CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF

WO 243

Wastewater Collection System Rehabilitation

FOR

City of Lake Oswego

Parts I-IV
Appendices

December 2017

City of Lake Oswego
Engineering Department
380 A Avenue
P. O. Box 369
Lake Oswego, Oregon 97034
PROJECT SPECIFICATIONS

FOR THE

LAKE OSWEGO, OREGON

WASTEWATER COLLECTION SYSTEM REHABILITATION

WORK ORDER NO. 243

December 2017

PROFESSIONAL OF RECORD CERTIFICATION(S):

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

Part III – Special Provisions
Part IV – Special Technical Provisions

EXPIRES: 09/30/2018
BIDDER’S CHECKLIST

PART I  BID BOOKLET
INVITATION FOR BIDS
BID FORM
FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM
BID BOND

PART II  CONTRACT BOOKLET
PUBLIC IMPROVEMENT CONTRACT
PERFORMANCE BOND
PAYMENT BOND
PREVAILING WAGE RATES

PART III  CONDITIONS OF THE CONTRACT
GENERAL CONDITIONS FOR CONSTRUCTION FOR THE CITY OF LAKE OSWEGO
SPECIAL PROVISIONS

PART IV  SPECIAL TECHNICAL PROVISIONS

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<thead>
<tr>
<th>DIVISION 2</th>
<th>SITE AND UTILITY WORK</th>
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<tbody>
<tr>
<td>02 14 50</td>
<td>Sewer Bypassing and Dewatering</td>
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<td>02 20 50</td>
<td>Existing Tree Protection</td>
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<tr>
<td>02 71 00</td>
<td>Pipe Bursting</td>
</tr>
<tr>
<td>02 73 00</td>
<td>Rehabilitation of Existing Sewer Manholes</td>
</tr>
<tr>
<td>02 76 00</td>
<td>Sewer Cleaning</td>
</tr>
<tr>
<td>02 76 70</td>
<td>Cured-In-Place Pipe</td>
</tr>
<tr>
<td>02 76 90</td>
<td>Spot Repair of Existing Sanitary Sewer Mains</td>
</tr>
</tbody>
</table>

APPENDICES
A – RIGHTS OF ENTRY
B – DETAILED TREE INVENTORY

PART V  SUPPLEMENTAL DRAWINGS
BIDDER’S CHECKLIST

FORMS TO EXECUTE FOR SUBMISSION OF BID

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

☐ Bid Form

☐ First-Tier Subcontractor Disclosure Form: within 2 hours of Bid Closing (if City’s estimate of contract value or Bidder’s Bid is over $100,000)

☐ Bid Bond

FORMS TO EXECUTE AFTER AWARD OF BID

☐ Public Improvement Contract

☐ Performance Bond

☐ Payment Bond

☐ Certificate of Insurance including Additional Insured Provision in accordance with the General Conditions
PART I  BID BOOKLET
INVITATION FOR BIDS
BID FORM
FIRST TIER SUBCONTRACTOR DISCLOSURE FORM
BID BOND
INVITATION FOR BIDS
FOR
WORK ORDER 243
Lake Oswego Wastewater Collection System Rehabilitation
FOR
CITY OF LAKE OSWEGO
LAKE OSWEGO, OREGON

Sealed Bids for Work Order 243 Lake Oswego Wastewater Collection System Rehabilitation for the City of Lake Oswego will be received by the Patrick McDougal, Senior Associate Engineer, at the 380 A Avenue, P. O. Box 369 Lake Oswego, Oregon 97034 until 2:00 p.m., local time, Bid Closing Time on January 24, 2018, and then will be publicly opened and read. Bids will not be accepted after the Bid Closing.

Bidders must submit a Bid security to the City along with their Bid in an amount equal to ten percent (10%) of their Bid.

SCOPE OF WORK:

Lake Oswego Wastewater Collection System Rehabilitation which includes:

- Replacement or relining of approximately 3,675 linear feet of 6 to 12 inch diameter sanitary sewer mainline.
- Replacement or rehabilitation of a portion of the associated service laterals within the public right-of-way.
- Rehabilitation of selected manholes.
- Surface restoration of areas where removal or disturbance of existing pavement, vegetation, crushed rock, sidewalks, landscaping and other public or private infrastructure is required.

Project Substantial Completion shall be 120 days from Notice to Proceed and Project Final Completion shall be 14 days from Substantial Completion.

The Contract Documents may be reviewed, examined, and copies obtained at the City Engineering Dept., 3rd Floor, Lake Oswego City Hall, 380 A Avenue, Lake Oswego, Oregon between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, except legal holidays. Copies may be obtained upon payment of a non-refundable fee of $25. Copies of the Contract Documents may also be obtained by mail upon request (phone: 503.635.0270) and upon the receipt of an additional $5.00 per Contract Document to cover postage and handling. Requests sent through the mail shall be addressed to the Engineering Department, City of Lake Oswego, PO Box 369, Lake Oswego, Oregon 97034.

To download the Contract Documents, and to receive all notifications, addenda, and view the Planholder’s list, a person or company must create an account and add its individual name or company to the Planholder’s list at http://www.co.oswego.or.us/publicworkds/bid-rfp-information. If you have website questions concerning this invitation, please call Donna Broadhurst at 503.635.0266.

If you have website questions concerning this invitation, please call Donna Broadhurst at 503.635.0266.

All questions about the meaning or intent of the Bid Documents shall be submitted to the Project Manager in writing or by e-mail. Contact the Project Manager Patrick McDougal at pmcdougal@ci.oswego.or.us or 503-635-0273 with any questions.
The City will investigate and determine the qualifications of the apparent low Bidder as part of its evaluation of the lowest responsive Bid.

The Contract will be for a Public Works/Public Improvement project subject to Oregon minimum wage rate requirements of ORS 279C.800 through 279C.870.

Because the City’s estimate of contract value is $100,000 or greater, Bidders must submit a First Tier Subcontractor Disclosure Form, provided in the Bid Documents, to the City no later than 4:00 pm local time, on the date for receipt of Bids.

A Mandatory Pre-Bid Conference will be held at 2:00 pm, local time on January 10, 2018, at City Hall, City Engineering Dept., 3rd Floor, Lake Oswego City Hall, 380 A Avenue, Lake Oswego, Oregon. A project site tour will be conducted after the Conference which will be the only time bidders are allowed onto private property within the project areas. Bids will be accepted only from Bidders attending the Mandatory Pre-Bid Conference. If a Bid is submitted by a Bidder having not attended the Mandatory Pre-bid Conference, it will not be accepted and will be returned unopened.

Bidders are encouraged to visit the site of the Work during Bid preparation. Clarifications to the Bidding Documents will be made by addenda only. Oral statements may not be relied upon and will not be binding or legally effective.

BID FORM
Wastewater Collection System Rehabilitation
Work Order 243

(A) PROJECT IDENTIFICATION: Lake Oswego Wastewater Collection System Rehabilitation

(B) CONTRACT IDENTIFICATION AND NUMBER: WORK ORDER 243

THIS BID IS SUBMITTED TO:
The Honorable Mayor and City Council
City of Lake Oswego
380 A Avenue
Lake Oswego, Oregon 97034

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation for Bids and Solicitation Documents, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the day of Bid opening. Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Solicitation Documents within fourteen (14) days after the date of Owner’s Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

   (a) Bidder has examined and carefully studied the Solicitation Documents and the following Addenda receipt of all which is hereby acknowledged: (List Addenda by Addendum Number and Date)

       Addendum No. Date

   (b) Bidder has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.
(c) Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

(d) Bidder has carefully studied all reports of subsurface or geologic investigations conducted at or contiguous to the site, if any, in accordance with General Conditions 00125.25 – Subsurface Investigations and related Special Provisions if any. Bidder accepts the determination set forth in General Conditions 00125.25 of the extent of the technical data contained in such reports upon which Bidder is entitled to reasonably rely.

(e) Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted as indicated in the Contract Documents.

(f) Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

(g) Bidder has given Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Bidder has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

(h) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

(i) Bidder has not discriminated against minority business enterprises, woman business enterprises, or emerging small business enterprises in obtaining any required subcontracts, in accordance with ORS 279A.110(4).

(j) The Bidder acknowledges whether he is/is not registered with the Oregon Construction Contractors Board by placing his initials on the appropriate line:

The undersigned as a Bidder, IS registered with the Oregon Construction Contractor’s Board.

The undersigned as a Bidder, IS NOT registered with the Oregon Construction Contractor’s Board.
The Bidder is NOT on a list created by the Construction Contractors Board under ORS 701.227 for Bidders who are not qualified to hold a contract for public improvement.

(k) The Bidder acknowledges whether he is/is not licensed by the State Landscape Contractors Board as required by ORS 671.530 and ORS 701.005, by placing his initials on the appropriate line.

The undersigned as a Bidder **IS** licensed by the State Landscape Contractors Board.

The undersigned as Bidder **IS NOT** licensed by the State Landscape Contractors Board.

(l) The Bidder acknowledges whether he is/is not a resident Bidder in the State of Oregon by placing his initials on the appropriate line:

The undersigned as a Bidder **IS** a resident Bidder in the State of Oregon.

The undersigned as Bidder **IS NOT** a resident Bidder in the State of Oregon.

