT THE WORKERS' COMPENSATION DIVISION AT LABOR AND INDUSTRIES BUILDING: SALEM, OR 97301; PHONE (503) 947-7810.

END OF SECTION

**SECTION 00 73 00
SUPPLEMENTARY CONDITIONS**

PART 1 GENERAL

1.01 SUMMARY

- A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 00 72 00 - General Conditions and other provisions of Contract Documents as indicated below. Provisions that are not so amended or supplemented remain in full force and effect.
- B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

1.02 MODIFICATIONS TO GENERAL CONDITIONS

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

GENERAL REQUIREMENTS

Division 01

SECTION 01 10 00 SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Cannon Beach E. Harrison Water Line Replacement .
- B. Owner's Name: City of Cannon Beach
- C. Engineer's Name: Windsor Engineers.
- D. Additional Project contact information is specified in Section 00 01 02 - Project Information.
- E. The Project consists of the construction of The abandonment of an existing 2" PVC water main in place, installation of one fire hydrant, installation of an 8-inch HDPE water main along with the associated fittings and reconstruction of 12 service connections, 1 sanitary lateral extension and trench repair and repaving. The Contractor shall construct the improvements as designed, shall provide all necessary materials to complete the work.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Contractor Provided Bid as described in Document 00 41 80 – Example Public Improvement Contract Form

1.03 OWNER OCCUPANCY

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Provide access to and from site as required by law and by Owner:
 - 1. Do not obstruct roadways, sidewalks, or other public ways without permit.

1.05 SPECIFICATION SECTIONS APPLICABLE TO EVERY CONTRACT

- A. Unless otherwise noted, provisions of the sections listed below apply to every contract. Specific items of work listed under individual contract descriptions constitute exceptions.
- B. Section 01 20 00 - Price and Payment Procedures.
- C. Section 01 22 00 - Unit Prices.
- D. Section 01 32 16 - Construction Progress Schedule.
- E. Section 01 40 00 - Quality Requirements.
- F. Section 01 41 00 – Regulatory Requirements
- G. Section 01 50 00 - Temporary Facilities and Controls.
- H. Section 01 51 00 – Temporary Utilities
- I. Section 01 55 00 – Vehicular Access and Parking
- J. Section 01 57 13 - Temporary Erosion and Sediment Control

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.

1.02 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Contract.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Owner for approval.
- C. Forms filled out by hand will not be accepted.
- D. Execute certification by signature of authorized officer.
- E. Submit one electronic copy of each Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 22 00
UNIT PRICES**

PART 1 GENERAL

1.01 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.02 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.03 MEASUREMENT OF QUANTITIES

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. Measurements and quantities will be verified by Engineer.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.
- D. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.04 PAYMENT

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Engineer, multiplied by the unit price.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Preconstruction meeting.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Number of copies of submittals.
- F. Requests for Interpretation (RFI) procedures.
- G. Submittal procedures.

1.02 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Comply with requirements of the individual Sections for Project Closeout Requirements and for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format, as appropriate to the document, and transmitted via email to the Engineer.
 - 1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
 - 2. It is Contractor's responsibility to submit documents in allowable format.
 - 3. Users need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided..
 - 4. Paper document transmittals will not be reviewed
 - 5. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

3.02 PRECONSTRUCTION MEETING

- A. Attendance Required:
 - 1. Owner.
 - 2. Engineer.
 - 3. Contractor.
 - 4. Major subcontractors.
- B. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to the Contract, for the Owner and Engineer.
 - a. Owner Representative: Mike Benefield

- b. Water Supervisor: Dan Willyard
- c. Site Monitor: Casey Coates
- d. Field Engineer: Dan Koistinen
- e. Office Administrator: Susan Kohnle
- f. Construction Manager: Chuck McDonald
- g. Program Manager: Travis Tormanen
- 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
- 7. Scheduling.
- C. Engineer will record minutes and distribute copies within two days after meeting to participants, with copies to Engineer, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

- A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- C. Within 10 days after joint review, submit complete schedule.
- D. Submit updated schedule with each Application for Payment.

3.04 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. Submit to Engineer for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in the individual specification sections.

3.05 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
 - 8. Record documentation
- B. Submit for Engineer's knowledge as contract administrator or for Owner.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of the individual sections:
 - 1. Project record documents.

2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.
6. Final documents.

D. Submit for Owner's benefit during and after project completion.

3.07 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Engineer
 1. After review, produce duplicates.
 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.08 SUBMITTAL PROCEDURES

- A. General Requirements:
 1. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
 2. Transmit using approved form.
 - a. Use Contractor's form, subject to prior approval by Engineer.
 3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 5. 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 in accordance with the requirements of the work and Contract Documents.

3.09 SUBMITTAL REVIEW

- A. Submittals for Review: Engineer will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Engineer will acknowledge receipt and review. See below for actions to be taken.
- C. Engineer's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
- D. Engineer's and consultants' actions on items submitted for review:
 1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
 - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
 - 1) Resubmit corrected item, with review notations acknowledged and incorporated. Resubmit separately, or as part of project record documents.
 - 2) Non-responsive resubmittals may be rejected.
 2. Not Authorizing fabrication, delivery, and installation:
 - a. "Revise and Resubmit".
 - 1) Resubmit revised item, with review notations acknowledged and incorporated.
 - 2) Non-responsive resubmittals may be rejected.
 - b. "Rejected".

- 1) Submit item complying with requirements of Contract Documents.
- E. Engineer's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 2. Items for which action was taken:
 - a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

1.02 SUBMITTALS

- A. Within 10 days after date of Contract Execution, submit preliminary schedule.
- B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
- C. Submit updated schedule with each Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- C. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.04 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Engineer, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

**SECTION 01 40 00
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Testing and inspection agencies and services.
- E. Control of installation.
- F. Defect Assessment.

1.02 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.03 QUALITY ASSURANCE

- A. Contractor's Quality Control (CQC) Plan:
 - 1. Prior to start of work, submit a comprehensive plan describing how contract deliverables will be produced. Tailor CQC plan to specific requirements of the project. Include the following information:
 - a. Management Structure: Identify personnel responsible for quality. Include a chart showing lines of authority.
 - 1) Include qualifications (in resume form), duties, responsibilities of each person assigned to CQC function.
 - b. Management Approach: Define, describe, and include in the plan specific methodologies used in executing the work.
 - 1) Communications.
 - 2) Inspection and testing procedures and scheduling.
 - 3) Control of noncomplying work.
 - 4) Project materials certification.
 - c. Owner will not make a separate payment for providing and maintaining a Quality Control Plan. Include associated costs in Bid price.
 - d. Acceptance of the plan is required prior to start of construction activities not including mobilization work. Owner's acceptance of the plan will be conditional and predicated on continuing satisfactory adherence to the plan. Owner reserves the right to require Contractor to make changes to the plan and operations, including removal of personnel, as necessary, to obtain specified quality of work results.

1.04 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. As indicated in individual specification sections, Owner or Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 - 1. Laboratory: Authorized to operate in the State in which the Project is located.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at the site. Cooperate with Engineer and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Engineer and Contractor of observed irregularities or non-compliance of Work or products.
 - 5. Perform additional tests and inspections required by Engineer.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Engineer.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

**SECTION 01 41 00
REGULATORY REQUIREMENTS**

PART 1 GENERAL

1.01 SUMMARY OF REFERENCE STANDARDS

- A. Regulatory requirements applicable to this project are the following:
 - 1. Asbestos handling requirements
- B. 29 CFR 1910 - Occupational Safety and Health Standards Current Edition.

1.02 RELATED REQUIREMENTS

- A. Section 01 40 00 - Quality Requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 51 00
TEMPORARY UTILITIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: Provision of electricity, lighting and water.

1.02 RELATED REQUIREMENTS

- A. Section 01 50 00 - Temporary Facilities and Controls:
 - 1. Temporary sanitary facilities required by law.

1.03 TEMPORARY WATER SERVICE

- A. Cost of Water Used: By Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of roadways, waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 REFERENCE STANDARDS

- A. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus 2021.
- B. ASTM D4491/D4491M - Standard Test Methods for Water Permeability of Geotextiles by Permittivity 2022.
- C. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles 2015.
- D. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles 2015a.
- E. ASTM D4751 - Standard Test Methods for Determining Apparent Opening Size of a Geotextile 2021a.
- F. ASTM D4873/D4873M - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples 2017 (Reapproved 2021).

1.03 PERFORMANCE REQUIREMENTS

- A. Also comply with all more stringent requirements of State of Oregon Erosion and Sedimentation Control Manual.
- B. Follow the provided Erosion Control Plan and submit periodic inspection reports.
- C. Timing: Put preventive measures in place before disturbance of surface cover.
- D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
 - 1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
 - 2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.
- E. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
 - 1. Control movement of sediment and soil from temporary stockpiles of soil.
 - 2. Prevent development of ruts due to equipment and vehicular traffic.
 - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
 - 1. Prevent windblown soil from leaving the project site.
 - 2. Prevent tracking of mud onto public roads outside site.
 - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
 2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including but not limited to rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- I. Open Water: Prevent standing water that could become stagnant.
- J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Erosion Control Plan:
 1. Submit modifications to the plan (if any) including:
 - a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
 - b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.
 - c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
 - d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
 - e. Other information required by law.
 - f. Format required by law is acceptable, provided any additional information specified is also included.
 2. Obtain the approval of the Plan by authorities having jurisdiction.
- C. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Erosion control material shall meet ODOT's Oregon Standard Specifications for Construction 2024 Section 00280 and ODOT Erosion Control Manual. If no standards exist, the following shall apply.
- B. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:
 1. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751.
 2. Permittivity: 0.05 sec^{-1} , minimum, when tested in accordance with ASTM D4491/D4491M.
 3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355/D4355M after 500 hours exposure.

4. Tensile Strength: 100 pounds-force, minimum, in cross-machine direction; 124 pounds-force, minimum, in machine direction; when tested in accordance with ASTM D4632/D4632M.
 5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.
 6. Tear Strength: 55 pounds-force, minimum, when tested in accordance with ASTM D4533/D4533M.
 7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
- C. Sediment Fence Posts: Shall meet ODOT's Oregon Standard Specifications for Construction 2024 and Erosion Control Field Manual,
1. Untreated wood posts (wood stain is acceptable)
- D. Inlet protection: Furnish inlet protection materials meeting the following requirements:
1. Type 2:
 - a. Wire Mesh - 19-gauge steel-wire mesh with 3/8 by 3/8-inch openings.
 - b. Geotextile - Type 1 geotextile meeting the requirements of ODOT Section 02320.
 - Aggregate - Open-graded Aggregate meeting the requirements of ODOT Section 02630.11.
 2. Type 3: Prefabricated Filter Inserts - Prefabricated filter inserts manufactured specifically for collecting sediment in drainage inlets and from the ODOT QPL. Include handles and fasteners sufficient to keep the insert from falling into the inlet during maintenance and removal of the insert from the inlet.
 3. Type 7:
 - a. Filter sock material, compost, and stakes meeting the requirements of ODOT Section 00280.15(f).
 - b. Sand bags conforming to ODOT Section 00280.15(a).
- Type 10: Curb Inlet Sediment Dam - Provide one (or more) of the following curb inlet sediment barrier from products, or as approved:
- a. Ertec - Curb Inlet Protection
 - b. ACF - Econo Curb
 - c. GEI Works - Taurus Curb Inlet Filter
 - d. GEI Works - Ultra-Curb Inlet Guard
 - e. Ultratech - Ultra-Curb Guard Plus

PART 3 EXECUTION

3.01 EROSION AND SEDIMENT CONTROL MANAGER (ESCM)

- A. Designate and provide an ESCM who possesses a valid ODOT ESCM certificate or who has successfully completed an erosion control training that is acceptable to the Engineer.
- B. The ESCM duties include but not limited to:
 1. Manage and ensure proper implementation of the ESCP.
 2. Accompany the Engineer during field review of the ESCP prior to construction activities.
 3. Monitor rainfall on and in the vicinity of the Project Site.
 4. Monitor water quality in receiving streams in the vicinity of the Project Site.
 5. Inspect ESC on active construction sites weekly for effective functioning.
 6. Inspect ESC on inactive sites every 2 weeks for effective functioning.
 7. Inspect ESC on all active and inactive sites at least daily during rainy periods when 1/2 inch or more of rain has fallen within a 24-hour period for effective functioning.
 8. Ensure that ESC are regularly cleaned and maintained.
 9. Mobilize crews to make immediate repairs to ESC or install additional ESC during working and non-working hours when ESC is not effectively functioning.
 10. Record actions taken to clean up significant amounts of sediment.
 11. Report potential permit violations to the Agency in a timely manner.
 12. Regularly update the approved ESC Monitoring form.

13. Update the ESCP monthly and within 24 hours after changes or major ESC modifications are implemented.
14. Prepare a contingency plan in preparation for emergencies and the rainy season.
15. Accompany the Engineer on inspections and, if required, on inspections by representatives of regulating agencies.