(m) Bidder certifies that all subcontractors performing Work described in ORS 701.005(2) (i.e., construction Work) will be registered with Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence Work under the Contract.

(n) That the provisions required by ORS 279C.838 and ORS 279C.840, and if applicable, Davis-Bacon Act (40 U.S.C. 3141 to 3148) relating to prevailing wage rates shall be included in this Contract.

(o) The undersigned agrees that if awarded the Contract, and after the date of receipt of written Notice to Proceed, he/she will diligently pursue and complete the work within the time limits specified in the Contract.

(p) Bidder does hereby represent that the unit prices submitted are those at which Bidder will perform the Work involved. Bidder acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

(q) Bidder does hereby propose to furnish all labor, materials, equipment, and services necessary to construct and complete the project entitled: Work Order No. 243 Lake Oswego Wastewater Collection System Rehabilitation, for the sums set forth in the following Bid Schedule and Measurement and Payment Provisions.
4. Bidder agrees that the Work will be substantially completed and ready for final payment on or before the dates or within the number of calendar days indicated in the Contract. Bidder accepts the provisions of the Contract as to liquidated damages in the event of failure to complete the Work within the times specified in the Contract.

5. The following documents are attached to and made a condition of this Bid:

(a) Required Bid Security in the form of ____________________________ in the amount of which is ten percent (10%) of the total bid amount.

(b) List of first-tier subcontractors (see form for filing deadline).

6. Communications concerning this Bid shall be addressed to Bidder indicated below.

7. Terms used in this Bid which are defined in the General Conditions will have the meanings indicated in the General Conditions.

Submitted on ______________________, 20_____.

State Contractor License No. ________________________________.

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

An Individual

Signature_____________________________________________________

__________________________________________________________
(Individual's Name, Typed or Printed)

doing business as______________________________________________

Business address_____________________________________________

__________________________________________________________

Phone No.___________________________________________________
A Partnership

Firm Name________________________________________

Signature__________________________________________________________________________

__________________________________________________________________________________

(Name and Title of Partner, Typed or Printed)

Business address________________________________________

__________________________________________________________________________________

Phone No.________________________________________

State in which Partnership was Formed________________________________________


A Corporation

Corporation Name________________________________________

Signature__________________________________________________________________________

__________________________________________________________________________________

(Officer’s Name, Typed or Printed)

__________________________________________________________________________________

(Title)

__________________________________________________________________________________

(State of Incorporation)

Attest________________________________________

(Secretary’s Signature)

Business address________________________________________

__________________________________________________________________________________

Phone No.________________________________________

Date of Qualification to do Business________________________________________
A Joint Venture

Joint Venture Name____________________________________________________________

Signature______________________________________________________________

______________________________________________________________
(Name of Person Signing, Typed or Printed)

______________________________________________________________
(Title)

______________________________________________________________
(Address for Official Business)

______________________________________________________________
(Phone Number for Official Business)

______________________________________________________________
(State in which Joint Venture was Formed)

(Each joint venturer must sign. The manner of signing for each individual, partnership and
corporation that is a party to the joint venture should be in the manner indicated above).

A Limited Liability Company (LLC)

LLC Name______________________________________________________________

By______________________________________________________________
(Signature of Member/Manager)

Name (typed or printed)____________________________________________________

Business Address________________________________________________________

State in which company was formed ________________________________________

Phone No. ____________________________________________________________
## Wastewater Collection System Rehabilitation
### Bid Schedule

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Price</th>
<th>Total</th>
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<td>Mobilization, Bonding and Insurance</td>
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<td>2</td>
<td>Temporary Traffic Control</td>
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<td>Existing Tree Protection</td>
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<td>Site Preparation and Demolition</td>
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<td>8</td>
<td>Abandon 6-Inch Sewer</td>
<td>LF</td>
<td>1185</td>
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<td>9</td>
<td>Rehabilitate 8-Inch Sewer with CIPP Liner, 4.5 mm thickness</td>
<td>LF</td>
<td>610</td>
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<td>10</td>
<td>Rehabilitate 12-inch Sewer with CIPP Liner, 7.5mm thickness</td>
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<td>Rehabilitate 8-Inch Sewer with CIPP Liner, 4.5 mm thickness, or Pipe Bursting</td>
<td>LF</td>
<td>785</td>
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<td>12</td>
<td>Rehabilitate 8-Inch Sewer to New 10-Inch Sewer with Pipe Bursting</td>
<td>LF</td>
<td>1050</td>
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<td>13</td>
<td>8-Inch PVC Sanitary Sewer, including Trench Excavation, Bedding, Class B Backfill, Compaction</td>
<td>LF</td>
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<td>14</td>
<td>Abandon Lateral</td>
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<td>Protruding Service Lateral Repair/Removal</td>
<td>EA</td>
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<td>16</td>
<td>Service Lateral Replacement to Property Line by Open-Cut Excavation</td>
<td>EA</td>
<td>52</td>
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<td>Internal Service Lateral Rehabilitation, Shorty T-Liner</td>
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<td>Reconnect Service Lateral to Mainline</td>
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<td>Description</td>
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<td>Service Lateral or Mainline Cleanout – Non-Traffic Areas</td>
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<td>Abandon or Remove Existing Manhole</td>
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<td>Install New 48” Pre-Cast Sanitary Manhole</td>
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<td>Install New Manhole Coating</td>
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<td>Seal Chimney and Frame</td>
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<td>Adjust Manhole Frame and Lid to Grade</td>
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<td>Replace Frame and Lid</td>
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<td>Replace Bench</td>
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<td>Construct Outside Drop</td>
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<td>Asphalt and Concrete Saw Cut</td>
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<td>Asphalt and Concrete Removal and Disposal</td>
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<td>Remove and Replace Asphalt Trench Patch</td>
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<td>Replace Crushed Rock Surface, 1”-Open</td>
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<td>Pre-Construction TV Inspection and Cleaning</td>
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<td>Post Construction TV Inspection and Cleaning</td>
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<td>Asphalt Concrete Overlay</td>
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<td>Asphalt Concrete Cold Plan</td>
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<td>Digout and Replacement</td>
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<td>Boulder Excavation</td>
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<td>Short Liner Spot Repair, Palisades Crest Drive, Sheet C-102</td>
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</table>

**Bid Total (Written Out)**

$
MEASUREMENT AND PAYMENT PROVISIONS

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Special Provisions, and Special Technical Specifications, apply to this section.

1.02 BID SCHEDULE

A. Payment constitutes total compensation for furnishing materials; for preparation of these materials; and for labor, equipment, tools and incidentals necessary to complete the work as specified and shown on the drawings, as noted in the written contract documents or as otherwise required. Measurement will not include unauthorized work performed beyond the design limits. The contractor shall replace materials removed and repair or restore all work completed without authorization at no additional cost to the Owner. The method of measurement and the basis of payment for bid items will be as noted in the following paragraphs:

B. Description of Bid Items

1. Mobilization, Bonding and Insurance
   a. Measurement: There will be no measurement for Mobilization, Bonding and Insurance.
   b. Payment: Payment for *Mobilization, Bonding and Insurance* will be based on the percent of the original Contract Amount that is earned from other Contract items, not including advances on Materials, and as follows:
      • When 5 percent is earned, either 50 percent of the amount for mobilization or 5 percent of the original Contract Amount, whichever is the least.
      • When 10 percent is earned, either 100 percent of mobilization or 10 percent of the original Contract Amount, whichever is the least.
      • When all Work is completed, amount of mobilization exceeding 10 percent of the original Contract Amount.

   This schedule for mobilization, bonding and insurance payments will not limit or preclude progress payment otherwise provided by the Contract.
   c. The lump sum price shall not exceed 7% of the total proposed contract price.

2. Temporary Traffic Control
   a. Measurement: Measurement for *Temporary Traffic Control* shall be prorated based on the Engineer’s Estimate of the percent complete of the associated work.
   b. Payment: Payment for *Temporary Traffic Control*, will be made at the contract lump sum price which shall be payment in full for all work associated with traffic control for work as described in the Contract Documents. Payment shall include
all labor, materials, tools, equipment, and incidentals for performing all work associated with Temporary Traffic Control.

3. Existing Tree Protection
   a. Measurement: Measurement for Existing Tree Protection shall be prorated based on the Engineer’s Estimate of the percent complete of the associated work.
   b. Payment: Payment for Existing Tree Protection, will be made at the contract lump sum price which shall be payment in full for all labor, materials, tools, equipment, and incidentals for performing all work associated with Existing Tree Protection as described in the Contract Documents, and as otherwise necessary to comply with City ordinances, codes and requirements.

4. Site Preparation and Demolition
   a. Measurement: Measurement for Site Preparation and Demolition shall be prorated based on the Engineer’s Estimate of the percent complete of the associated work.
   b. Payment: Payment for Site Preparation and Demolition, will be made at the contract lump sum price which shall be payment in full for all labor, materials, tools, equipment, and incidentals as described in the Contract Documents or necessary to complete the project.