3.02 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.03 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.04 INSTALLATION

- A. Sediment Fences:
 1. Store and handle fabric in accordance with ASTM D4873/D4873M.
 2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
 3. Install with top of fabric at nominal height and embedment as specified.
 4. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
 5. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

3.05 MAINTENANCE

- A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Sediment Fences:
 1. Promptly replace fabric that deteriorates unless need for fence has passed.
 2. Remove silt deposits that exceed one-third of the height of the fence.
 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Clean out temporary sediment control structures weekly and relocate soil on site.
- E. Place sediment in appropriate locations on site; do not remove from site.
 1. Soil Exposure Limitations: Statewide (Entire Year) - Within 7 days of exposure, stabilize all areas within 100 feet of waterways, Wetlands, or other sensitive areas using methods that do not rely solely upon germination to control erosion. West of the Cascades (Entire Year) - Stabilize all other areas within 14 days of exposure. Temporary Stabilization - Temporarily stabilize exposed Soils:
- F. Every 14 days or more frequently as needed or directed.
 1. Upon approval, active work areas scheduled for re-disturbance may be left unstabilized for 14-Day periods if erosion is not occurring or imminent.
 2. A minimum of 1 Day before expected rain events.
 3. At the end of each Day during wet periods.
 4. As an emergency measure when rain is falling on unprotected areas.
 5. When wind or vehicle traffic is visibly causing more than minor dust.
 6. At finish grade when working outside the permanent seeding dates.

3.06 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed within 30 days of the notification of acceptance of permanent stabilization, unless permitted to remain by Owner.

- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

3.07 PERMANENT STABILIZATION

- A. Permanently stabilize exposed Soil surfaces at finished grade. Perform permanent stabilization at each completed excavation and embankment area except for areas that are scheduled to be redisturbed.
- B. If seeded areas are not sufficiently stabilized by an established stand of vegetation according to ODOT Specification 01030.60, or if the Soil surface is not sufficiently protected with temporary stabilization ESC by October 1 of each year, do the following:
 - 1. Use ESC necessary to redirect water flows away from disturbed areas.
 - 2. Re-grade disturbed areas to finish grade.
 - 3. Apply permanent seeding at the original specified rate.
 - 4. Apply temporary mulching or matting.

MONITORING AND RESPONSIBILITY

The contractor is responsible for monitoring and complying with the requirements of the plan. Compliance with all aspects of this plan, required reporting, and compliance with state and federal laws is the responsibility of the contractor. Any financial impact arising from the failure of the contractor to perform their duties and responsibilities rests fully with the contractor. Any resulting financial impacts to the owner will be assessed against the contractor.

END OF SECTION

TECHNICAL SPECIFICATIONS

Division 31	Earthwork
Division 23	Exterior Improvements
Division 33	Utilities
Division 40	Process Integration

**SECTION 31 23 16.13
TRENCHING**

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

1.02 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 22 00 - Unit Prices, for general requirements applicable to unit prices for earthwork.
- B. Trench excavation:
 - 1. Incidental to pipe bid items.
- C. Trench Backfill-Aggregate Base Course:
 - 1. Measurement Method: Included in the individual bid items for pipes.
 - 2. Includes but not limited to: Excavating existing material, stockpiling, scarifying substrate surface, placing where required, compacting, and dewatering.
- D. Unsuitable Material (if encountered)
 - 1. Measurement: By the cubic yard
 - 2. Payment: by unit bid price

1.03 DEFINITIONS

- A. Finish Grade Elevations: match existing
- B. Subgrade Elevations: Indicated on drawings.
- C. Unsuitable material

1.04 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop 2022, with Errata .
- B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)) 2012 (Reapproved 2021).
- C. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)) 2012 (Reapproved 2021).

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Compaction Density Test Reports.

PART 2 PRODUCTS

2.01 BACKFILL MATERIALS

- A. Granular Fill: Coarse aggregate, complying with State of Oregon Highway Department standard.

2.02 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site. Approval and approved test results (within the last 6 months) by ODOT can be substituted for sampling and testing.
- B. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey benchmarks and intended elevations for the work are as indicated.

- B. If unsuitable materials are encountered notify the Owner and Engineer immediately. Upon direction by the Owner/Engineer remove unsuitable material as directed and replace with Aggregate Base Course Class B material. Compact the backfill material as described in other sections of these Specifications.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, and protect utilities that remain and protect from damage.
- C. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

3.03 TRENCHING

- A. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Cut trenches wide enough to allow inspection of installed utilities.
- E. Hand trim excavations. Remove loose matter.
- F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- G. Remove excavated material that is unsuitable for re-use from site.
- H. Stockpile excavated material to be re-used in area designated on site.
- I. Remove excess excavated material from site.
- J. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Engineer. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- K. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Engineer.

3.04 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Aggregate Base Course.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 BACKFILLING

- A. Backfill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.
- G. Correct areas that are over-excavated.
 - 1. Other areas: Use Aggregate Base Course, flush to required elevation, compacted to minimum 95 percent of maximum dry density.
- H. Compaction Density Unless Otherwise Specified or Indicated:

1. Under paving, and similar construction: 95 percent of maximum dry density.
- I. Reshape and re-compact fills subjected to vehicular traffic.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

- A. Utility Piping, Conduits:
 1. Bedding: Use aggregate base course.
 2. Cover with aggregate base course.
 3. Fill up to subgrade elevation.
 4. Compact in maximum 8-inch lifts to 95 percent of maximum dry density.

3.07 TOLERANCES

- A. Top Surface of Backfilling: Plus 0-1 inches from required elevations.

3.08 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 ("modified Proctor"), AASHTO T 180, or ASTM D698 ("standard Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Frequency of Tests: To meet ODOT Oregon Standard Specifications for Construction.

3.09 CLEANING

- A. Leave unused materials in a neat, compact stockpile.
- B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course Class B crushed rock – 1" - 0 or ¾" - 0.
- B. Paving aggregates – Aggregate Surfacing - 1" - 0 dense graded aggregate.

1.02 RELATED REQUIREMENTS

- A. Section 31 23 16.13 - Trenching:
- B. Section 32 12 16 - Asphalt Paving: Finish and binder asphalt courses.
- C. Section 32 15 00 - Aggregate Surfacing.

1.03 PRICE AND PAYMENT PROCEDURES

- A. Unit Prices for Aggregate Base Courses are included in the unit prices for the individual pipe items.

1.04 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates 2019.
- D. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).
- E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.
- F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).
- G. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils 2017, with Editorial Revision (2018).
- H. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) 2017a, with Editorial Revision (2021).

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Samples: Submit sample test results from approved ODOT approved pits for each type of aggregate.
- C. Materials Sources: Submit name of imported materials source.
- D. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- E. Compaction Density Test Reports (if performed by contractor).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. Aggregate Storage, General:
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Coarse Aggregate: Coarse aggregate, complying with State of Oregon Department of Transportation standard.

2.02 SOURCE QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for general requirements for testing and analysis of aggregate materials.
- B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.02 INSTALLATION

- A. Place aggregate in maximum 6 inch layers and compact to specified density.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.03 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for general requirements for field inspection and testing.
- B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.04 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 12 16 ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course.
- B. HMAC - Hot Mix Asphalt Concrete

1.02 RELATED REQUIREMENTS

- A. Section 31 22 00 - Grading: Preparation of site for paving and base.
- B. Section 31 23 23 - Fill: Compacted subgrade for paving.
- C. Section 32 11 23 - Aggregate Base Courses: Aggregate base course.

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 22 00 - Unit Prices for requirements applicable to this section. Measurement and payment will be as follows:
- B. Level 2 ½" ACP HMAC: By the lineal foot. Includes preparing base, tack coating surfaces, placing, compacting and rolling, testing. Includes mix design, supplying to site, testing.

1.04 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses 2017 (Reapproved 2021).
- B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates 2019.
- C. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction 2009a.
- D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).
- E. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils 2017, with Editorial Revision (2018).

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Oregon Standard Specifications.
- B. Mixing Plant: Complying with State of Oregon Standard Specifications.
- C. Obtain materials from same source throughout.

1.06 FIELD CONDITIONS

- A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Comply with State of Oregon Standard Specifications.

2.02 MATERIALS

- A. Asphalt Cement: In accordance with State of Oregon Standard Specifications.
- B. Coarse and Fine Aggregate: In accordance with State of Oregon Standard Specifications. Material shall meet the requirements for Soundness, durability, fracture and harmful substances (section 00744.10)
- C. No reclaimed pavement is required.

2.03 ASPHALT PAVING MIXES AND MIX DESIGN

- A. A Level 2 ½" ACP HMAC mix design(JMF) approved by Oregon Department of Transportation within the past 6 months shall be submitted for approval and use on the project.
- B. Density information shall be provided based on the most recent use of the approved JMF. Compaction information shall be provided to the engineer for review and acceptance prior to commencing paving.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 PAVEMENT DEPTH

3.03 AGGREGATE BASE COURSE

- A. Place and compact aggregate base course.
- B. See Section 32 11 23.

3.04 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with manufacturer's instructions.
- B. Apply tack coat to contact surfaces of curbs, gutters and existing roadway material.
- C. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.05 PLACING ASPHALT PAVEMENT - DOUBLE COURSE-2 LIFTS

- A. Install Work in accordance with State of Oregon Standard Specifications
- B. Place asphalt within 24 hours of applying primer or tack coat.
- C. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment. Compaction shall be to a minimum of 91 percent of the MAMD.
- D. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.
- E. Pavement shall be installed in two lifts with a minimum depth equal to the existing pavement depth or 4" whichever is greater. Lifts shall be generally equal to one half of the overall paving depth. A tee trench shall be constructed for pavement placement. The outside edge of the 'tee' trench shall be mechanically cut with an approved saw.

3.06 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for quality control.
- B. Provide field inspection and testing. Perform field compaction tests conformance with the MAMD density information provided. Testing shall be performed using a backscatter setting as described in Section 00744.49 of the State of Oregon Standard Specifications.

END OF SECTION

**SECTION 32 92 19
SEEDING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparation of subsoil.
- B. Placing topsoil.
- C. Hydroseeding, mulching and fertilizer.
- D. Maintenance.

1.02 RELATED REQUIREMENTS

- A. Section 01 57 13 - Temporary Erosion and Sediment Control

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 22 00 - Unit Prices, for additional unit price requirements.
- B. Topsoil: included in other bid items
- C. Grassed Areas: included in other bid items.

1.04 REFERENCE STANDARDS

- A. ASTM D7322/D7322M - Standard Test Method for Determination of Erosion Control Product (ECP) Ability to Encourage Seed Germination and Plant Growth Under Bench-Scale Conditions 2017.

1.05 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.06 SUBMITTALS

- A. Certificate: Certify seed mixture approval by authority having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

2.02 SEED MIXTURE

- A. Seed Mixture:
 - 1. Local yard mix for Oregon Coast Range Eco-Region Seed Mix

2.03 SOIL MATERIALS

- A. Topsoil: Excavated and stockpiled from site and free of weeds.

2.04 ACCESSORIES

- A. 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. Fertilizer: Recommended for grass, slow release nitrogen, biological materials, and biostimulant materials; of proportion necessary to eliminate deficiencies of topsoil.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.02 PREPARATION

- A. Prepare subgrade in accordance with normal landscaping requirements.
- B. Place topsoil in accordance with normal landscaping requirements.

3.03 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.04 SEEDING

- A. Apply seed at a rate of 11.4 lbs per acre or as recommended by supplier evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- D. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.
- E. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- F. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.05 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 30 gallons per acre evenly in two intersecting directions.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.
- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.06 MAINTENANCE

- A. Provide maintenance at no extra cost to Owner; Owner will pay for water.
- B. See Section 01 70 00 - Execution Requirements, for additional requirements relating to maintenance service.
- C. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at any one mowing.
- D. Neatly trim edges and hand clip where necessary.
- E. Immediately remove clippings after mowing and trimming.
- F. Water to prevent grass and soil from drying out.

- G. Roll surface to remove minor depressions or irregularities.
- H. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- I. Immediately reseed areas that show bare spots.
- J. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

**SECTION 33 01 10.58
DISINFECTION OF WATER UTILITY PIPING SYSTEMS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Disinfection of site domestic water lines and site fire water lines specified in Section 33 14 16.

1.02 RELATED REQUIREMENTS

- A. Section 33 14 16 - Site Water Utility Distribution Piping.

1.03 REFERENCE STANDARDS

- A. AWWA B300 - Hypochlorites 2018.
- B. AWWA B301 - Liquid Chlorine 2018.
- C. AWWA B302 - Ammonium Sulfate 2016.
- D. AWWA B303 - Sodium Chlorite 2018.
- E. AWWA C651 - Disinfecting Water Mains 2014, with Addendum (2020).

1.04 SUBMITALS

- A. The contractor shall provide the following:
 - 1. Provide a disinfection plan for review and acceptance by the Owner. The plan shall include disinfection and tie in of individual meters.
 - 2. Provide a plan for connection of the new system to the existing water meters
 - 3. Provide a plan for disposal of disinfection water for review and acceptance by the Owner

PART 2 PRODUCTS

2.01 DISINFECTION CHEMICALS

- A. Chemicals: AWWA B300 Hypochlorite, AWWA B301 Liquid Chlorine, AWWA B302 Ammonium Sulfate, and AWWA B303 Sodium Chlorite.

PART 3 EXECUTION

3.01 DISINFECTION

- A. Use method prescribed by the applicable state or local codes, health authority or water purveyor having jurisdiction, or in the absence of any of these follow AWWA C651.
- B. Provide and attach equipment required to perform the work.
- C. Inject treatment disinfectant into piping system.
- D. Maintain disinfectant in the complete system including services for 24 hours.
 - 1. Samples may be taken to the City WWTP for analysis of chlorine and residual chlorine content. The contractor shall be responsible for coordinating testing with the Owner.
- E. Flush, circulate, and clean until required cleanliness is achieved; use municipal domestic water.
- F. Replace permanent system devices removed for disinfection.
- G. Dispose of disinfected water in an environmentally acceptable manner that conforms to applicable regulations.

END OF SECTION

**SECTION 33 02 10
PLUGGING EXISTING PIPING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Plugging and abandonment of existing waterlines
- B. Capping or plugging of new waterlines
- C. Capping or plugging of new sewer lines

1.02 RELATED REQUIREMENTS

- A. Section 31 23 16.13 - Trenching

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 22 00 - Unit Prices, for general requirements applicable to unit prices for earthwork.
- B. Plugging/abandonment of existing waterline
 - 1. Measurement Method: By the individual connection
 - 2. Includes: Excavation, cleaning, supplying cap or plug, placing, backfilling, compacting, and dewatering and all other materials, equipment and labor to provide a complete installation.
- C. Plugging of new waterlines or services
 - 1. Measurement Method: Incidental to other bid items.
 - 2. Includes: Excavation, cleaning, supplying cap or plug, placing, backfilling, compacting, installation of locator wire and pipe end marker and dewatering and all other materials, equipment and labor to provide a complete installation.
- D. Plugging of new sewer lines or services
 - 1. Measurement Method: Incidental to other bid items.
 - 2. Includes: Excavation, cleaning, supplying cap or plug, placing, backfilling, compacting, installation of locator wire and pipe end marker and dewatering and all other materials, equipment and labor to provide a complete installation.

1.04 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: Indicated on drawings.

1.05 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates 2019.
- D. ASTM C150/C150M - Standard Specification for Portland Cement 2022.
- E. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)) 2012 (Reapproved 2021).
- F. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).
- G. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)) 2012 (Reapproved 2021).

- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).
- I. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils 2017, with Editorial Revision (2018).

1.06 SUBMITTALS

- A. Provide product data.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.

PART 2 PRODUCTS

1.01 MATERIALS

- A. Plug: Complying with 2023 Oregon Department of Transportation Specifications.
- B. Cap: Complying with the 2023 Oregon Department of Transportation Specifications.
- C. Sewer: Cherne compression plug or similar

PART 3 EXECUTION

2.01 INSTALLATION

- A. Plug all wyes, tees, stubs, laterals, and service connections with gasketed caps or plugs securely fastened or blocked to withstand test pressures.
- B. Where shown in the Plans or where designated by the Engineer, existing pipes shall be plugged on the inlet end for a distance of 2 diameters with commercial concrete. Care shall be used in placing the concrete in the pipe to see that the opening of the pipe is completely filled and thoroughly plugged.

2.02 CONNECTION MARKERS

- 1. Backfill 2"x4" post vertically against plug to prevent plug blowoff.
- 2. Bottom of 2"x4" to be below invert of pipe.
- 3. Secure 2"x4" post in place with trench backfill.
- 4. Extend at least 12" above finish ground surface.
- 5. Secure tracer wire above around the exposed portion marker.

END OF SECTION

SECTION 33 05 05.31
PIPELINE HYDROSTATIC PRESSURE TESTING AND SEWER TESTING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes hydrostatic testing of pressurized piping systems and low pressure air testing of sanitary sewer lines.

1.02 REFERENCES

- A. American Water Works Association:
 - 1. Installation of Ductile-Iron Water Mains and their Appurtenances.
 - 2. Installation of HDPE Water Mains and their Appurtenances.

1.03 QUALITY ASSURANCE

- A. Notify Engineer a minimum of 24 hours in advance of testing. All testing shall be made in the presence of the Engineer.

1.04 SUBMITTALS

- A. Shop drawings shall include the following:
 - 1. Test bulkhead locations and design calculations, pipe attachment details, and methods to prevent excessive pipe wall stresses.
 - 2. Testing Schedule, including proposed plans and locations for water conveyance and discharge, shall be submitted in writing to the Engineer for approval a minimum of 14 Calendar Days before testing is to start. Testing shall be coordinated with the Owner.
 - 3. Perform low pressure air testing of sanitary sewer lateral in conjunction with State of Oregon Standard Specifications.

PART 2 PRODUCTS

2.01 MATERIALS REQUIREMENTS

- A. All test equipment, temporary valves, temporary blow-offs, temporary bulkheads and blind flanges, temporary manual air release valves, or other water control equipment and materials shall be determined and furnished by the Contractor. No materials shall be used which would be injurious to the pipeline or its future function. The Contractor shall be held solely responsible for ensuring that a sufficient water source is available for all operations.
- B. Temporary manual air-release valves shall be provided as necessary for pipeline test. The pipe outlet shall be constructed in the same manner as for a permanent air valve and after use, sealed with a blind flange, pipe cap or plug.
- C. Air-release and water drainage connections shall be included.

PART 3 EXECUTION

3.01 HYDROSTATIC TESTING

- A. Conduct hydrostatic testing accordance with AWWA C600.
- B. Hydrostatic testing shall be completed prior to final connection to the existing system.
- C. Before applying test pressure, completely expel air from section of piping under test. Provide temporary blow-off(s) as necessary so air can be expelled as pipeline is filled with water.
- D. Test Pressure: 150 psi or 1.5 times the working pressure at the point of testing, whichever is greater.
- E. Slowly bring piping to test pressure and allow system to stabilize. Do not open or close valves at differential pressures above rated pressure.
- F. Conduct hydrostatic test for at least a 2-hour duration.
- G. Examine exposed piping, fittings, valves, hydrants, and joints carefully during hydrostatic pressure test. Repair or replace damaged or defective pipe, fittings, valves, hydrants, or joints discovered, following pressure test.

H. Testing Allowance:

1. Defined as the quantity of makeup water that must be supplied into the tested pipe or any valved section thereof to maintain pressure within 5 psi of the specified test pressure after the pipe has been filled with water, brought to test pressure and air expelled.
2. Shall not be measured by a drop in pressure in a test section over a period of time.
3. No pipe installation will be accepted if the amount of makeup water is greater than that determined by the following formula:
 - a. $L = SD (P)^{1/2} / 148,000$
 - b. L= testing allowance, in gallons per hour
 - c. S = length of pipe tested, in feet
 - d. D = nominal diameter of pipe, in inches
 - e. P = average test pressure during leakage test, in psi

DUCTILE IRON, HDPE AND PVC PIPE										
HYDROSTATIC TESTING ALLOWANCE PER 1,000 FT. OF PIPELINE* - GPH PER AWWA C600 AND C605										
AVG. TEST PRESSURE PSI	NOMINAL PIPE DIAMETER – IN.									
	4	6	8	10	12	16	20	24	30	36
250	0.43	0.64	0.85	1.07	1.28	1.71	2.14	2.56	3.21	3.85
225	0.41	0.61	0.81	1.01	1.21	1.62	2.03	2.43	3.04	3.65
200	0.38	0.57	0.76	0.96	1.15	1.53	1.91	2.29	2.87	3.44
175	0.36	0.54	0.72	0.89	1.07	1.43	1.79	2.15	2.68	3.22
150	0.33	0.50	0.66	0.83	0.99	1.32	1.66	1.99	2.48	2.98

- I. When leakage exceeds specified acceptable rate, locate source and make necessary repairs. Repeat test until specified leakage requirements are met.

3.02 SANITARY SEWER TESTING

A. Inspection

1. Perform sanitary sewer lateral inspection in conformance with State of Oregon Specifications Section 00415.21. Inspection and testing will be included in the bid item for 4" Sanitary Sewer

B. Testing

1. Air permeable materials include concrete and vitrified clay. Low pressure air testing may be used for air permeable pipes 30 inches in diameter and smaller. The test equipment to be used shall be furnished by the Contractor and shall be inspected and approved by the Engineer prior to use. The Engineer may at any time require a calibration test of gauges or other instrumentation that is incorporated into the test equipment. Calibration tests shall be certified by an independent testing Laboratory.
2. Plugs used to close the pipe for the air test must be securely braced to prevent the unintentional release of a plug, which can become a high velocity projectile.

3. Gauges, air piping manifold, and valves shall be located at the top of the ground. No one shall be permitted to enter a manhole or catch basin where a plugged pipe is under pressure. Air testing apparatus shall be equipped with a pressure release device, such as a rupture disk or a pressure relief valve, designed to activate when the pressure in the pipe exceeds 2 psig above the required test pressure. If the pipe to be tested is submerged by groundwater, the backpressure on the pipe created by the groundwater submergence must be determined. All gauge pressures described in the test shall be increased by that amount.
4. Air shall be slowly supplied to the plugged pipe section until the internal air pressure reaches 4 psig. Wait at least 2 minutes to allow for pressure and temperature stabilization to occur within the pipe. When the pressure decreases to 3.5 psig, the air pressure test shall begin.
5. The test shall consist of measuring the time in seconds for the pressure in the pipe to drop from 3.5 psig to 2.5 psig. The pipe shall be considered acceptable if the time in seconds for the pressure drop is equal to or greater than 4 times the required time as calculated below:

$$K = 0.0111d^2L$$

$$C = 0.0003918dL$$

If $C_T < 1$, then time = K_T

If $1 < C_T < 1.75$, then time = K_T/C_T

If $C_T > 1.75$ then time = $K_T/1.75$

Where:

d = Pipe diameter (inches)
 L = Pipe length (feet)
 K = value for each length of pipe of a specific diameter
 C = value for each length of pipe of a specific diameter
 K_T = sum of all K values
 C_T = sum of all C values

This method was developed based on an allowable air loss rate of 0.003 cubic feet per minute (cfm) per square foot of internal pipe surface, with the total air loss rate not less than 2 cfm nor greater than 3.5 cfm.

6. Sanitary sewers constructed of thermoplastic pipe shall be tested for deflection not less than 3 days after the trench backfill and compaction has been completed. The test shall be conducted by pulling a properly sized "go-nogo" mandrel through the completed pipeline. Testing shall be conducted on a cleanout-to-manhole basis and shall be done after the line has been completely flushed out with water. The mandrel shall be a rigid, nonadjustable mandrel having an effective length of not less than its normal diameter and an odd-number of legs (9 legs minimum). Minimum diameter at any point along the full length of the mandrel shall be 95 percent of the base inside diameter of the pipe being tested.

3.03 TEST RESULTS

- A. Hydrostatic Testing Report
 1. Length of pipe tested
 2. Test Pressure
 3. Duration of the test
 4. Amount of make up water
 5. Engineer and the Contractor shall sign report

END OF SECTION

SECTION 33 14 16
SITE WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water pipe for site conveyance lines.
- B. Pipe valves.
- C. Water meter boxes
- D. Fire hydrants.
- E. Sanitary lateral piping

1.02 RELATED REQUIREMENTS

- A. Section 31 23 16.13 - Trenching: Excavating, bedding, and backfilling.
- B. Section 33 01 10.58 - Disinfection of Water Utility Piping Systems: Disinfection of site service utility water piping.
- C. Section 33 05 05.31 - Pipeline Hydrostatic Pressure Testing and Sewer Testing
- D. Section 40 27 00 - Piping, Valves, and Accessories

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 22 00 - Unit Prices, for additional unit price requirements.
- B. Pipe and Fittings: By the linear foot. Includes hand trimming excavation, pipe and fittings, bedding, concrete thrust restraints, connection to service piping or other appurtenances.
- C. Services: Per each including pipe, all fittings, bedding, backfill, corp stops and connection to existing line at the meter box
- D. Valves: Inclusive to piping for all valve, fittings and accessories.
- E. Hydrant: By the unit. Includes hand trimming excavation, thrust blocks, hydrant, valve, connection, and accessories.

1.04 REFERENCE STANDARDS

- A. AWWA C502 - Dry-Barrel Fire Hydrants 2018.
- B. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances 2017.
- C. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. through 60 In. (100 mm through 1500 mm) 2022.
- D. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 3/4 In. (19 mm) Through 3 In. (76 mm), for Water Service 2020.