5. Over-Excavation/Trench Foundation
   a. Measurement: Measurement for Over-Excavation/Trench Foundation shall be based on the cubic yards of over-excavation and crushed aggregate placed and compacted based on neat line measurements of the proposed finished grades and limits identified on the project plans under manholes, cleanouts, pipe trenches, or other miscellaneous excavations. The locations, lengths and depths of Over-Excavation/Trench Foundation will be identified by the Engineer in the field during construction.
   b. Payment: Payment for Over-Excavation/Trench Foundation, will be made at the contract unit price which shall be payment in full for all work associated with providing crushed aggregate, over excavating below the designed base aggregate and subgrade, disposing of unsuitable material from excavation, preparing the subgrade and placement, grading and compacting the foundation crushed aggregate, as described in the Contract Documents or otherwise directed and approved in the field by the Owner. Payment shall include all labor, materials, tools, equipment, and incidentals for performing all work associated with Over-Excavation/Trench Foundation. It will only be paid when approved for use prior to beginning over-excavation and may not be required for all structures and pipe alignments.

6. Temporary Flow Diversion/Dewatering
   b. Payment: Payment for Temporary Flow Diversion/Dewatering, will be made at the contract lump sum price which shall be payment in full for all work, labor, materials, tools, equipment and incidentals associated with flow diversion, dewatering and other miscellaneous tasks including but not limited to temporary facilities to maintain uninterrupted sanitary sewer service and keep excavations dewatered as described in the Contract Documents.
7. Erosion and Sedimentation Control
   a. Measurement: Measurement for Erosion and Sedimentation Control shall be prorated based on the Engineer’s Estimate of the percent complete of the associated work.
   b. Payment: Payment for Erosion and Sedimentation Control will be made at the contract lump sum price which shall be payment in full for furnishing all labor, materials, tools, equipment and incidentals and performing all work necessary to completely install, maintain, modify and when necessary replace erosion and sedimentation control measures. Payment will be provided for work completed for initial installation with no separate or additional payment for maintenance, replacement or reinstallation.

8. Abandon 6-Inch Sewer
   a. Measurement: Measurement for Abandon 6-Inch Sewer shall be based on the lineal feet abandoned complete and accepted.
   b. Payment: Payment for Abandon 6-Inch Sewer, will be made at the contract unit price which shall be payment in full for all labor, materials, tools, equipment and incidentals associated with abandoning the existing sewer in place including but not limited to excavation, shoring, potholing, dewatering, backfill, grout filling the entire length and volume of the existing pipe, and providing surface restoration.

9. Rehabilitate 8-inch Sewer with CIPP Liner, 4.5 mm thickness
   a. Measurement: Measurement for 8-Inch Sewer with CIPP Liner, 4.5mm thickness shall be based on the lineal feet installed complete and accepted.
   b. Payment: Payment for 8-Inch Sewer with CIPP Liner, 4.5mm thickness, will be made at the unit price which shall be payment in full for all labor, material, equipment, and incidentals associated with providing and installing the sewer pipe liner including but not limited to excavation, shoring, dewatering, backfill, miscellaneous fittings, potholing, and surface restoration.

10. Rehabilitate 12-inch Sewer with CIPP Liner, 7.5 mm thickness
    a. Measurement: Measurement for Rehabilitate 12-Inch Sewer with CIPP Liner, 7.5mm thickness shall be based on the lineal feet installed complete and accepted.
    b. Payment: Payment for 12-Inch Sewer with CIPP Liner, 7.5mm thickness, will be made at the unit price which shall be payment in full for all labor, material, equipment, and incidentals associated with providing and installing the sewer pipe liner including but not limited to excavation, shoring, dewatering, backfill, miscellaneous fittings, potholing and surface restoration.

11. Rehabilitate 8-inch Sewer with CIPP Liner, 4.5mm thickness, or Pipe Bursting
    a. Measurement: Measurement for Rehabilitate 8-Inch Sewer with CIPP Liner, 4.5mm thickness, or Pipe Bursting shall be based on the lineal feet installed complete and accepted.
    b. Payment: Payment for 8-Inch Sewer with CIPP Liner, 4.5mm thickness, or Pipe Bursting will be made at the unit price which shall be payment in full for all labor, material, equipment, and incidentals associated with providing and installing the sewer pipe liner including but not limited to excavation, shoring, dewatering, backfill, miscellaneous fittings, potholing, and surface restoration.
    c. If pipe bursting is the alternative selected by the Contractor, all labor, material, equipment and incidentals associated with insertion and receiving pits, including
surface removal and restoration, shall be included in the bid unit price with no separate or additional payment provided.

12. Rehabilitate 8-inch Sewer to New 10-Inch Sewer with Pipe Bursting
   a. Measurement: Measurement for Rehabilitate 8-inch Sewer to new 10-Inch Sewer with Pipe Bursting shall be based on the lineal feet installed complete and accepted.
   b. Payment: Payment for 8-Inch Sewer to New 10-Inch Sewer With Pipe Bursting will be made at the unit price which shall be payment in full for all labor, material, equipment, and incidentals associated with providing and installing the sewer pipe liner including but not limited to excavation, shoring, dewatering, backfill, miscellaneous fittings, potholing, and surface restoration.
   c. All labor, material, equipment and incidentals associated with insertion and receiving pits, including surface removal and restoration, shall be included in the bid unit price with no separate or additional payment provided.

13. 8-inch PVC Sanitary Sewer, including Trench Excavation, Bedding, Class B Backfill
   a. Measurement: Measurement for 8-Inch PVC Sanitary Sewer, including Trench Excavation, Bedding, Class B Backfill shall be based on the lineal feet installed complete and accepted.
   b. Payment: Payment for 8-Inch PVC Sanitary Sewer, including Trench Excavation, Bedding, Class B Backfill will be made at the unit price which shall be payment in full for all labor, material, equipment, and incidentals associated with providing and installing the sewer pipe including but not limited to excavation, shoring, dewatering, backfill, compaction, miscellaneous fittings, service lateral to mainline connections, potholing, and surface restoration.

14. Abandon Lateral
   a. Measurement: Measurement for Abandon Lateral shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Abandon Lateral, will be made at the contract unit price which shall be payment in full for all work associated with locating, potholing to expose existing lateral, removing a section of the existing lateral, placing a permanent plug of grout inside the exposed ends of the lateral pipe, incidentals, backfilling and compacting the excavation, potholing, and surface restoration as identified in the construction documents, or as otherwise necessary to complete the construction and installation of the proposed improvements, and prevent formation of sinkholes.

15. Protruding Service Lateral Repair/Removal
   a. Measurement: Measurement for Protruding Service Lateral Repair/Removal shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Protruding Service Lateral Repair/Removal, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with demolition, removal and/or trimming of protruding service laterals identified in the construction documents, or as otherwise necessary to complete the construction and installation and operation of the proposed improvements.
16. Service Lateral Replacement to Property Line by Open-Cut Excavation
   a. Measurement: Measurement for Service Lateral Replacement to Property Line by Open-Cut Excavation shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Service Lateral Replacement to Property Line by Open-Cut Excavation, will be made at the unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with providing and installing the sewer pipe including but not limited to excavation, shoring, dewatering, backfill, compaction, miscellaneous fittings, potholing and surface restoration.

17. Internal Service Lateral Rehabilitation, Shorty T-Liner
   a. Measurement: Measurement for Internal Service Lateral Rehabilitation, Shorty T-Liner shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Internal Service Lateral Rehabilitation, Shorty T-Liner, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with reestablishing service laterals using a Shorty T-Liner as part of lining or replacement of the mainline. Work shall include but not be limited to removal and/or trimming of new pipe or liner, and repairing existing service lateral(s) identified in the construction documents.

18. Reconnect Service Lateral to Mainline
   a. Measurement: Measurement for Reconnect Service Lateral to Mainline shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Reconnect Service Lateral to Mainline, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with reconnecting and reestablishing service laterals to the rehabilitated or relined sewer mainlines after lining of the mainline sewer pipe. Work will include but not be limited to excavation, new tees or connection fittings, pipe, couplings, removal and/or trimming of new pipe or liner, and repairing existing service laterals, backfilling, compaction, potholing and surface restoration. This pay item does not apply to new sanitary sewer mainlines. No separate payment will be made for connection to new sanitary sewer mainlines.

19. Service Lateral or Mainline Cleanout – Traffic Areas
   a. Measurement: Measurement for Service Lateral and Mainline Cleanout – Traffic Areas shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Service Lateral and Mainline Cleanout – Traffic Areas, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with providing and installing the new service lateral cleanouts including but not limited to excavation, shoring, dewatering, backfill, compaction, miscellaneous fittings, potholing and surface restoration.

20. Service Lateral or Mainline Cleanout – Non-Traffic Areas
   a. Measurement: Measurement for Service Lateral and Mainline Cleanout – Non-Traffic Areas shall be based on the number of items completed and confirmed by the Engineer.
b. Payment: Payment for Service Lateral and Mainline Cleanout – Non-Traffic Areas, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with providing and installing the new service lateral cleanouts including but not limited to excavation, shoring, dewatering, backfill, compaction, miscellaneous fittings, potholing and surface restoration.

21. Abandon or Remove Existing Manhole
   a. Measurement: Measurement for Abandon or Remove Existing Manhole shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Abandon or Remove Existing Manhole, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with abandonment or removal of existing manholes identified in the construction documents. Work shall also include but not be limited to excavation, shoring, dewatering, demolition, disposal of demolished materials, backfill, compaction and surface restoration of all items not included in other pay items as described in the Contract Documents.