1.05 SUBMITTALS

- A. Submit product data for all piping, fittings, HDPE fittings, hydrants, valves, resilient gaskets (sanitary sewer), castings, etc for review and approval.

PART 2 PRODUCTS

2.01 WATER PIPE

- A. Polyethylene Pipe: AWWA C901: AWWA C906
- B. PVC Pipe: AWWA C900, DR 18
- C. Trace Wire: Magnetic detectable conductor, clear plastic covering,
- D. Warning Tape 3" minimum, blue imprinted with "Water " in large letters.
- E. Tracer Wire: Magnetic detectable conductor, clear plastic covering,
- F. Warning Tape 3" minimum green imprinted with "Sewer" in large letters.

2.02 VALVES

- A. Gate Valves 3 Inches and Over: As specified in Section 40 27 00

2.03 HYDRANTS

- A. All fire hydrants shall be approved by the National Board of Fire Underwriters and conform to AWWA C502, breakaway type, in which the valve will remain closed if the barrel is broken. The hydrant barrel shall have a diameter of not less than 7 inches, and the valve diameter shall be not less than 5-1/4 inches. Each hydrant shall be equipped with two 2-1/2-inch hose ports (National Standard Thread), and one 4-1/2-inch pumper connection (National Standard Thread). A permanent anodized short profile style Storz hydrant adapter and anodized Storz blind flange shall be installed on the pumper port. The size of the adapter shall be 4 inches. Each hydrant shall be equipped with a suitable positive acting drain valve and 1-1/4-inch pentagonal operating nut (counter-clockwise opening). Fire hydrants shall be Mueller Centurion (A-423). The holding spools between the gate valve and fire hydrant shall be 6-inch Class 53 ductile iron pipe. The hydrant and gate valve shall be anchored in place using holding spools and mechanical joint restraint devices. The resilient, seated ductile iron body gate valve shall have a flanged by mechanical joint body, and be bolted to the main line tee. The fire hydrants shall be wire-brushed, primed with one coat of Rust-Oleum High Performance Metal Primer and painted with two coats of Rust-Oleum Oil-Based Safety Yellow. Between the time the fire hydrant is installed and the completed facility is placed in operation, the fire hydrant shall at all times be wrapped in burlap, or covered in some other suitable manner to clearly indicate that the hydrant is not in service. Contractor shall install a raised blue reflector on the final lift of asphalt in line with the fire hydrant in accordance with the Fire District's requirements.

2.04 BEDDING AND BACKFILL MATERIALS

- A. Bedding: As specified in Section 31 23 16.13.
- B. Backfill: As specified in Section 31 23 16.13.

2.05 CONCRETE THRUSTBLOCKS

- A. Fittings shall be adequately "blocked" with poured-in-place concrete, poured shaped to establish a firm minimum bearing area, against an undisturbed earth wall as shown on the Plans. Timber blocking or dry blocking will not be permitted. Concrete thrust and/or anchor blocking, as indicated on the Plans, shall be placed at bends, dead ends, crossed, and as designated by the Engineer. Blocking shall be 3,000 psi concrete mix poured in place. All concrete thrust blocking configurations and sizes shall be per the Plans. The poured in place concrete thrust and/or anchor blocks shall be in place at least 24 hours before beginning the pressure test, to allow the concrete to set. Longer durations may be required to ensure adequate curing has been established to conduct the necessary testing. All blocking dimensions shown on the Plans are considered as minimums with the ideal trench excavation results, and consideration shall be given to unusual circumstances, soil conditions, and topography. All valves and all fittings requiring a concrete block shall first be covered with 4-mil Visqueen plastic sheets, before concrete is poured. At no time shall the concrete be allowed to cover joints, bolt heads, or nuts.

PART 3 EXECUTION

3.01 TRENCHING

- A. See the sections on excavation and fill for additional requirements, Section 33 23 16.13.

3.02 INSTALLATION - VALVES AND HYDRANTS

- A. Set valves on solid bearing.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade.
- C. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway.
- D. Set hydrants to grade, with nozzles at least 20 inches above ground.
- E. Locate control valve 4 inches (min) away from hydrant.

- F. Provide a drainage pit 36 inches square by 24 inches deep filled with 2 inches washed gravel. Encase elbow of hydrant in gravel to 6 inches above drain opening. Do not connect drain opening to sewer.
- G. Paint hydrants in accordance with Specification section listed above.

3.03 SERVICE CONNECTIONS

- A. Install HDPE service connections as shown in the contract details. All services shall be Municipex CTS pipe with HDPE fusion connectors at the mainline.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.

END OF SECTION

SECTION 40 27 00
PIPING, VALVES, AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes: Provide all piping, including fittings, valves, supports, and accessories as shown on the Drawings, described in the Specifications and as required to completely interconnect all piping for complete and operable systems.

1.2 REFERENCES

- A. ASTM International (ASTM)
1. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
 2. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 3. ASTM D792 - Standard Test Method for Density of Plastics by the Density - Gradient - 1 Technique.
 4. ASTM D1235 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.
 5. ASTM D1599 - Standard Test Method for Short -Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings.
 6. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics.
 7. ASTM D1693 - Standard Test Method for Environmental Stress - Cracking of Ethylene Plastics.
 8. ASTM D1784 - Standard Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 9. ASTM D1785 - ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 10. ASTM D2122 - Standard Method of Determining Dimensions of Thermoplastic Pipe and Fittings.
 11. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 12. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
 13. ASTM F2620 - Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings.
 14. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
 15. ASTM D2839 - Standard Practice for Use of a Melt-Index Strand for Determining Density of Polyethylene.
 16. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 17. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR - PR) Based on Controlled Outside Diameter.

18. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 19. ASTM D3261 - Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
 20. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Material.
 21. ASTM DD3967 - Standard Test Method for Apparent Tensile Strength of Ring or Tubular Plastics and Reinforced Plastics by Split Disk Method.
 22. ASTM D4218 - Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.
 23. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 24. ASTM F679 - Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
 25. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe (SDR PR) Based on Outside Diameter.
 26. ASTM F1055 - Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Pipe and Tubing.
 27. ASTM F1056 - Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining of Polyethylene Pipe or Tubing and Fittings.
 28. ASTM F1336 - Standard Specification for Poly(Vinyl Chloride) (PVC) Gasketed Sewer Fittings.
 29. ASTM F1668 - Standard Guide for Construction Procedures for Buried Plastic Pipe (PVC and other Thermoplastic Pipe)).
 30. ASTM F2206 - Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE)
- B. Plastic Pipe Institute (PPI)
1. PPI TR-3 - Policies and Procedures for Developing Recommended Hydrostatic Design Stresses for Thermoplastic Pipe Materials.
 2. PPA TR-4 - PPI Listing of Hydrostatic Design Bases (HDB), Strength Design Bases (SDB), Pressure Design Bases (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
 3. PP! TR-45 - Generic Butt Fusion Joining Procedure for Polyethylene Gas Pipe.
- C. American Society of Mechanical Engineers (ASME)
- D. American National Standards Institute (ANSI)
- E. American Water Works Association (AWWA)
1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
 3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 4. AWWA C116 - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior of Ductile-Iron and Gray-Iron Fittings for Water Supply Service.
 5. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
 6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water.
 7. AWWA C153 - Ductile-Iron Compact Fittings for Water Service.
 8. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances. AWWA C906 Standard for Polyethylene (PE) Pressure Pipe and Fittings, through 63 inches OD for Water Distribution.

9. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) And Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings.
 10. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. Through 60 in.
 11. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 in. Through 65 in.
 12. AWWA M55 - Manual for the Design and Installation of Polyethylene Pipe in Water Applications.
- F. American Welding Society (AWS)
 - G. Cast Iron Soil Pipe Institute (CISPI)
 - H. U.S. Department of Transportation (DOT)
 - I. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS)
 - J. National Fire Protection Association (NFPA)

1.3 SUBMITTALS – GENERAL REQUIREMENTS

- A. Shop Drawings
 1. Verify by excavation, inspection and measurement all installation conditions, including existing utilities and structures, for buried OR all pipe before preparation of Shop Drawings. Submit field measurements and photos with Shop Drawings where exposed conditions are significantly different than indicated on the Drawings.
 2. Layouts and Schematics: Submit detailed installation drawings of all piping. Schematics may be submitted for piping 4 inches and smaller. The Drawings and schematics shall include: pipe support locations and types, fittings, valves, other appurtenances.
 3. Submit data to show that the following items conform to the Specification requirements:
 - a. Pipe, fittings and accessories
 - b. Pipe couplings and flexible pipe pieces
 - c. Valves and Accessories
 4. Submit samples of gaskets and other materials where required by the detailed specifications.
 5. Submit certified test reports as required herein and by the referenced standard specifications (Product Information).
 6. All items utilized on systems supplying or producing drinking water or on reclaimed water systems, including, but not limited to, pipe and valve linings, solvent cements, welding materials, gaskets and gasket lubricants, and additives in concrete or cement mortar shall comply with the Safe Drinking Water Act and NSF requirements for use in water systems (in accordance with local requirements). Submit proof of NSF certification for each item.
 7. Samples: Solder and flux for copper pipe.
 8. Submit leak and pressure testing plan in accordance with the requirements in 3.09.
 9. Submit shop drawings for leak and pressure testing apparatus including, but not limited to, temporary bulkheads necessary for testing of new pipelines.

- B. Manuals: Furnish manufacturer's installation and operation manuals, bulletins, and spare parts lists for the following items:
 - 1. Valves 4 inches and larger and all actuated valves.

1.4 HDPE PIPING (SUBMITTAL REQUIREMENTS)

- A. HDPE pipe and fitting materials submittal shall include:
 - 1. Manufacturing method and material standards
 - 2. Grade of material
 - 3. Wall thickness and tolerances
 - 4. Pressure rating
 - 5. Fitting fabrication details
- B. Prior to each shipment of pipe, submit one electronic copy OR hard copy of the following certified test reports and certificates.
 - 1. Certification that all materials delivered comply with the AWWA C906 Standards and these Specifications, including the testing requirements. Measurements of pipe dimensions performed as per AWWA C906
 - 2. Certified test reports for all the tests to be performed in accordance with these Specifications and the AWWA C906 Standards. Certified test reports shall be submitted to the Engineer OR Owner prior to shipment of pipe.
 - 3. The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific product. Said certification shall include a stress life curve per ASTM D2837. The stress regression testing shall have been done in accordance with ASTM D2837 and PPI TR-3, and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi, as determined in accordance with ASTM D2837.
 - 4. The Manufacturer's certification shall state that the pipe was manufactured from one specific resin in compliance with these Specifications. The certificate shall state the specific resin used, its source, and list its compliance to these Specifications. Reuse of recycled product with not be allowed.
- C. A detailed plan of method for assembly of the pipe. Any deviations from procedure as per the manufacturer's recommendations, the Plastic Pipe Institute guidelines or these Specifications shall be noted in the submittal and the submittal cover sheet. The procedures in the plan shall include:
 - 1. Checking condition of HDPE pipe inside and outside for manufacturing defects and damage not detected at the manufacturer's plant or that which occurred during shipping.
 - 2. Step-by-step description of pipe assembly procedure, which can be checked and verified in the field by the Owner, for butt fusion both at the surface and in the trench.
 - 3. Allowable tolerances for pipe wall mismatch or offset. Maximum offset or mismatch shall not exceed 10 percent of the supplied pipe minimum wall thickness. An offset or mismatch shall be defined as the measured distance of the profile between the outside walls from two conjoining pieces of fused pipe. For example, if the minimum pipe wall thickness is 2.57 inches, then the maximum allowable mismatch between two of pipes of the same thickness is 0.257 inch as measured from the outside of the pipe at the fused joint, perpendicular to the axis of the fused pipe joint.

4. Method of checking and ensuring pipe wall mating profile matches or is within allowable tolerances.
 5. Method for matching pipe ends in the event pipe pieces to be joined are not round or will not match circumferentially on the initial attempt to join the pipes.
 6. Installation of the pipe including staging of pipe pieces, placement of lengths of fused pipe into the trench and length of open trench.
- D. If HDPE pipe and fittings are manufactured/fabricated by different companies, then each company shall submit a written statement/certification that each manufacturer and fabricator is listed in and complies with the generic butt fusion joining procedure for polyethylene pipe in the Plastics Pipe Institute (PPI) TR-33 for the resin to be used. All pipe and fittings shall perform together in accordance with the requirements of the Specifications.
- E. List of butt fusion machine(s) to be used, including the manufacturer's procedure for calibrating and checking the proper function of the machine(s).
- F. Detailed computer printouts of fusion parameters at each fused joint. Hardcopy printouts shall be submitted to the Owner at the end of each day during pipe fusion work and additionally as requested by the Owner. The hard copy shall define the following for each fused joint.
1. Heat of fusion.
 2. Applied interfacial pressure.
 3. Time of fusion, including melt and hold time.
 4. Visual inspection comments.
- G. Shop drawings or manufacturer's information on longitudinal and axial pipe rollers.
- H. Certificates of qualifications of technicians/operators that will perform butt fusion for joining HDPE pipe and fittings. Operator/technician shall have the minimum experience as specified in this Section under Quality Assurance.
- I. HDPE Fitting and Appurtenance Experience: Submit documentation verifying that the fitting and appurtenance fabricator that will be fabricating the HDPE pipeline fittings and appurtenances (HDPE Pipe Fabricator) meets the following minimum requirements:
1. The HDPE Pipe Fabricator shall have completed five projects within the last five (5) years fabricating solid wall, pressure rated HDPE molded fittings meeting requirements similar to those required by this Section. Experience documentation for each project shall include: Client, project name, description of the project, project location, completion date, contact person, and telephone number.

1.5 DUCTILE IRON PIPING (SUBMITTAL REQUIREMENTS)

- A. Product Data: Submit data on ductile iron pipe material, fittings, joint type, coating, lining, restraint devices and polyethylene encasement.
- B. Engineer may require Manufacturer's Certificate: Certify pipe material, fittings and accessories meet or exceed specified requirements.

1.6 PVC PIPING (SUBMITTAL REQUIREMENTS)

- A. Product Data: Submit data on PVC pipe material, fittings, joint type and gaskets.

1.7 QUALITY ASSURANCE - GENERAL

- A. Materials and equipment furnished under this Section shall be of manufacturers who have been regularly engaged in the design and manufacture of the materials and equipment for a period of at least 5 years. Demonstrate to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by the manufacturers specifically named herein, if an alternate manufacturer is proposed.
- B. Factory Quality Control: The Contractor shall test all products as noted herein and by the reference specifications.
- C. Field Quality Control:
 - 1. The Owner will:
 - a. Inspect field welds and test the welds if it is deemed necessary.
 - b. Perform bacteriological analysis for pipelines to be disinfected.
 - 2. The Contractor shall:
 - a. Perform leakage tests.
 - b. Be responsible for the costs of additional inspection and retesting by the Owner resulting from noncompliance.

1.8 PIPING SYSTEMS

- A. Unless otherwise shown on the Drawings, each system shall be constructed using the materials indicated for that system.

1.9 APPURTENANCES

- A. Furnish and install all necessary guides, inserts, anchors and assembly bolts, washers and nuts, hangers, supports, gaskets, couplings and flanges; all other appurtenant items shown on the Drawings, specified or required for the proper installation and operation of the piping; devices included in or on the piping equipment; and piping accessories.

1.10 HDPE PIPING (QUALITY ASSURANCE)

- A. One size of pipe manufactured in each of the size range, 4 to 12 inches, in each particular standard material code designation shall be tested by the elevated-temperature, sustained pressure test by the manufacturer. Each particular standard material code designation to be used shall be tested in at least one specified size of pipe at the beginning of production.
- B. Plant Inspection:
 - 1. The manufacturer is responsible for the performance of all testing and inspection requirements as specified in AWWA C906.

2. All pipe and fittings to be installed under this Contract may be inspected at the plant by the Owner for compliance with these Specifications using an independent testing laboratory selected and paid for by the Owner.
 3. Manufacturer shall notify the Owner/independent testing laboratory at least 72 hours in advance, if plant is within 250 miles of the Owner's office, or 10 Calendar Days in advance, if outside of 250 miles of the Owner's office, prior to beginning manufacture or fabrication of any pipe or fitting, requesting inspections or performing tests. The inspector shall have free access to those parts of a manufacturer's plant that are necessary to ensure that products comply with all requirements and may take photographs for his and the Owner's use. Failure to comply with this notification requirement shall be cause for to Owner to reject any pipe manufactured without the Owner's Material Inspector present.
 4. The manufacturer shall make available for use by the inspector, without charge, such tools and assistance as are necessary for inspection and handling of materials.
 5. The Owner OR Contractor will bear the cost of inspection for any one plant producing HDPE pipe and one plant fabricating HDPE fittings at any one time. Should two or more different manufacturing plants produce HDPE pipe or fittings at the same time, the Contractor shall bear the cost of labor, travel, and lodging associated with inspection for all but the closest manufacturing plant.
- C. The Owner or Representative will make inspection of the pipe and fittings after delivery. The pipe is subject to rejection at any time on account of failure to meet any of the requirements specified herein, even though other pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job immediately and shall not be allowed to be reworked or reused on any portion of the job.
- D. Workmanship and Testing:
1. The Owner may select the time and pipe or fitting piece to be tested for any required testing except at the beginning of production run, which will be conducted as specified herein.
 2. The manufacturer shall take adequate measures in the checking of incoming materials and in the production of pipe to ensure compliance with the requirements of these Specifications. The following tests relative to qualification of compounds and manufacturing processes and for quality assurance shall be conducted not less frequently than at the indicated intervals. Higher frequencies of these tests and additional tests shall be conducted, if necessary, and as determined by the manufacturer's quality control program, to ensure compliance with the requirements of the Contract Documents and AWWA C906.
 - a. All incoming lots of raw polyethylene materials shall be sampled and tested for melt-flow index and density. The testing results shall fall within the limits established between the material supplier and piping manufacturer.
 - b. Pipe inside and outside walls shall be smooth and free of surface abnormalities. Each length of pipe surface shall be visually checked inside and outside for defects. No abnormalities inside or outside of the pipe surface will be allowed and the presence of such defects shall be cause to reject the pipe.
 - c. Dimensions and tolerances shall be measured once per hour or once per length of pipe, whichever is less frequent.

- d. Bend-back test shall be performed at the beginning of each production run and daily thereafter for each pipe size in accordance with AWWA C906. The specimens tested shall be representative of the entire inside surface of the pipe. The elongation-at-break test may be substituted for this test.
- e. Ring-tensile strength test shall be performed at least once per production run, at 2,500 feet and at every 5,000 feet thereafter. The quick burst test may be substituted for this test.
- f. Carbon black content shall be determined for each individual lot of pre-compounded black PE material.
- g. A 5-second pressure test shall be performed at least once per production run. The elevated-temperature sustained-pressure test may be substituted for this test. In lieu of performing the 5-second pressure test for fittings at four-times rated pressure as specified in ASTM D1598, the pressure may be reduced to two-times rated pressure with all other test requirements remaining the same. Tested fittings will not be allowed to be installed under this Contract.
- h. Melt-flow index test shall be run on samples from the pipe at least once per Calendar Day.
- i. Density test shall be run on samples from the pipe once per Calendar Day, or once per lot of pre-compounded black PE material, whichever is less.
- j. Marking on each length of pipe shall be visually examined and checked for marking accuracy and legibility.
- k. Each fitting shall be visually checked inside and outside for defects and the presence of defects shall be cause to reject the fitting. Should defects be found on the pipe and the manufacturer feels that such defects do not affect the structural integrity or longevity of the pipe, the manufacturer must, in writing, explain the nature of the defects and provide positive witnessed test results which demonstrate that the integrity of the pipeline has not been compromised. It is the Contractor's responsibility to ensure that the proper documentation is submitted. The Owner and Engineer will be the determiners as to whether the documentation submitted is satisfactory and the pipe acceptable.
- l. A 5-second pressure test shall be performed on the first fitting of a particular size and every fiftieth fitting thereafter in accordance with AWWA C-906 and ASTM D1598.

E. Heat Fusion Machine and Operator:

- 1. The heat fusion machine(s) shall be capable of providing a detailed computer-recorded report of fusion parameters at each joint. Pipe fusion will not be allowed if the computer-recorder is not functioning properly. Manually-kept records of fusion parameters for main line HDPE pipe will not be an acceptable substitute for computer generated reports submitted to the Owner.
- 2. All pipe fusion machine operator(s)/technician(s) shall have a minimum of 3 years' experience in the fusion of solid wall HDPE pipe, with a combined total length of pipe fused of at least 4,000 feet. Pipe fusion operator(s)/technician(s) shall have fused at least 2,000 feet of solid wall HDPE pipe 8 inches or larger within the last 3 years. Fusing of pipe will not be allowed unless the operator(s)/technician(s) performing the work meets these experience requirements.

3. Each fusion machine to be used by the Contractor shall be certified by the manufacturer or manufacturer's authorized agent (which shall not be the Contractor) as being in proper working order and capable of performing the work intended, excepting that the manufacturer's authorized agent cannot be an agent which, in addition to representing the manufacturer, provides HDPE pipe fusing services directly or indirectly to the Contractor. Certification shall be performed prior to scheduled HDPE pipe fusion training. Prior to certification, each fusion machine shall be checked and calibrated by the same company.
4. The Contractor shall submit certification from the fusion machine manufacturer that the operator is qualified to operate the machine to be used for fusion on this project.
5. Where not specified or shown otherwise in the Contract Documents, the requirements of AWWA M55 shall apply. If in the event there is a conflict between the Contract Documents and AWWA M55, the more stringent shall apply.

PART 2 PRODUCTS

2.1 GENERAL

- A. Pipe and valve sizes are nominal inside diameter unless otherwise noted.
- B. All materials delivered to the job site shall be new, free from defects, and marked to identify the material, class, and other appropriate data such as thickness for piping.
- C. Acceptance of materials shall be subject to strength and quality testing in addition to inspection of the completed product. Acceptance of installed piping systems shall be based on inspection and leakage tests as specified hereinafter.

2.2 PIPING MATERIALS

- A. Pipe and Fitting Designation: Piping materials are identified by a "Type" designation in these Specifications. The "Type" designation identifies not only the pipe itself but the associated fittings and appurtenances and the installation and test procedures described for that "Type." The designation of a particular type shall indicate a complete installation including fittings, joints, cleaning and testing. The pipe and fitting materials for each type designation shall be as specified herein and summarized in the Pipe Type Schedule.
- B. Pipe : Piping and their corresponding valves are listed on the Drawings.
- C. Saddles for services shall be 8"x1" Plasson Electrofusion Saddles as described in the contract plans. ductile iron (piping materials)
- D. Applicable for ductile iron pipe 4 to 64-inches in diameter. Ductile iron pipe shall be provided in IPS dimensions.
- E. Pipe furnished shall be manufactured in accordance with AWWA C151 under method of design outlined in AWWA C150.
- F. Unless otherwise specifically indicated on the contract plans, the wall thickness shall be Pressure Class 200 for buried pipe.

- G. Pipe furnished shall have normal laying length of 18' or 20'.
- H. Iron used in the manufacture of pipe shall have 60/42/10 iron strength.
- I. External Coating:
 - 1. External Pipe Coating shall be an AWWA C151 asphaltic coating approximately 1-mil thick.
- J. Internal Lining:
 - 1. Pipe furnished shall have standard thickness cement-mortar lining in accordance with AWWA C104. Minimum standard thickness per AWWA C104 is as follows:
 - a. Minimum Thickness of Lining
 - b. 1/8"
- K. Acceptable Pipe Manufacturers:
 - 1. American Ductile Iron Pipe
 - 2. United States Pipe and Foundry
 - 3. Or Equal

2.3 DUCTILE IRON FITTINGS

- A. All cast iron and ductile iron fittings shall be manufactured in accordance with AWWA C104, C110, C111, and C153.
- B. Provide Fitting with Mechanical (MJ) joints or Push-on (Fastite or Tyton). Restraint for fitting joints will be addressed under "Joint Restraint".
- C. Acceptable Manufacturers:
 - 1. Tyler Pipe Industries
 - 2. Griffin Pipe Products
 - 3. United States Pipe and Foundry
 - 4. Union Foundry Company
 - 5. Substitutions: Proposed Equivalents will be reviewed after award of contract.
 - 6. Anchor Couplings shall be Foster Adaptor, or approved equal.

2.4 POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE

- A. All polyethylene encasement material shall be manufactured in accordance with ANSI/AWWA Standard C105/A21.5-05.
- B. Polyethylene encasement material shall be a minimum of 8 mils thick and shall be a high density, cross-laminated polyethylene film.
- C. The raw materials used to manufacture polyethylene film shall be Type I, Class A, Grade E 1 in accordance with ASTM Standard Designations D 1250 .