22. Install New 48” Pre-Cast Sanitary Manhole
   a. Measurement: Measurement for Install New 48” Pre-Cast Sanitary shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Install New 48” Pre-Cast Sanitary Manhole, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with providing and installing the new pre-cast concrete manhole including but not limited to excavation, shoring, dewatering, backfill, compaction, miscellaneous fittings.

23. Install New Manhole Coating
   a. Measurement: Measurement for Install New Manhole Coating shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Install New Manhole Coating, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with cleaning, preparing, coating and curing manhole coatings where noted in the Contract Documents.

24. Seal Chimney and Frame
   a. Measurement: Measurement for Seal Chimney and Frame shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Seal Chimney and Frame, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with cleaning, preparing, coating and curing the sealant for manhole chimney’s and frames.

25. Adjust Manhole Frame and Lid to Grade
   a. Measurement: Measurement for Adjust Manhole Frame and Lid to Grade shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Adjust Manhole Frame and Lid to Grade, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with adjusting existing manhole frames and lids to match adjacent grades and provide positive drainage away from structure including but not limited to saw cutting, removal and disposal of asphalt or concrete, excavation, backfill, riser and grade rings, and other miscellaneous materials.
26. Replace Frame and Lid
   a. Measurement: Measurement for Replace Frame and Lid shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Replace Frame and Lid, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with replacing manhole frames and lids to match adjacent grades and provide positive drainage away from structure including but not limited to saw cutting, removal and disposal and replacement of asphalt or concrete, excavation, backfill, frames, lids, risers and grade rings, and other miscellaneous materials.

27. Replace Bench
   a. Measurement: Measurement for Replace Bench shall be based on the number of items completed where specifically called for on the project plans and confirmed by the Engineer.
   b. Payment: Payment for Replace Bench, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with removal and replacement of manhole benches and channels to provide positive and efficient flow lines matching existing pipe inverts. Work includes but is not limited to demolition and materials disposal, bypass piping, cleaning, placement of concrete and grout, and other miscellaneous materials.

28. Construct Outside Drop
   a. Measurement: Measurement for Construct Outside Drop shall be based on the number of items completed where specifically called for on the project plans, and confirmed by the Engineer.
   b. Payment: Payment for Construct Outside Drop, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with constructing a new outside drop for an existing manhole. Work will include but not be limited to saw cutting, removal and disposal of asphalt or concrete, excavation, core drilling the existing manhole, pipe, concrete, backfill and compaction, and surface restoration.

29. Asphalt and Concrete Saw Cut
   a. Measurement: Measurement for Asphalt and Concrete Saw Cut shall be measured by the lineal foot of asphalt and concrete that is saw cut for the full depth of pavement where noted on the project plans and approved by the Owner in the field.
   b. Payment: Payment for Asphalt and Concrete Saw Cut, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with saw cutting existing concrete and asphalt surfaces for the full depth of pavement.

30. Asphalt and Concrete Removal and Disposal
   a. Measurement: Measurement for Asphalt and Concrete Removal and Disposal shall be based on the square yards of asphalt and concrete removed as measured in the field by the Owner.
   b. Payment: Payment for Asphalt and Concrete Removal and Disposal, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with removal and disposal of asphalt and concrete surfaces where noted on the project plans or otherwise directed in the field.
31. Remove and Replace Asphalt Trench Patch
   a. Measurement: Measurement for Remove and Replace Asphalt Trench Patch shall be based on the tons of asphalt trench replaced as measured by truck weight tickets provided to the Owner. Pay limits of Replace Asphalt Trench Patch shall be neat lines of standard trench limits as noted in the project plans.
   b. Payment: Payment for Remove and Replace Asphalt Trench Patch, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidental associated with replacing asphalt surfaces within pipe trench excavations where noted in the contract documents or where otherwise directed. Work shall include but not be limited to excavation, backfill, compaction, and placement and compaction of asphalt concrete.

32. Remove and Replace Concrete Sidewalk
   a. Measurement: Measurement for Remove and Replace Concrete Sidewalk shall be based on the square yards of concrete sidewalk replaced as measured in the field by the Owner.
   b. Payment: Payment for Remove and Replace Concrete Sidewalk, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidental associated with replacing concrete sidewalks where noted in the contract documents or where otherwise directed. Work shall include but not be limited to excavation, backfill, compaction, and placement and finishing of concrete sidewalks.

33. Remove and Replace Concrete Curb
   a. Measurement: Measurement for Remove and Replace Concrete Curb shall be based on the lineal feet of concrete curb installed as measured in the field by the Owner.
   b. Payment: Payment for Remove and Replace Concrete Curb, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidental associated with replacing concrete curbs where noted in the contract documents or where otherwise directed. Payment shall include but not be limited to excavation, disposal of demolished material, backfill, forming, placement and finishing concrete curbs.

34. Replace Crushed Rock Surface, 3/4"-0
   a. Measurement: Measurement for Replace Crushed Rock Surface, ¾"-0 shall be based on the tons of crushed rock delivered and placed as measured by truck weight tickets provided to the Owner.
   b. Payment: Payment for Replace Crushed Rock Surface, 3/4"-0, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidental associated with placing crushed rock surface as shoulder rock or final surface restoration where noted in the contract documents or where otherwise directed. This pay does not cover trench backfill, foundation stabilization, or pavement digout and replacement. Work shall include preparing existing surfaces and subgrades, placement and compaction of crushed rock, and finish grading.

35. Replace Crushed Rock Surface, 1"-Open
   a. Measurement: Measurement for Replace Crushed Rock Surface, 1"-Open shall be based on the tons of crushed rock delivered and placed as measured by truck weight tickets provided to the Owner.
b. Payment: Payment for *Replace Crushed Rock Surface, 1"-Open*, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with placing crushed rock surface as shoulder rock or final surface restoration where noted in the contract documents or where otherwise directed. This pay does not cover trench backfill, foundation stabilization, or pavement digout and replacement. Work shall include preparing existing surfaces and subgrades, placement and compaction of crushed rock, and finish grading.

36. Pre-Construction TV Inspection and Cleaning
   a. Measurement: Measurement for *Pre-Construction TV Inspection and Cleaning* shall be based on the lineal feet of mainline pipe cleaned and inspected.
   b. Payment: Payment for *Pre-Construction TV Inspection and Cleaning*, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with cleaning and TV inspection. Work includes but is not limited to cleaning, debris removal and disposal, TV inspection, written inspection reports and summaries, electronic video files of all existing sanitary sewer pipelines where noted in the contract documents or where otherwise directed.

37. Post-Construction TV Inspection and Cleaning
   a. Measurement: Measurement for *Post-Construction TV Inspection and Cleaning* shall be based on the lineal feet of mainline pipe cleaned and inspected.
   b. Payment: Payment for *Post-Construction TV Inspection and Cleaning*, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with cleaning and TV inspection. Work includes but is not limited to cleaning, debris removal and disposal, TV inspection, written inspection reports and summaries, electronic video files of all existing sanitary sewer pipelines where noted in the contract documents or where otherwise directed.

38. Asphalt Concrete Overlay
   a. Measurement: Measurement for *Asphalt Concrete Overlay* shall be based on the tons of asphalt delivered and placed as measured by truck weight tickets provided to the Owner.
   b. Payment: Payment for *Asphalt Concrete Overlay*, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with asphalt overlays where identified in the project plans or as otherwise noted in the field by the Engineer. Work includes but is not limited to preparing and cleaning existing surfaces, placement, and compaction of asphalt overlays including transitions at ends, driveways and walkways.

39. Asphalt Concrete Cold Plane
   a. Measurement: Measurement for *Asphalt Concrete Cold Plane* shall be based on the square yards of asphalt concrete removed by cold plane grinding where noted on the project plans and as measured in the field by the Owner.
   b. Payment: Payment for *Asphalt Concrete Cold Plane*, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with removing, hauling and disposing of asphalt pavement using cold plane grinding equipment where noted in the contract documents or where otherwise directed.
40. Digout and Replacement
   a. Measurement: Measurement for Digout and Replacement shall be based on the square yards of pavement, aggregate base and subgrade removed where noted on the project plans and as measured in the field by the Owner.
   b. Payment: Payment for Digout and Replacement, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with digout and replacement of pavement sections as noted in the project plans or as otherwise directed in the field by the Owner. Work shall include but not be limited to excavation and removal of existing asphalt, base and subgrade, preparing remaining subgrade, providing crushed rock aggregate, backfill, and compaction.

41. Rock Excavation
   a. Measurement: Measurement for Rock Excavation shall be based on the cubic yards of Rock removed where approved and as measured in the field by the Owner, in accordance with the requirements of section 00405.81 of OSSC.
   b. Payment: Payment for Rock Excavation, will be made at the contract unit price in accordance with section 00405.81 of OSSC which shall be payment in full for all labor, materials, equipment and incidentals associated with removal and disposal where encountered and directed in the field by the Owner. Work shall include but not be limited to excavation and disposal rock,

42. Boulder Excavation
   a. Measurement: Measurement for Boulder Excavation shall be based on the cubic yards of boulder removed in accordance with section 00405.81 of OSSC. A boulder must be greater than 1 cubic yard to be considered a pay item.
   b. Payment: Payment for Boulder Excavation, will be made at the contract unit price in accordance with section 00405.81 of OSSC which shall be payment in full for all labor, materials, equipment and incidentals associated with removal and disposal where encountered and directed in the field by the Owner. Work and materials shall include but not be limited to excavation, demolition, and disposal of boulders, and backfill of the additional volume necessary for removal of the boulder.

43. Short Liner Spot Repair, Palisades Crest Drive, Sheet C-102
   a. Measurement: Measurement for Short Liner Spot Repair, Palisades Crest Drive, Sheet C-102 shall be based on the number of items completed and confirmed by the Engineer.
   b. Payment: Payment for Short Liner Spot Repair, Palisades Crest Drive, Sheet C-102, will be made at the contract unit price which shall be payment in full for all labor, materials, equipment and incidentals associated with installation of the liner spot repair.

END OF SECTION
FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM  
(OAR 137-040-0017)

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:  Lake Oswego Wastewater Collection System Rehabilitation

WORK ORDER #: 243  
BID CLOSING:  Date: 1/24/18  Time: 2:00  AM  PM

REQUIRED DISCLOSURE DEADLINE:  Date: 1/24/18  Time: 4:00  AM  PM

Deliver Form to (Agency)  City of Lake Oswego

Designated Recipient (Person):  Patrick McDougal  
Phone #: 503-635-0273

Agency’s Address:  380 A Avenue, PO Box 369 Lake Oswego, Oregon 97034

INSTRUCTIONS:

The contracting agency’s estimate of contract value or Bidder’s Bid is greater than $100,000, this form must be submitted. 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.

List below the Name, Category of Work and 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:

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<th>SUBCONTRACTOR NAME</th>
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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 #:  _____________________
BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address): City of Lake Oswego, PO Box 369, Lake Oswego, OR 97034

BID

Bid Due Date: January 24, 2018

Lake Oswego Wastewater Collection System Rehabilitation which includes:

• Replacement or relining of approximately 3,675 linear feet of 6 to 12 inch diameter sanitary sewer mainline.
• Replacement or rehabilitation of a portion of the associated service laterals within the public right-of-way.
• Rehabilitation of selected manholes.
• Surface restoration of areas where removal or disturbance of existing pavement, vegetation, crushed rock, sidewalks, landscaping and other public or private infrastructure is required.

BOND

Bond Number: ____________________________

Date: January 24, 2018

Penal sum ____________________________ ____________________________ Words Figures

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

Surety

By: ____________________________ By: ____________________________

Signature and Title ____________________________ Signature and Title

(Attach Power of Attorney)

Attest: ____________________________ Attest: ____________________________

Signature and Title ____________________________ Signature and Title

Note: Above addresses are to be used for giving required notice.
1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety’s liability.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:
   3.1. Owner accepts Bidder’s Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   3.2. All Bids are rejected by Owner, or
   3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety’s written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.
PART II CONTRACT BOOKLET

PUBLIC IMPROVEMENT CONTRACT
PERFORMANCE BOND
PAYMENT BOND
PREVAILING WAGE RATES
Contractor: 
Date of Contract: 
Mailing Address: 
Date of Substantial Completion: 
Date of Final Completion:
Contract Amount: ($___________)

Project No: WO 243
Project: Lake Oswego Wastewater Collection System Rehabilitation

WITNESSETH:

Contractor and the City of Lake Oswego, a municipal corporation, (“Owner”) mutually covenant and agree to and with each other as follows:

1. WORK / PROJECT

1.1 General Description of Work. The Work is generally described as follows:

Lake Oswego Wastewater Collection System Rehabilitation which includes:

- Replacement or relining of approximately 3,675 linear feet of 6 to 12 inch diameter sanitary sewer mainline.
- Replacement or rehabilitation of a portion of the associated service laterals within the public right-of-way.
- Rehabilitation of selected manholes.
- Surface restoration of areas where removal or disturbance of existing pavement, vegetation, crushed rock, sidewalks, landscaping and other public or private infrastructure is required.

The Work is part of the above named “Project”, if stated above.

1.2 Project. The project for which the Work under the Contract Documents may be a part is referenced above.
2. **CLASSIFICATION OF WORK / CONTRACT DOCUMENTS**

2.1 **Classification of Work.** This Work is classified as:

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<td>Public Improvement</td>
<td>Construction, reconstruction or major renovation on real property, not including emergency work, or ordinary repair or maintenance necessary to preserve a public improvement.</td>
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2.2 **Contract Documents.** See General Conditions 00110.20 and 00150.10 for listing of Contract Documents and the order of precedence for resolving discrepancies among the documents.

Note: Submittals reviewed pursuant to subsection 00150.35 of the General Conditions and Reference Documents, if any, referred to in the Special Provisions are not Contract Documents.

3. **CONTRACT TIMES**

3.1 **Dates of Substantial and Final Completion.** The Work will be substantially completed on or before the Date of Substantial Completion stated above, and completed and ready for final payment in accordance with subsection 00195.90 of the General Conditions on or before the Date of Final Completion stated above.

4. **CONTRACT AMOUNT.** No payment shall be due to the Contractor until the Contractor has completed and submitted to the City’s Finance Department the IRS Form W-9 Request for Taxpayer Identification and Certification (http://www.irs.gov/pub/irs-pdf/fw9.pdf). The City prefers to pay contractors by electronic fund transfer; the contractor may submit the EFT agreement (http://tinyurl.com/LO-EFT) to the City’s Finance Department. OWNER agrees to pay, and CONTRACTOR agrees to accept, in full payment for completion of the Work in accordance with the Contract Documents, the Contract Amount stated above, as defined in subsection 00110.20 of the General Conditions; provided however, estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by Engineer, as provided in subsection 00195.50 of the General Conditions. Unit prices have been computed as provided in subsection 00195.00 of the General Conditions.
(INSERT CONTRACTOR NAME HERE)

By: __________________________
Name: _________________________
Title: __________________________
Date: __________________________

Check one:
Sole Proprietor
Partnership
Corporation
Limited Liability Company
Limited Liability Partnership
Other: _________________________

Domicile, if other than Oregon: __________

CITY OF LAKE OSWEGO

(Name of Person Signing for City/LORA)

Date: __________________________

Public Contracting Officer
380 A Avenue
PO Box 369
Lake Oswego, OR 97034

Date Authorized by Council, if applicable:

_______________________________

APPROVED AS TO FORM:

_______________________________

Evan P. Boone
Deputy City Attorney

Ver. 141
PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address): SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address): City of Lake Oswego, 380 A Avenue, Lake Oswego, OR 97034

CONTRACT
Date:
Amount:
Description:
Lake Oswego Wastewater Collection System Rehabilitation which includes:
- Replacement or relining of approximately 3,675 linear feet of 6 to 12 inch diameter sanitary sewer mainline.
- Replacement or rehabilitation of a portion of the associated service laterals within the public right-of-way.
- Rehabilitation of selected manholes.
- Surface restoration of areas where removal or disturbance of existing pavement, vegetation, crushed rock, sidewalks, landscaping and other public or private infrastructure is required.

BOND
Bond Number:
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: ____________________________
Name and Title: ____________________________

SURETY

Surety’s Name

By: ____________________________
Signature and Title
(Attach Power of Attorney)

Attest: ____________________________
Signature and Title

(Space is provided below for signatures of additional parties, if required.)
CONTRACTOR AS PRINCIPAL

Company: _____________________________

Signature: _____________________________

Name and Title: _____________________________

SURETY

Signature: _____________________________

Name and Title: _____________________________

Surety’s Name: _____________________________

By: _____________________________

Signature and Title: _____________________________

(Attach Power of Attorney)

Attest: _____________________________

Signature and Title: _____________________________
1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Owner Default, Surety’s obligation under this Bond shall arise after:

   3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 10 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner’s right, if any, subsequently to declare a Contractor Default; and

   3.2. Owner has declared a Contractor Default and formally terminated Contractor’s right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

   3.3. Owner has agreed to pay the Balance of the Contract Price to:
   1. Surety in accordance with the terms of the Contract;
   2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety’s expense take one of the following actions:

   4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or

   4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

   4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner’s concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

   4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

   1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or

   2. Deny liability in whole or in part and notify Owner citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor’s right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

   6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;

   6.2. Additional legal, design professional, and delay costs resulting from Contractor’s Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

   6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years.
after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.
PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):     SURETY (Name and Address of Principal Place of Business):

OWNER:
City of Lake Oswego
380 A Avenue, Lake Oswego, OR 97034

CONTRACT:
Date:
Amount:
Description:
Lake Oswego Wastewater Collection System Rehabilitation which includes:
• Replacement or relining of approximately 3,675 linear feet of 6 to 12 inch diameter sanitary sewer mainline.
• Replacement or rehabilitation of a portion of the associated service laterals within the public right-of-way.
• Rehabilitation of selected manholes.
• Surface restoration of areas where removal or disturbance of existing pavement, vegetation, crushed rock, sidewalks, landscaping and other public or private infrastructure is required.