2.5 JOINT RESTRAINT FOR DUCTILE IRON PIPE

- A. Mechanical Joint Restraint
 - 1. Mechanical joint restraints shall be incorporated in the design of a follower gland. The gland shall be manufactured in accordance with ASTM A 536.
 - 2. Dimensions of gland shall be used with standard mechanical joint bell and tee-head bolts conforming to AWWA C111 and C153.
 - 3. Minimum working pressure of 350 psi for pipe sizes 3" - 16" and 250 for pipe sizes 18" - 42" with a minimum safety factor of 2:1.
 - 4. Acceptable Manufacturers:
 - a. ROMAC
 - b. EBAA Iron (3"-48")
 - c. Uni-Flange Series 1400 (4"-12")
 - d. StarGrip Series 3000, 3000S and 3000OS (3" – 48")
- B. Push-on Joint Restraint Systems for Ductile Iron Pipe and Fitting Joints
 - 1. Gasket System shall conform to AWWA C11
 - 2. Pressure Ratings shall be 350 psi for 4" - 24", 250 psi for 30" - 64"
 - 3. Acceptable Restraints applied to Standard Push-on Bell per AWWA C111:
 - a. ROMAC (4"-36")
 - b. EBAA Iron (4"-36")
 - c. Uni-Flange 1390 Series (4"-24")
 - d. Uni-Flange 1450 Series 30"-36")
 - e. StarGrip 3100P Series
 - f. The use of manufacturers' restraint closure devices such as American Field Flex-Ring or US Pipe TR-Gripper Ring may be used for field adaptability as needed.
 - 4. Standard spigot end bell and pipe socket shall conform to AWWA C151.
 - 5. Push-on joints shall conform to AWWA C111.
 - 6. Gasket type restraining devices are not acceptable.

2.6 FLANGED OR GROOVED END DUCTILE IRON PIPE

- A. Flanged Pipe: AWWA C115 including Appendix A, minimum thickness Class 53.
- B. Grooved End Pipe: AWWA C151 with grooves in accordance with AWWA C606, Table 3, for rigid joints. Provide minimum thickness classes in accordance with AWWA C606. Joints: Where flanges are shown on the Drawings, provide mechanical rigid grooved couplings up to 24 inch or flanges, at the Contractor's option, except where grooved couplings are required in the Drawings. (See paragraph 1.09A.1 for special requirements for pipe supports with grooved couplings.) Provide flanges where required to connect to valves, equipment or certain pipe supports.
- C. Flanges: Ductile iron, plain faced, AWWA C115. Submit certification that flanges comply with AWWA C115. Provide insulating flanges with two cathodic test stations for buried ductile iron to steel connections.
- D. Mechanical Grooved Couplings: AWWA C606, minimum pressure rating of 150 psi.

E. Fittings:

1. Flanged: Ductile iron, AWWA C110 or AWWA C153.
2. Grooved End: Ductile iron, AWWA C110 for materials, dimensions and pressure ratings. Grooves shall be in accordance with AWWA C606, Table 3, for rigid joints.
3. Special Fittings: Special fittings not available in ductile iron may be fabricated of fusion epoxy lined and coated welded steel pipe with a design pressure of 450 psi. Submit design and wall thickness to the Engineer for review.
4. Buried bolts and nuts for flanged and grooved end joints shall be Type 304 stainless steel.
5. Bonding: Bond ductile iron to provide electrical continuity, except that insulating flanges without bonding shall be provided where shown on the Drawings.
6. Gaskets:
 - a. Flanged: Full face, 1/8 inch-thick SBR rubber or NBR (Nitril or Buna N), AWWA C115, Appendix A.
 - b. Mechanical Grooved Coupling: SBR rubber or NBR (Nitril or Buna N), AWWA C606.
7. Flange Bolts: AWWA C115, Appendix A unless stainless steel is required in paragraph 2.02.
8. Field Closure Connections for Restrained Joints: Pipe cut in the field where necessary and when favorably reviewed by the Engineer shall be connected by one of the following methods:
 - a. Series 3800 Mega-Coupling by EBAA Iron, Inc.; or equal.
 - b. Mechanical Joint Sleeve with two Series 1100 Megalug Restraints by EBAA Iron, Inc.; or equal.

F. Connections to Existing Pipelines

1. Connections to existing ductile iron waterlines shall be made using a mechanical joint transition sleeve with steel transition gasket, such as a solid sleeve, restrained with Megalug joint restraint devices or approved equal as shown on the drawings.
2. Provide insulating flanges with two cathodic test stations for buried ductile iron connections to steel pipe.

G. Service Saddles for Ductile Iron Pipe

1. Direct threaded taps are not acceptable.
2. Pipe branch line connections shall be made using service saddles, by using reducing flanges on tees, or by tapping blind flanges on tees.
3. Service Saddles:
 - a. Bronze body with two bronze straps or one stainless steel strap. All wetted surface shall be lead free per NSF 61/ ANSI 372.
 - b. Manufactured for connection to ductile iron pipe.
 - c. An insulated corporation stop shall be provided for any metallic water main connecting to a metallic service line.
 - d. All saddles shall have AWWA taper on its threads.
 - e. Manufacturers: Ford, Rockwell or equal.

H. HDPE PIPE AND FITTINGS (PIPING MATERIALS)

1. Fusible HDPE Pipe and Fittings:
 - a. Pipe: High molecular weight, high density, polyethylene pipe, ASTM D3350 OR AWWA 906.

- 1) Cell Classification: 345464C, or 445474C; color material shall be 345464E.
 - 2) Dimension Ratio (DR):17 maximum rated to 125 psi working pressure under AWWA C906.
 - 3) Pipe shall be ductile iron OR iron pipe size.
 - 4) Submit manufacturer's certification, including AWWA C906 affidavit of compliance that pipe and fitting complies with the Specifications.
2. Joints: Butt fusion, ASTM D2657, except mechanical where required to connect with other pipe, valve or equipment materials.
- a. Butt Fusion Joints: The tensile strength of the joint at yield shall not be less than the pipe. Joints shall be made with equipment acceptable to the manufacturer. The equipment operators shall have been trained by certified fusion technicians. Submit description of the equipment and methods for favorable review.
 - b. Mechanical Joints: Joint shall consist of a flange adaptor fitting butt-fused to the pipe, a back-up ring of cast iron, aluminum, Type 316 stainless steel made to ANSI B16.1 dimensional standards (with modified pressure rating), bolts of galvanized steel, Type 316 stainless steel, and chloroprene gaskets.
3. Fittings: Welded flanges will be required on HDPE pipe for connection to DI fittings. Molded fittings to ASTM D3261 required where available of the same material as the pipe, with DR no greater than the pipe, and with a pressure rating at least equal to the pipe. Manufacturer shall conduct X-ray inspection on samples from each molded fitting production lot. Fabricated fittings shall comply with AWWA C906 and ASTM F2206 and shall only be used where molded fittings are unavailable. Fitting shall be produced by the same manufacturer as the pipe.

2.7 HDPE PIPE COUPLINGS AND FLEXIBLE PIPE PIECES

- A. General: For typical pipe joints refer to pipe material specifications. Other joint devices shall be furnished where called for on the Drawings and as specified below.
- B. Flexible Couplings and Flange Coupling Adaptors:
 1. Sleeve: Cast iron or fabricated steel.
 2. Followers: Cast iron, ductile iron, or steel.
 3. Sleeve Bolts: ASTM A325, Type 3; malleable iron; or equivalent, except for buried and submerged, which shall be Type 304 stainless steel and Type 316 stainless steel, respectively.
 4. Coating: Fusion epoxy OR High-build epoxy line and coat sleeve and followers.
 5. Pressure Rating: The test pressure of the applicable service or 50 psi, whichever is greater.
 6. Performance: Longitudinal movement and angular deflection capabilities shall meet AWWA C219.
 7. Flanged Coupling Adaptor Flanges: Match mating flanges. If required by connecting valve or other device, provide flanges with inside diameter equal to nominal pipe diameter.
 8. Buried Flexible Coupling Sleeve: Long barrel; Smith-Blair 442, Dresser Style 40; or equal.
 9. Manufacturers:

- a. Flange Coupling Adaptors: Smith-Blair 912 or 913; Dresser Style 128 W; or equal.
- C. Flexible Connectors:
 - 1. Up to 12-inch-Diameter:
 - a. Type: Built-up, single arch (unless otherwise shown on Drawings) rubber expansion joints with full rubber flanges and retainer rings. Provide filled arch-type or wide flowing arches on raw sewage, sludge, and grit service.
 - b. Materials: Neoprene cover over nitrile tube, reinforced with nylon or polyester body and galvanized steel retainer rings, except those used on ozone gas piping systems which shall have Hypalon cover over Hypalon tube, and Type 316 stainless steel retainer rings. OR Protect cover with Hypalon paint where exposed outdoors.
 - c. Pressure Rating: 190 psi.
 - d. Manufacturers:
 - 1) Standard: Proco Series 230; Holz Type 200; Garlock Style 200HP; or equal.
 - 2) Concentric Reducers: Proco RC Series; Holz 200TC.
 - 3) Eccentric Reducers: Proco RE Series; Holz 200TE.
 - 4) For connections to plastic piping systems provide connectors with additional flexibility as recommended by the manufacturer. Proco Series 261R; Holz Type 320EZ; or equal.
- D. Flexible Expansion Joints:
 - 1. Type: Single, Double ball joints with integral expansion sleeves. Minimum 15, 30 degrees deflection and 4, 8, 12 inches expansion.
 - 2. Materials: Ductile iron conforming to AWWA C153.
 - 3. Pressure Rating: 350 psi minimum.
 - 4. Lining: Fusion epoxy.
 - 5. Connections: Flanges.
 - 6. Manufacturer: EBBA Iron Flex-Tend; equivalent by U.S. Pipe; or equal.

2.8 VALVES AND ACCESSORIES (MATERIALS)

- A. Valve and Accessory System Designation: Most valves and accessories to be furnished and installed are identified in the plan notes.
- B. General Requirements for Valves:
 - 1. All valves of each type shall be the product of one manufacturer.
 - 2. All exposed valves shall be furnished with operators, handwheels, levers, or other suitable type wrench including handles as specified herein or as shown on the Drawings. Valves 4-inch and larger located more than 7 feet above the floor level shall be furnished with chain operators. Chains shall be galvanized and shall extend to within 3 feet of the floor. Provide hook so that chain may be stored clear of walkways. All buried valves shall be provided with 2 inch-square operating nut and valve boxes.
 - 3. All threaded stem valves shall open by turning the valve stem counter-clockwise.
 - 4. All buried valves and valve operators shall have a non-bleeding shop coat, unless otherwise specified. Buried valves and operators shall be painted with supplier paint suitable for buried installation as described in this section.

C. Valve and Accessory Systems:

1. Gate Valves through Size 2-inch:
 - a. Rating: 200 psi WOG.
 - b. Type: Rising stem, screw in bonnet, solid wedge disc, handwheel operated or operating nut.
 - c. Connections: Threaded.
 - d. Materials: All bronze.
 - e. Manufacturers: Jenkins Figure 81OJ; Crane No. 428; or equal.
2. Gate Valves 2 ½-inch through 12 inch:
 - a. Rating: 200 psi WOG.
 - b. Type: Rising stem, O.S. and Y, solid wedge, handwheel operated or operating nut.
 - c. Connections: Flanged, 200 psi WOG.
 - d. Materials: Cast iron, bronze trimmed.
 - e. Manufacturers:
 - 1) Jenkins Figure 651A; Crane No. 465 1/2; or equal.
 - 2) For system pressure above 200 psi, provide Jenkins Figure 20J; Crane 7 1/2 E; or equal.
3. Resilient Seated Gate Valves, 3 inch through 16-inch.
 - a. General: Comply with AWWA C509 or C515 except where otherwise specified herein. Valve shall be epoxy lined and coated.
 - b. Rating: 200 psi.
 - c. Type: Rising stem, OS&Y, handwheel operated OR except for buried service use OR non-rising stem with operating nut.
 - d. Connections: Flanged.
 - e. Manufacturers: U.S. pipe Metroseal; Clow; or equal.
 - f. Finish:
 - 1) Buried Exterior: Shop coat with high-solids epoxy, 12 mils minimum.
 - g. Testing: Test in accordance with AWWA C504, except that leakage test shall be in both directions. Submit certified test results for tests specified in Section 5.2 for valves 24 inches and larger.
 - h. Actuators:
 - 1) Type: Manual, except where specified otherwise, or shown otherwise on the Drawings or in the Butterfly Schedule in the Appendix. Provide valve position indicators on all actuators.
 - 2) Manual Actuators: Traveling nut, self-locking, or worm gear above 48 inches.
 - a) Buried: Designed for buried service, watertight up to 10 psi. Provide 2-inch-square standard AWWA operating nut, with extension stem to reach the ground surface as shown on the Drawings, and with a ground level position indicator.
 - b) Provide one valve operator tee handles to the Owner.

3) Manufacturer:

Size Range	Type	First Name	Second Name or Equal
3-inch -12-inch	Wafer	Pratt, MKII	-
3-inch – 20-inch	Flanged	Pratt, 2FII	DeZurik, BAW
24-inch - 72-inch	Flanged	Pratt, XR-70	DeZurik, BAW
Buried 6-inch – 48-inch	Flanged	Pratt Groundhog	DeZurik, BAW

D. Valve and Accessory:

1. Applicable Service Conditions: Clean water at pressures to 150 psi and temperatures to 150°F utilizing copper piping.
2. Gate Valves through 2 ½ inch:
 - a. Rating: 200 psi water.
 - b. Type: Rising stem, solid wedge.
 - c. Connections: Solder ends for copper pipe.
 - d. Materials: All bronze.
 - e. Manufacturers: Jenkins; Crane; or equal.