BOND
Bond Number:
Date (Not earlier than Contract Date):
Amount:
 Modifications to this Bond Form:
Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL
Company:

Signature: __________________________
Name and Title: __________________________

SURETY

Company:

Signature: __________________________
Name and Title: __________________________

By: __________________________
Signature and Title
(Attach Power of Attorney)

Attest: __________________________
Signature and Title

(Space is provided below for signatures of additional parties, if required.)
CONTRACTOR AS PRINCIPAL

Company:

Signature: ____________________________
Name and Title:

SURETY

Surety’s Name

By: ________________________________
Signature and Title
(Attach Power of Attorney)

Attest: ____________________________
Signature and Title:
1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:
   2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:
   4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with Contractor:
   1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and

   2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

   3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
   6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

   6.2. Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the
Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone

Surety Agency or Broker:

Owner’s Representative (engineer or other party):
PREVAILING WAGE RATES

Wage rates for this project are those established by BOLI effective (July 1, 2017) including amendments thereto effective prior to the initial publication dated of the Invitation for Bids. The web address for BOLI is www.boli.state.or.us.
# General Conditions for Construction for the City of Lake Oswego

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<tr>
<td>00180.65</td>
<td>Right-of-Way and Access Delays</td>
<td>95</td>
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<tr>
<td>00180.70</td>
<td>Suspension of Work</td>
<td>95</td>
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</tbody>
</table>
PART 00100 - GENERAL CONDITIONS

Section 00110 - Organization, Conventions, Abbreviations, and Definitions

Organization

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

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

In addition, throughout the Specifications:

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

Conventions

00110.05 Conventions Used Throughout the Specifications Include:

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

- The subject, "the Contractor", is implied.
- "Shall" refers to action required of the Contractor, and is implied.
- "Will" refers to decisions or actions of the Agency and/or the Engineer.
- The following words, or words of equivalent meaning, refer to the actions of the Agency and/or the Engineer, unless otherwise stated: "allowed", "directed", "established", "permitted", "ordered", "designated", "prescribed", "required", "determined".
- The words "approved", "acceptable", "authorized", "satisfactory", "suitable", "considered", and "rejected", "denied", "disapproved", or words of equivalent meaning, mean by or to the Agency and/or the Engineer, subject in each case to Section 00150 of the General Conditions.
- The words "as shown", "shown", "as indicated", or "indicated" mean "as indicated on the Plans".
- Certain Subsections labeled "Payment" contain statements to the effect that "payment will be made at the Contract amounts for the following items" (followed by a list of items). In such cases the Agency shall pay for only those Pay Items listed in the Schedule of Items.

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

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

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

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

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

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

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

**Abbreviations**

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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR</td>
<td>Association of American Railroads</td>
</tr>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>ABC</td>
<td>Associated Builders and Contractors, Inc.</td>
</tr>
<tr>
<td>AC</td>
<td>Asphalt Concrete</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>ACP</td>
<td>Asphalt Concrete Pavement</td>
</tr>
<tr>
<td>ACWS</td>
<td>Asphalt Concrete Wearing Surface</td>
</tr>
<tr>
<td>AGC</td>
<td>Associated General Contractors of America</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>AIA</td>
<td>American Institute of Architects</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron and Steel Institute</td>
</tr>
<tr>
<td>AITC</td>
<td>American Institute of Timber Construction</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>APA</td>
<td>Engineered Wood Association</td>
</tr>
<tr>
<td>APWA</td>
<td>American Public Works Association</td>
</tr>
<tr>
<td>AREMA</td>
<td>American Railway Engineering and Maintenance of Right-of-Way Association</td>
</tr>
<tr>
<td>ASCE</td>
<td>American Society of Civil Engineers</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>ATPB</td>
<td>Asphalt Treated Permeable Base</td>
</tr>
<tr>
<td>AWG</td>
<td>American Wire Gauge</td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood Protection Association</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>CAgT</td>
<td>Certified Aggregate Technician</td>
</tr>
<tr>
<td>CAT-I</td>
<td>Certified Asphalt Technician I</td>
</tr>
<tr>
<td>CAT-II</td>
<td>Certified Asphalt Technician II</td>
</tr>
<tr>
<td>CBM</td>
<td>Certified Ballast Manufacturers</td>
</tr>
<tr>
<td>CCO</td>
<td>Contract Change Order</td>
</tr>
<tr>
<td>CCT</td>
<td>Concrete Control Technician</td>
</tr>
<tr>
<td>CDT</td>
<td>Certified Density Technician</td>
</tr>
<tr>
<td>CEBT</td>
<td>Certified Embankment and Base Technician</td>
</tr>
<tr>
<td>CIPP</td>
<td>Cured In Place Pipe</td>
</tr>
<tr>
<td>CMDT</td>
<td>Certified Mixture Design Technician</td>
</tr>
<tr>
<td>CPF</td>
<td>Composite Pay Factor</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CS</td>
<td>Commercial Standard, Commodity Standards Division, U.S. Department of Commerce</td>
</tr>
<tr>
<td>D1.1</td>
<td>Structural Welding Code - Steel, American Welding Society, current edition</td>
</tr>
<tr>
<td>D1.5</td>
<td>Bridge Welding Code, American Welding Society, current edition</td>
</tr>
<tr>
<td>DBE</td>
<td>Disadvantaged Business Enterprise</td>
</tr>
<tr>
<td>DEQ</td>
<td>Department of Environmental Quality, State of Oregon</td>
</tr>
<tr>
<td>DOGAMI</td>
<td>Department of Geology and Mineral Industries, State of Oregon</td>
</tr>
<tr>
<td>DSL</td>
<td>Department of State Lands, State of Oregon</td>
</tr>
<tr>
<td>EAC</td>
<td>Emulsified Asphalt Concrete</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>ESCP</td>
<td>Erosion and Sediment Control Plan</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration, U.S. Department of Transportation</td>
</tr>
<tr>
<td>FSS</td>
<td>Federal Specifications and Standards, General Services Administration</td>
</tr>
<tr>
<td>GSA</td>
<td>General Services Administration</td>
</tr>
<tr>
<td>ICEA</td>
<td>Insulated Cable Engineers Association (formerly IPCEA)</td>
</tr>
<tr>
<td>IES</td>
<td>Illuminating Engineering Society</td>
</tr>
<tr>
<td>IMSA</td>
<td>International Municipal Signal Association</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>ITE</td>
<td>Institute of Transportation Engineers</td>
</tr>
<tr>
<td>JMF</td>
<td>Job Mix Formula</td>
</tr>
<tr>
<td>MFTP</td>
<td>Manual of Field Test Procedures (ODOT)</td>
</tr>
<tr>
<td>MIL</td>
<td>Military Specifications</td>
</tr>
<tr>
<td>MSC</td>
<td>Minor Structure Concrete</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>MUTCD</td>
<td>Manual on Uniform Traffic Control Devices for Streets and Highways, FHWA, U.S. Department of Transportation</td>
</tr>
<tr>
<td>NEC</td>
<td>National Electrical Code</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturer's Association</td>
</tr>
<tr>
<td>NESC</td>
<td>National Electrical Safety Code</td>
</tr>
<tr>
<td>NIST</td>
<td>National Institute of Standards and Technology</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NPS</td>
<td>Nominal Pipe Size (dimensionless)</td>
</tr>
<tr>
<td>OAR</td>
<td>Oregon Administrative Rules</td>
</tr>
<tr>
<td>ODA</td>
<td>Oregon Department of Agriculture</td>
</tr>
<tr>
<td>ODOT</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>ORS</td>
<td>Oregon Revised Statutes</td>
</tr>
<tr>
<td>OR-OSHA</td>
<td>Oregon Occupational Safety and Health Division of the Department of Consumer and Business Services</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration, U.S. Department of Labor</td>
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<tr>
<td>PCA</td>
<td>Portland Cement Association</td>
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<tr>
<td>PCC</td>
<td>Portland Cement Concrete</td>
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<tr>
<td>PCI</td>
<td>Precast/Prestressed Concrete Institute</td>
</tr>
<tr>
<td>PCP</td>
<td>Pollution Control Plan</td>
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<tr>
<td>PF</td>
<td>Pay Factor of a constituent</td>
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<tr>
<td>PLS</td>
<td>Professional Land Surveyor</td>
</tr>
<tr>
<td>PMBB</td>
<td>Plant Mixed Bituminous Base</td>
</tr>
<tr>
<td>PTI</td>
<td>Post-Tensioning Institute</td>
</tr>
<tr>
<td>PUC</td>
<td>Public Utility Commission, State of Oregon</td>
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<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
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<td>QC</td>
<td>Quality Control</td>
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<tr>
<td>QCT</td>
<td>Quality Control Technician</td>
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<tr>
<td>QL</td>
<td>Quality Level</td>
</tr>
<tr>
<td>QPL</td>
<td>Qualified Products List</td>
</tr>
<tr>
<td>RAP</td>
<td>Reclaimed Asphalt Pavement</td>
</tr>
<tr>
<td>REA</td>
<td>Rural Electrification Administration, U.S. Department of Agriculture</td>
</tr>
<tr>
<td>RMA</td>
<td>Radio Manufacturers Association or Rubber Manufacturers Association</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
</tr>
<tr>
<td>SI</td>
<td>International System of Units (Système Internationale)</td>
</tr>
<tr>
<td>SRCM</td>
<td>Soil and Rock Classification Manual (ODOT)</td>
</tr>
<tr>
<td>SSPC</td>
<td>Society for Protective Coatings</td>
</tr>
<tr>
<td>T</td>
<td>Tolerances, AASHTO Test Method</td>
</tr>
<tr>
<td>TM</td>
<td>Test Method (ODOT)</td>
</tr>
<tr>
<td>TV</td>
<td>Target Value</td>
</tr>
<tr>
<td>UBC</td>
<td>Uniform Building Code (as adopted by the State of Oregon)</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratory, Inc.</td>
</tr>
<tr>
<td>UPC</td>
<td>Uniform Plumbing Code (as adopted by the State of Oregon)</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>WAQTC</td>
<td>Western Alliance for Quality Transportation Construction</td>
</tr>
<tr>
<td>WCLIB</td>
<td>West Coast Lumber Inspection Bureau</td>
</tr>
<tr>
<td>WWPA</td>
<td>Western Wood Products Association</td>
</tr>
</tbody>
</table>
Definitions

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

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

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

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

Advertisement - The public announcement (Notice to Contractors, Invitation for Bids or Advertisement for Bids) inviting Bids for Work to be performed or Materials to be furnished.