E. Miscellaneous Valves and Accessories:

1. Link-Type Seals: Link-type seals shall be interlocking synthetic rubber links connected by stainless steel, zinc dichromate protected steel bolts and nuts to form a continuous belt. Tightening of the bolts shall expand the rubber to form a watertight seal of the annular space between a pipe and the hole or sleeve in the wall.
2. Valve Boxes for Buried Valves: Adjustable, cast-iron, screw-type, installed with top set at finished grade. All valve boxes and covers shall be suitable for H20 AASHTO wheel load. Clow Figure F-2454 with Figure F-2476 extension; equivalent products by Mueller; or equal.
3. Concrete Vaults and Valve Boxes: Precast reinforced concrete, of the size and orientation shown on the Drawings. Unless otherwise shown or noted, all vaults, boxes, and their covers shall be designed for H20 AASHTO wheel loads. Steel lids shall be galvanized. Provide Christy, Brooks, or equal.

PART 3 EXECUTION

3.1 PIPING INSTALLATION

A. General Handling and Placing:

1. Exercise great care to prevent injury to or scoring of the pipe lining and coating, as applicable, during handling, transportation or storage. Handle fusion epoxy coated pipe and ceramic epoxy lined pipe in accordance with AWWA C213. Do not store pipe on rough ground and do not roll the pipe on the coating. Any damaged pipe sections, specials, or fittings shall be repaired or replaced at the expense of the Contractor as satisfactory to the Engineer.

2. Carefully inspect each pipe, fitting, valve and accessory before installation to insure there is no defective workmanship or obstructions. Inspect the interior and exterior protective coatings and patch all damaged areas in the field or replace to the satisfaction of the Engineer.
3. Place or erect all piping to accurate line and grade and backfill, support, hang, or brace against movement as specified or shown on the Drawings, or as required for proper installation. Remove all dirt and foreign matter from the pipe interior prior to installation and thoroughly clean all joints before joining.
4. Use reducing fittings where any change in pipe size occurs. Do not use bushings unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.
5. Cast all metallic pipes and sleeves 6-inch and larger into new concrete walls without blockout. Pipes 5 inches and smaller may be cast in place or installed in a smooth core drilled hole using a link type seal at the Contractor's option. Maintain at least ½ inch clearance between reinforcing steel and metal pipe in penetrations.
6. Cover polyvinyl chloride (PVC), chlorinated polyvinyl chloride (CPVC) and polyethylene (PE) pipe stored outside for more than two months with canvas or other opaque material. Provide for air circulation under the covering.

B. General Buried Piping Installation:

1. Trenching, bedding, and backfill for buried piping shall be as shown on the Drawings and as specified in Section 31 10 10.
2. Where pipe grade elevations are shown on the Drawings, install the pipe with straight grades between the indicated elevations.
3. Where no pipe grade elevations are shown on the Drawings, install buried piping with at least 3 feet of cover to finished grade. Where piping crosses under buried electrical ducts, provide at least 4 feet 6 inches of cover. Provide 12 inches minimum separation between the buried pipes and ducts.
4. Provide each pipe with a firm, uniform bearing for its full length in the trench except at field joints. Do not lay pipe in water or when trench conditions or weather are unsuitable for such work.
5. Protect buried piping against thrust by use of restrained pipe joints and/or thrust blocks. All exposed free pipe ends shall be securely braced. Cap or plug pipe ends that are left for future connections as shown on the Drawings and in a manner favorably reviewed by the Engineer.
6. Where piping leaves a structure or concrete encasement, provide a joint capable of angular deflection within 12 inches of the structure for pipes 12 inch and smaller or as shown on the Drawings for larger pipe sizes. Conform to details on the Drawings where such details are shown.
7. Snake buried PVC pressure pipe from side to side in the trench in long sweeps.
8. Concrete Encasements: All piping and conduits except plumbing lines installed under slabs or footings on earth or crushed rock shall be encased in concrete not less than 6-inch thickness on all sides and extending up to the bottom of the slab or footing, unless otherwise specifically noted on the Drawings. Encasement shall extend to within 6 inches of the first pipe joint beyond the slab or footing. Provide concrete encasement whether or not the encasement is shown on the Drawings. Provide encasement under slabs on earth or crushed rock even if the structure is supported on piles, caissons, or footings. Provide continuous concrete cradles where shown.
9. Do not pull bell and spigot, gasketed joints more than 75% of the maximum deflection permitted by the pipe manufacturer.

10. Coat bolts on buried flanges or other buried appurtenances. Wrap the appurtenance with polyethylene encasement and tape the encasement tightly closed to the pipe.

C. General Exposed Piping Installation:

1. Unless shown otherwise, install piping parallel to building lines, plumb and level.
2. Install piping without springing or forcing the pipe in a manner that would set up stresses in the pipe, valves, or connected equipment.
3. Set all pipe flanges level, plumb, and aligned. All flanged fittings shall be true and perpendicular to the axis of the pipe. All bolt holes in flanges shall straddle vertical centerline of pipes.
4. Flexibility and Expansion: Provide flexible couplings, flexible hose, or flexible spools for all piping connections to motor driven equipment and where otherwise shown. The Contractor may install additional flexible couplings at favorably reviewed locations to facilitate piping installation, provided that he submits complete details describing location, pipe supports, and hydraulic thrust protection. Anchor piping subject to expansion or contraction in a manner permitting strains to be evenly distributed. Sleeves for branches through walls from adjacent mains shall be of sufficient size to allow for free side motion of covered pipe in sleeves.
5. Install unions or flexible connections where shown on the Drawings, and at all non-motor-driven equipment to facilitate removal of the equipment.
6. Provide valves wherever equipment drain connections are furnished and carry the discharge pipe to the nearest floor drain, drain trench or sump. Where no receptacle for drain exists, install drain piping to 1 inch above the floor. Drain piping and valve materials shall conform to the requirements of the system served.
7. Where piping conveying liquids passes over motor control centers, electrical panels and other electrical devices, install a protective drainage tray below the piping.

D. Water Main Installation:

1. The Contractor is advised that precautions taken to keep the pipeline clean during construction will facilitate achieving the disinfection requirements of this project with a minimum of effort and expense. Compliance with these suggested minimum procedures will not relieve the Contractor of the disinfection requirements.
2. Prior to installation, thoroughly clean the interior of each length of pipe and each fitting or valve and inspect to ensure that no foreign material remains. Cover both ends with plastic and do not uncover them until just prior to completing the joint.
3. Whenever pipe laying is discontinued for short periods, or whenever work is stopped at the end of the day, close the open ends of the pipe with water-tight plugs or bulkheads.
4. Provide adequate trench pumping to ensure against groundwater contacting the inside of the pipeline at any time. When necessary, pump the water from trenches and keep the trench dry until the joint have been completed and the open ends of the pipe have been closed with a water-tight plug. Do not remove the plug until the trench has again been pumped dry.
5. Keep new pipe sections clean and dry.
6. When making the connection between a new pipeline and an existing pipeline, or when repairing a damaged pipe, take the following extra precautions:

- a. Clean the exterior of the existing pipeline of all dirt and debris, and spray or swab with a standard 5.25% or stronger chlorine solution (as specified) in the immediate vicinity of the work. Clean equipment and materials, including new pipe and fittings, to be used in making these connections of all dirt and debris and disinfect them. Allow at least 30 minutes contact time before the chlorine solution is diluted or rinsed off. Provide sufficient trench pumps to prevent flooding of the trench.
- b. When an old line is opened either by accident or by design, the excavation may be wet or badly contaminated from groundwater. Apply liberal quantities of standard chlorine solution tablets to the open trench areas to lessen the danger from such pollution. Tablets are recommended because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation. Scatter liberally around and locate the tablets so that flow entering the work site will contact the disinfecting agent. Trenching application should be done very carefully to avoid contact by skin and clothing with chlorine solution. Minimally, safety dictates wearing safety goggles and rain gear.
- c. When excavating a leaking or broken pipeline, "valve-off" the system gradually to less than watertightness. This is to prevent causing areas of zero pressure which would allow entry of foreign material. A flow should be maintained which is slightly less than trench pump capability. Once the break is exposed and cleaned to disallow site contamination, the valving can then be made watertight.
- d. Flanged Joints: Flanged joints shall be made up tight with care being taken to avoid undue strain in the flanges, fittings, and other accessories. Bolt holes shall be aligned for each flanged joint. Bolts shall be full size for bolt holes; use of undersize bolts to make up for misalignment of bolt holes or for any other purpose will not be permitted. Adjoining flange faces shall not be out of parallel to such a degree that the flanged joint cannot be made watertight without overstraining the flange. Any flanged pipe or fitting whose dimensions do not allow the making of a proper flanged joint as specified herein shall be replaced by one of the proper dimensions. Clean flanges prior to making joints. Buried flanged pipe connections shall be made with the smallest practical "bell" hole. After the joint is completed take special care to completely fill the "bell" hole under and around the pipe with compacted backfill.
- e. Mechanical Grooved Couplings: Install in accordance with the manufacturer's instructions.

3.2 HDPE PIPING (INSTALLATION)

A. LAYING PIPE AND FITTINGS

1. Handling and laying of pipe and fittings shall be in accordance with the manufacturer's instructions, PPI guidelines, as specified herein, and to line and grades as shown on the Drawings.
2. Pipe and fittings shall not be dropped. All pipe and fittings shall be examined before laying and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the manufacturer and approved by the Owner. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner at the Contractor's own expense. Any pipe with gouges exceeding 10 percent of the

nominal wall thickness will be rejected (e.g., 0.257 inches for 54-inch SDR 21 HDPE pipe).

3. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work and shall conform to the lines and grades required when laid. Good alignment shall be preserved in laying. Fittings, in addition to those shown on the Drawings, shall be provided, if required, for crossing utilities or other obstructions that may be encountered upon opening the trench.
4. The Contractor shall not drag the pipe. Rollers or other such devices shall be used to reduce dragging of the pipe. Continuous dragging of long lengths of pipe for transport or installation will not be allowed. Damage to pipe caused by dragging is the responsibility of the Contractor and may be cause for replacement of damaged portion as determined by the Owner. If, in the opinion of the Owner, the pipe may have been dragged to an extent where damage may have occurred to the pipe wall, the Contractor may be asked to install or rotate the pipe such that the section of the pipe which was dragged on the ground be placed in the trench in a manner which will facilitate inspection. The Owner will determine the best orientation of the pipe for inspection. Orientating the pipe for inspection shall be done at no additional cost to the Owner. Any pipe with damage exceeding 10 percent of the nominal wall thickness will be rejected.
5. Pipe shall be installed on grade as shown on the Drawings. Elevation at each joint shall not deviate from that shown on the Drawings by more than 0.5 inch for 1,000 feet of pipe and at all times must slope in the same direction as shown on the Drawings.
6. As much as practicable, the print line on the pipe shall be installed facing upward to facilitate identification of the pipe when initially installed.
7. Except for short runs, which may be permitted by the Owner, pipes shall be laid uphill on grades exceeding 10 percent. Pipe which is laid on a downhill grade shall be blocked and held in place until the downgradient pipe is installed to prevent movement which furnishes sufficient support. All bends shall be properly installed as shown on the Drawings.
8. Pipe fused above ground shall be carefully handled to avoid damage to the pipe. Chains or cable type chokers will not be allowed when lifting fused sections of pipe. Nylon or other wide fabric slings or other similar lifting apparatus with spreader bars shall be used where necessary.
9. The length of open trench required to construct the pipeline shall be kept to a minimum. Lengths of open trench not required for construction of the pipe shall be backfilled and paved such as to allow that portion of the roadway to be opened to the public. The maximum length of open trench shall not exceed that which is shown on the Drawings, unless otherwise accepted by the Owner and agencies having jurisdiction.
10. Prior to installing a pipe section, the bedding material shall be brought to grade along the entire length of the section to be installed. The pipe bedding materials shall be as specified in the Contract Documents.
11. Bending of the pipe to achieve horizontal or vertical changes in direction is allowed. The minimum bending radius, measured along the centerline axis of the pipe is 50 times the nominal pipe size.
12. Vertical pipe deflections shall be checked in the presence of the Owner as soon as practicable after backfill has reached ground elevation with the use of a suitable mandrel measuring device approved by the Owner. Measurement of inside diameter of pipe shall be true vertical and shall be between pipe soffit and pipe invert (12 and 6 o'clock positions). Percentage deflection of pipe shall be calculated as:

- a. $\text{Percent Deflection} = (\text{Base ID} - \text{Measured Vertical ID}) \times 100 \text{ Base ID}$
- b. A maximum 5 percent deflection of pipe will be allowed. Owner may measure pipe deflection at later date. Where pipe deflection is found to be more than 5 percent (2.70 inches), the pipe will be rejected. The Contractor shall perform all corrective measures as agreed upon with the Owner.
- 13. The Contractor shall excavate additional trench holes as required to permit removal of the slings, install flanges and providing coating and protective covers.
- 14. As pipe laying progresses, the Contractor shall keep the pipe interior free of all debris. The Contractor shall completely clean the interior of the pipe of all sand, dirt, and any other debris following completion of pipe laying and fusing of joints prior to testing the completed pipeline.
- 15. Until the pipe is backfilled, trench shall be free of water and kept dry to avoid floatation of the pipe. Laying of pipe with water in trench shall not be allowed.
- 16. The Contractor shall provide anchors if required and as recommended by the pipe manufacturer and approved by the Owner to avoid floatation of pipe until the pipe is backfilled at no additional cost to the Owner.
- 17. Install tracer wire and warning tape as shown on the Drawings.
- 18. Backfill trench in accordance with the Contract Documents.
- 19. All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.