Agency (Owner) - The City of Lake Oswego, a municipal corporation of the State of Oregon, Lake Oswego Redevelopment Agency, or as applicable, which has entered into a Contract with the Contractor.

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

Aggregate - Rock of specified quality and gradation.

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

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

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

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

Bid Bond - The Surety bond for Bid guarantee.

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

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

Bid Documents - See under Solicitation Documents.

Bid Opening - The date and time Bids are opened.

Bid Schedule - The list of Pay Items, their units of measurement, and estimated quantities. (When a Contract is awarded, the Bid Schedule becomes the Schedule of Items.)

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

Bidder - An Entity that submits a Bid in response to an invitation to bid.
Bike Lane - A lane in the Traveled Way, designated by striping and Pavement markings for the preferential or exclusive use of bicyclists.

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

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

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

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

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

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

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

Changed Work - Work included in a Pay Item and within the scope of the Contract that is different from that reflected in the Contract Documents. (see 00140.30)

Class of Project - A designation based on a Project's funding source, i.e., State or Federal-Aid.

Class of Work - A designation referring to the type of Work in which Bidders must be pre-qualified, if prequalification is required.

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

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

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

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

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

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

Conduct Disqualification – A disqualification under ORS 279C.440.
**Contract (Agreement)** - The written agreement between the Agency and the Contractor, including without limitation all Contract Documents, describing the Work to be completed and defining the rights and obligations of the Agency and the Contractor.

**Contract Amount (Contract Price)** - Sum of the Pay Item amounts computed by multiplying the Pay Item quantities by the unit prices in the Schedule of Items.

**Contract Day** - A day counted for purposes of charging Contract Time.

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

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

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

**Correction Period** - Period from Third Notification to Final Acceptance as per subsection 00170.85(b).

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

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

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

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

**Defective** - An adjective which when modifying the word "Work" refers to work that: (1) is unsatisfactory, faulty or deficient; (2) does not conform to the Contract Documents; (3) does not meet the requirements of any inspection, test for approval referred to in the Contract Documents; or (4) has been damaged prior to Engineer’s issuance of Third Notification (Final Completion).

**Design Engineer** – The individual or entity named in the Special Provisions who designed part or all of the Project and who, by contract, has been assigned duties and responsibilities to assist Agency and Project Manager in administration of the Contract.

**Digital Signature** - A form of electronic signature that is registered with a certification authority, e.g., VeriSign or similar digital signature software company, which requires a password to be entered in order to generate the digital signature upon the electronic document. Once the digital signature is applied, any alteration of the document results in the elimination of the digital signature on the document.

**Disqualification** – The preclusion of a Person from contracting with a Contracting Agency for a period of time in accordance with OAR 137-049-0370.

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

**Emulsified Asphalt** - Emulsified asphalt cement.

**Emulsified Asphalt Concrete** - A mixture of Emulsified Asphalt and graded Aggregate.
**Engineer (Project Manager)** - See Project Manager.

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

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

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

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

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

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

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

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

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

**First Notification** - Written Notice to Proceed issued to the Contractor by the Engineer.

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

**Foreign Contractor** – A Contractor that is not domiciled in or registered to do business in the State of Oregon. See OAR 137-049-0480.

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

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

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

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

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

**Leveling** - Placing a variable-thickness Course of Materials to restore horizontal and vertical uniformity to existing Pavements, normally continuous throughout the Project.
Lift - The compacted thickness of material placed by Equipment in a single Pass.

Local Contracting Review Board – The governing council or board of the Agency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Payment Bond - The approved security furnished by the Contractor's Surety as a guaranty of the Contractor's performance of its obligation to pay promptly in full all sums due for Materials, Equipment, and labor furnished to complete the Work.
Peat - A Soil composed primarily of vegetative matter in various stages of decomposition, usually with an organic odor, dark brown to black color, and a spongy consistency.

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

Plans (Drawings) - Standard and Supplemental Drawings, and reviewed unstamped and stamped Shop Drawings and Deferred Submittals. (see 00150.10 and 00150.35)

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

Project Manager (Engineer) - The Agency's representative assigned by the Agency to administer the Contract and who assumes the responsibilities, duties and authorities of the Project Manager (Engineer) as indicated throughout the Contract Documents.

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

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

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

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

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

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

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

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

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

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

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

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

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

Second Notification - Written acknowledgment by the Engineer of Substantial Completion of a Milestone or of the Work according to 00180.50(g).
**Shoulder** - The part of a Roadbed contiguous to the Traveled Way or Roadway, whether paved or unpaved, for accommodating stopped vehicles, for emergency use and for lateral support of Base and surface Courses.

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

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

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

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

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

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

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

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


**State** - The State of Oregon.

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

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

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

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

**Substantial Completion** – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Engineer, the Work (or specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended.
**Substructure** - Those parts of a Structure which support the Superstructure, including bents, piers, abutments, and integrally built wingwalls, up to the surfaces on which bearing devices rest. Substructure also includes portions above bearing surfaces when those portions are built integrally with a Substructure unit (e.g., backwalls of abutments). When Substructure and Superstructure elements are built integrally, the division between Substructure and Superstructure is considered to be at the bottom soffit of the longitudinal or transverse beam, whichever is lower. Culverts and rigid frames are considered to be entirely Substructure.

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

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

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

**Surety** - The Entity that issues the bond.

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

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

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

**Topsoil** - Soil ready for use in a planting bed.

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

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

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

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

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

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

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

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

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

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

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

**Workplace Violence** - Any act of physical, verbal or written aggression by an individual in or related to the workplace and/or project sites. This includes, but is not limited to, verbal abuse, threats or intimidation and physical intimidation, assault or battery by a worker or former worker. Workplace violence may also include destruction or abuse of property.
Section 00120 - Bidding Requirements and Procedures

00120.01 Receipt of Bids; Opening – See Special Provisions.

00120.02 Prequalification of Bidders – See Special Provisions.


00120.04 Pre-Bid Meeting – See Special Provisions.

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

- Invitation for Bids
- Bidder's checklist
- Bid Section
- Appendix, which includes required time-sensitive forms, DBE information, sample forms, and other informational pages

The Bid Section includes all pages after the Bidder's checklist and before the appendix. The Bid Section may include, but is not limited to:

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

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

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

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

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

Bidder protests to the Specifications or Contract terms and conditions shall be submitted in accordance with the Lake Oswego Public Contracting Rules.

The time specified for submission of protests of Specifications or Contract terms and conditions specified in OAR 137-049-0260(3)(a) is changed to seven days.

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

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

(a) Within Normal Right-of-Way Limits - If approved by the Engineer, the Contractor may use available property within the normal Right-of-Way limits for the purpose of constructing improvements under the Contract as long as such use does not unduly impede other legitimate users of the Right-of-Way or adjacent properties. Where the Agency owns, or has rights to, other adjacent properties in the Project area, "normal Right-of-Way" is limited to a line drawn across that property connecting the normal Right-of-Way limits on either side of the property.

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

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

If approval is not obtained before submitting a Bid, and the Contractor proposes to use Agency-owned property outside the normal Right-of-Way limits, then use of the property may be approved by the Engineer, but the Contractor will be assessed fair market value, as determined by the Engineer, for use of the property.
(c) Restrictions on Use - Contractors shall comply with all applicable laws, ordinances, and regulations pertaining to use of Agency-owned property, and shall:

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

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

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

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

- The subsurface investigations made by the Agency are for the purpose of obtaining data for planning and design of the Project.
- The data for individual test boring logs apply only to that particular boring and is not intended to be conclusive as to the character of any material between or around test borings.
- If Bidders use this information in preparing a Bid, it is used at their own risk, and Bidders are responsible for all conclusions, deductions, and inferences drawn from this information.
- Contractor may not rely upon or make any claim against Owner, including its Engineer, or Design Engineer or any of their officers, directors, members, partners, employees, consultants, or subcontractors with respect to any Contractor interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions, or information.