B. HEAT FUSION OF PIPE

- 1. The joining method shall be the thermal butt fusion method and shall be performed in strict accordance with these Specifications, PPI guidelines, and the pipe manufacturer's recommendations. Should there be a conflict between these Specifications and the pipe manufacturer's recommendations, the more stringent requirement shall govern. The butt fusion equipment used in the joining procedures shall be capable of meeting all conditions and procedures recommended by the pipe manufacturer, including but not limited to, temperature requirements, alignment, and interfacial fusion pressure and automatic recording of parameters for joining.
- 2. Sections of polyethylene pipe should be joined into continuous lengths on the work site above ground or in the pipe trench as applicable or required.
- 3. Heat fusion joining shall be complete, efficient, and match the outer diameter of the two pipe being heat fused. Any offset or mismatch shall not exceed the requirements of this Specification. In all cases, heat fusion pipe joints shall have a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of HDPE shall not be used.
- 4. Butt fusion procedure shall include the following steps:
 - a. Fill out an inspection record sheet for this joint. Each joint shall have a separate inspection record sheet. Include the fusion machine datalogger joint number on the separate inspector sheet so matching the records can be done later if require.
 - b. Support the pipe on each end of the fusion machine on longitudinal pipe rollers not less than the height of the fuser bed for three pipe lengths each end of the machine.
 - c. Clamp down the pipes to be joined.
 - d. Verify that both pipe ends to be joined are round.
 - e. Face the pipe ends.

- f. Inspect the inside of each pipe prior to fusion welding and make sure that no defect will interfere with the welding and that there are no surface anomalies anywhere on the inside of the pipes. Check that the cutting blades have not been dulled and damaged the sharp edges of the cut.
 - g. Align the pipe profile so that pipes are properly aligned around the entire circumference.
 - h. Melt the pipe interfaces at recommended temperature for the recommended time.
 - i. Remove the heater plate.
 - j. Join the two profiles together.
 - k. Hold under recommended pressure for the cool down period.
 - l. Mark each welded joint with a joint number matching the inspection sheet record.
5. Should the Contractor be unable to maintain less than 10 percent offset or mismatch at the joint as specified herein, irregular curvature of the pipe joints or irregular toe-in of the ends should be checked by the Contractor. The use of internal hydraulic jacks will be allowed to round the pipe as will cutting the pipe ends and spinning of the pipe to match the profile, but in no case, shall polyethylene pipe be fused if it cannot meet any of the fusing parameters as specified herein, without written consent by the Owner and pipe manufacturer. Any such consent shall not void any warranty or reduce the pressure rating of the pipe.
6. In situations where different polyethylene piping materials must be joined, both pipe manufacturers should be consulted to determine the appropriate fusion procedures.
7. Submit detailed fusion joint reports as recorded by the heat fusion machine for all joints. Submit a report to the Owner's Inspector the same day the fusion is made. Submit a formal report of all fusions to the Owner's Project Manager on a weekly basis, no later than 4:00 p.m. each Friday. If any joint as indicated by these reports is found to be unsatisfactory, the Contractor shall remove portions of the pipe containing such joint and install a new pipe piece as required and approved by the Owner.
8. The first fusion shall be a trial fusion to be performed in the field in the presence of the Owner/Engineer. The trial fusion shall be allowed to cool completely, then fusion test straps shall be cut out. The test strap shall be the longer of 12 inches or 30 times the wall thickness in length with the fusion in the center, and 1-inch minimum or 1.5 times the wall thickness in width. The test strap shall then be bent until the ends of the strap touch. If the fusion fails at the joint, or if the joint exhibits cracking or crazing, a new trial fusion shall be made, cooled completely and tested. Butt fusion of the pipe to be installed shall not commence until the trial fusion has passed the bend back test.
9. Following the successful initial trial fusion, the bend back test shall be performed once every fiftieth joint or once per week, whichever is more frequent.
10. Optional limited access fusion machine may be used for joining of HDPE pipe by butt fusion. Limited access fusion machines must meet the same certification, quality, and capability requirements of the regular fusion machines specified herein.

C. THERMAL EXPANSION AND CONTRACTION

1. The contractor's attention is directed to the table below showing the increase or decrease in length for a given change in temperature in HDPE pipe. The table presents length changes based on the temperature differentials of ambient

temperature when fused minus the installed in-use temperature. The coefficient of thermal expansion for HDPE is 0.000067 inch per inch of pipe length, per degree F.

2. Expansion and Contraction

a. Change in Temperature

1)	10° F	30° F	50° F
2)	0.08 inches	0.24 inch	0.40 inch
3)	0.40 inches	1.2 inches	2.0 inches
4)	0.80 inches	2.4 inches	4.0 inches

3. The Contractor shall be responsible for the effects of accommodating the change in length of HDPE pipe during HDPE pipe installation. Care shall be taken to bury HDPE at the coolest time in the morning to avoid pipe shrinkage following placement.

3.3 COUPLING INSTALLATION

- A. Flexible Couplings and Flange Coupling Adaptors: Prior to installation, thoroughly clean oil, scale, rust, and dirt from the pipe to provide a clean seat for the gasket. Wipe gaskets clean before they are installed. If necessary, flexible couplings and flanged coupling adapter gaskets may be lubricated with soapy water or manufacturer's standard lubricant before installation on the pipe ends. Install in accordance with the manufacturer's recommendations. Tighten bolts progressively, drawing up bolt on opposite sides a little at a time until all bolts have a uniform tightness. Workers tightening bolts shall be equipped with torque-limiting wrenches or other favorably reviewed type. Anchor studs on restrained flanged coupling adaptors shall be installed so as to lock into holes drilled through the pipe wall in accordance with manufacturer's recommendation.
- B. Tie Rods: Except where double-nutting is required, install the nuts snug. Tighten the nuts gradually and equally at opposite sides of the pipe until snug to prevent misalignment and to ensure that all rods carry equal loads. If double-nutting is required, double-nut each end of each tie rod. The space between the pairs of nuts shall be ½ inch greater than the distance between the lugs. Provide double-nutting at buried locations and where otherwise required on the Drawings.

3.4 INSTALLATION OF VALVES AND ACCESSORIES

- A. Wrap buried valve bodies as specified for flexible couplings and flanged coupling adapters.
- B. Use reducing fittings where any change in pipe size occurs between valves or accessories and the attached pipeline. Bushings shall not be used, unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.
- C. Install valves and accessories such that all parts are easily accessible for maintenance and operation. Provide valve boxes for buried valves.
- D. Provide a union adjacent to each screwed end valve and accessory with additional unions as necessary to facilitate removal.

- E. Connections between ferrous and non-ferrous piping, valves, accessories or pipe supports shall be made using a dielectric coupling, union, or flange.
- F. Where valves or other pipeline items require metal full-face connecting flanges, provide intermediate flanges if the connecting flange is not adequate.
- G. Install flexible coupling seals in cast-in-place metal sleeves or in smooth core drilled holes. Grout both sides flush with non-shrink grout unless otherwise shown on the Drawings.

3.5 CONCRETE THRUST BLOCKS

- A. Fittings shall be adequately "blocked" with poured-in-place concrete, poured shaped to establish a firm minimum bearing area, against an undisturbed earth wall as shown on the plans. Timber blocking or dry blocking will not be permitted. Concrete thrust and/or anchor blocking, as indicated on the plans, shall be placed at bends, dead ends, crossed, and as designated by the engineer. Blocking shall be 3,000 psi concrete mix poured in place. All concrete thrust blocking configurations and sizes shall be per the plans. The poured in place concrete thrust and/or anchor blocks shall be in place at least 24 hours before beginning the pressure test, to allow the concrete to set. Longer durations may be required to ensure adequate curing has been established to conduct the necessary testing. All blocking dimensions shown on the plans are considered as minimums with the ideal trench excavation results, and consideration shall be given to unusual circumstances, soil conditions, and topography. All valves and all fittings requiring a concrete block shall first be covered with 4-mil visqueen plastic sheets, before concrete is poured. At no time shall the concrete be allowed to cover joints, bolt heads, or nuts.

3.6 FIELD QUALITY CONTROL

- A. The Owner will:
 - 1. Inspect field welds and test the welds if it is deemed necessary.
 - 2. Perform bacteriological analysis for pipeline to be disinfected.
- B. Factory Quality Control: The Contractor shall test all products as required herein and by the reference specifications.
- C. The Contractor shall:
 - 1. Perform leakage tests.
 - 2. Be responsible for the costs of additional inspection and retesting by the Owner resulting from non-compliance.

3.7 CLEANING

- A. Prior to testing, thoroughly clean the inside of each completed piping system of all dirt, loose scale, sand and other foreign material. Cleaning shall be by sweeping, flushing with water or blowing with compressed air or oil-free nitrogen gas, as appropriate for the size and type of pipe. Flushing shall achieve a velocity of at least 3 feet per second. The Contractor shall install temporary strainers, temporarily disconnect equipment, or take other appropriate measures to protect equipment while cleaning piping. Cleaning shall be completed after any pipeline repairs.

3.8 FIELD TESTING

- A. General: Perform leakage tests on all pipe installed in this project as required by Section 33 05 05.31. Furnish all equipment, material, personnel and supplies to perform the tests and make all taps and other necessary temporary connections. The test pressure, allowable leakage and test medium shall be as specified and as shown in the following Schedule/Paragraphs. Test pressure shall be measured at the highest point on the line, except that pressure at lowest point shall not exceed pipe manufacturer's rated test pressure, unless specifically noted otherwise. Leakage tests shall be performed on all piping at a time agreed upon and in the presence of the Engineer. All visible leaks shall be repaired, regardless of the test results. The Contractor may purchase water for construction, cleaning, testing, and disinfection of the pipelines from the City at a fire hydrants designated by the City. At any connection to the City water system, the Contractor shall provide an air-gap or reduced pressure backflow valve system to prevent backflow into the water source.
- B. Buried Piping: The leakage test for buried piping shall be made after all pipes are installed and backfilled. However, the Contractor may conduct preliminary tests prior to backfill. If the Contractor elects to conduct preliminary tests, provide any necessary temporary thrust restraint.
- C. Exposed Piping: All supports, anchors and blocks shall be installed prior to the leakage test. No temporary supports or blocking shall be installed for final test.
- D. Encased Piping: The leakage test for encased piping shall be made after all pipe is installed and encased, and before any structures are constructed above it. However, the Contractor may conduct preliminary tests prior to encasement. If the Contractor elects to conduct preliminary tests, provide any necessary temporary thrust restraint.
- E. Accessories: It shall be the responsibility of the Contractor to block off or remove equipment, valves, gauges, etc., which are not designed to withstand the full test pressure.
- F. Testing Apparatus: Provide pipe taps, nozzles and connections as necessary in piping to permit testing including valves to isolate the new system, addition of test media, and draining lines and disposal of water, as is necessary. These openings shall be plugged in a manner favorably reviewed by the Engineer after use. Provide all required temporary bulkheads.
- G. Correction of Defects: If leakage exceeds the allowable, the installation shall be repaired or replaced and leakage tests shall be repeated as necessary until conformance to the leakage test requirements specified herein have been fulfilled. All visible leaks shall be repaired even if the pipeline passes the allowable leakage test.
- H. Reports: The Contractor shall keep records of each piping test, including:
 - 1. Description and identification of piping tested.
 - 2. Test pressure.
 - 3. Date of test.
 - 4. Witnessing by Contractor and Engineer.
 - 5. Test evaluation.
 - 6. Remarks, to include such items as:

- a. Leaks (type, location).
 - b. Repairs made on leaks.
- 7. Test reports shall be submitted to the Engineer.
- I. Venting: Where not shown on the Drawings, the Contractor may install valved "tees" at high points on piping to permit venting of air. Valves shall be capped after testing is completed.
- J. Testing Specifics: Piping shall be tested as indicated in Section 33 01 10.58. All other piping systems shall be tested as required for the pipe type used. Unless specified otherwise, test each system for four hours.

3.9 DISINFECTION OF POTABLE WATER SYSTEMS

- A. As specified in 33 01 10.58 Disinfection of Water Utility Piping Systems.

END OF SECTION