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

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

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

00120.40 Preparation of Bids:

(a) General:

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

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

(b) Bid Schedule Entries:

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

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

(d) Bid Guaranty - All Bids shall be accompanied by a Bid guaranty in the amount of 10% of the total amount of the Bid.

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

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

- Acceptable Surety companies are limited to those authorized to do business in the State of Oregon.
- Forfeiture of Bid guaranties is covered by 00130.60, and return of guaranties is covered by 00130.70.

(e) Disclosure of First-Tier Subcontractors – If the Bidder’s Bid exceeds $100,000 or without regard to the amount of a Bidder’s Bid, if the Agency’s cost estimate for a public improvement project as indicated
in the Invitation for Bids exceeds $100,000, the Bidder shall, within two working hours of the time Bids are due to be submitted, submit to the Agency, on a form provided by the Agency, a disclosure identifying any first-tier Subcontractors that will furnish labor or labor and Materials, and whose contract value is equal to or greater than:

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

For each Subcontractor listed, Bidders shall state:

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

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

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

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

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

In the event that multiple Subcontractor Disclosure Forms are submitted, the last version received prior to the deadline will be considered to be the intended version.

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

00120.45 Submittal of Bids:

(a) Bids shall be submitted by mail, parcel delivery service, or hand delivery to the Agency, in the manner and at the times given in the Special Provisions. Submit Bids in a sealed envelope. If a delivery or courier service is used, the Bidder shall place the sealed envelope containing the Bid inside the delivery or courier service’s envelope.

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

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

(b) All Bid material submitted by Bidder shall become the property of the Agency and is subject to disclosure under the Oregon Public Records Law. A Bid that contains any information that is considered trade secret under ORS 192.501(2) should be segregated and clearly identified as such. This information will be kept confidential and shall not be disclosed except in accordance with the Oregon Public Records Law, ORS 192.410 et seq. Cost or price information is not considered confidential information; it must be open to public inspection.
00120.60 Modification or Withdrawal of Bids:

(a) Modification – Bids once submitted may be modified in writing prior to the time and date set for Bid Closing and submitted to the place designated for receipt of Bids. Any modifications shall be prepared on the company letterhead, signed by an authorized representative, and state that the new document supersedes or modifies the prior Bid. The Bid modification shall be delivered in a sealed envelope and shall be marked as follows:

BID MODIFICATION
Bid Title and Closing Date and Time

(c) Withdrawal- Bids may be withdrawn by written notification on company letterhead signed by an authorized representative and received prior to the time and date set for Bid Closing and submitted to the place designated for receipt of Bids. Bids also may be withdrawn in person prior to the scheduled Bid Closing upon presentation of appropriate identification.

Requests to withdraw Bids shall be marked as follows:

BID WITHDRAWAL
Bid Title and Closing Date and Time

No Bid can be withdrawn after having been opened.

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

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

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

Error(s) discovered after Bid opening cannot be corrected by the Bidder and the contractor will be required to perform work at the unit price if its Bid is accepted.

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

- The Bid Section documents provided are not properly used or contain unauthorized alterations.
- The Bid is incomplete or incorrectly completed.
- The Bid contains improper additions, deletions, alternate Bids, or conditions.
- The Bid is submitted on documents not obtained directly from the Agency, or is submitted by a Bidder who has not been identified by the Agency as a Holder of Bidding Plans, as required by 00120.05.
- The Bid or Bid modifications are not signed by a person authorized to submit Bids or modify Bids, as required by 00120.40 and 00120.60.
- A member of a joint venture and the joint venture submit Bids for the same Project. Both Bids may be rejected.
- The Bid has entries not typed or in ink, or has signatures or initials not in ink.
• Each change or correction is not individually initialed.
• White-out tape or white-out liquid is used to correct item entries.
• The price per unit cannot be determined.
• The Bid guaranty is insufficient or improper.
• The original Bid Bond form is not used or is altered.
• The Oregon Construction Contractors Board registration number and expiration date are not shown on the Bid if required in the Solicitation Document. This requirement applies to Agency and State-funded Projects, with the exception of Aggregate production and landscape Projects. (not required on Federal-Aid Projects)
• A disclosure of qualified first-tier Subcontractors, if required under 00120.40(f), is not received within two working hours of the time Bids are due to be submitted, or the disclosure form is not complete.
• The Bidder has not complied with the DBE requirements of the solicitation.
• The Bid does not acknowledge all issued Addenda.
• The Bid contains entries that are not greater than zero.
• The Bid entries are not expressed in U.S. dollars and cents.
• The Agency determines that any Pay Item is significantly unbalanced to the potential detriment of the Agency.

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

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

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

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

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

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

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

This increase will only be applied to determine the lowest Bid, and will not cause an increase in payment to the Contractor after Award of the Contract.
00120.90 **Disqualification of Bidders** - The Bid(s) of a disqualified Bidder will be rejected. Any of the following reasons is sufficient to disqualify a Bidder:

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

A Bidder will be disqualified if the Bidder has:

- Not been prequalified if required by 00120.02;
- Been declared ineligible by the Commissioner of the Bureau of Labor and Industries under ORS 279C.860;
- Not been registered (licensed) by the Oregon Construction Contractors Board (CCB) or been licensed by the State Landscape Contractors Board before submitting a Bid (ORS 279C.365(1)(k), ORS 701.021, ORS 701.026, and ORS 671.530). The Bidder's registration number and expiration date shall be shown in the Bid form, if requested. Failure to furnish the registration number, if requested, will render the Bid non-responsive and subject to rejection. (not required on Federal-Aid projects); or
- Been determined by the CCB under ORS 701.227 not to be qualified to hold or participate in a public contract for a public improvement.

00120.91 **Rejection of Bid on Grounds of Nonresponsibility of Bidder** - The Bid of a Bidder who is found to be nonresponsible according to the criteria listed in 00130.10 or ORS 279C.375(3) will be rejected.
Section 00130 - Award and Execution of Contract

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

The Agency reserves the right to waive minor informalities and irregularities, and to reject any or all Bids for irregularities under 00120.70 or for good cause after finding that it is in the public interest to do so (ORS 279C.395). An example of good cause for rejection in the public interest is the Agency's determination that any of the unit Bid prices are materially unbalanced to the Agency's potential detriment. A materially unbalanced Bid is defined as, “a Bid which generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced Bid will result in the lowest cost to the Agency.” The Agency may correct obvious errors, when the correct information can be determined from the face of the document, if it finds that the best interest of the Agency and the public will be served thereby.

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

- Substantially complied with all prescribed public bidding procedures and requirements.
- Available the appropriate financial, Materials, Equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise, necessary to indicate the capability of the prospective Bidder to meet all contractual responsibilities.
- A satisfactory record of performance. In evaluating a Bidder's record of performance, the Agency may consider, among other things, whether the Bidder completed previous contracts of a similar nature with a satisfactory record of performance. For purposes of evaluating a Bidder's performance on previous contracts of a similar nature, a satisfactory record of performance means that to the extent that the costs associated with and time available to perform a previous contract remained within the Bidder's control, the Bidder stayed within the time and budget allotted for the procurement and otherwise performed the contract in a satisfactory manner.
- A satisfactory record of integrity. In evaluating a Bidder's record of integrity, the Agency may consider, among other things, whether the Bidder has previous criminal convictions for offenses related to obtaining or attempting to obtain a contract or subcontract or in connection with the Bidder's performance of a contract or subcontract.
- Qualified legally to contract with the Agency.
- Supplied all necessary information in connection with the Agency's inquiry concerning responsibility. If a prospective Bidder fails to promptly supply information requested by the Agency concerning responsibility, the Agency shall base the determination of responsibility upon any available information, or may find the prospective Bidder not to be responsible.
- Not been disqualified by the public contracting agency under ORS 279C.440.

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

The Agency will mail the Notice of Intent to Award to the Bidders, and may provide Notice of Intent to Award on the Agency's web site.
The Award will not be final until the later of the following:

- Seven working days after the Notice of Intent to Award has been posted as specified in the advertised solicitation or Addendum thereto; or
- The Agency has provided a written response to each timely protest, denying the protest and affirming the Award.

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

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

The Contractor will not automatically be entitled to extra compensation because the commencement of Work is delayed by failure of the Agency to send the Contract for execution. However, if more Calendar Days elapse between the date the Bid is opened and the date the Agency sends the Contract to be executed, as specified in 00130.10, the Agency will consider granting an adjustment of time for completion of the Work to offset any actual delay to Contract completion resulting directly from delay in commencement.

00130.12 **Subcontractor or Supplier Identification** - If the Special Provisions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Agency with the Bid, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Agency.

00130.15 **Right to Protest Award** - An adversely affected or aggrieved Bidder may submit to the Agency a written protest of the Agency's intent to Award within seven Days after issuance of the notice of intent to Award the Contract, unless a different protest period is provided under the Solicitation Documents. The Bidder's protest must be in writing and must specify the grounds upon which the protest is based.

A Bidder is adversely affected or aggrieved only if the Bidder is eligible for Award of the Contract as the Responsible Bidder submitting the lowest Responsive Bid most eligible for Award under the Contractor Evaluation Criteria and is next in line for Award, i.e., the protesting Bidder must claim that all lower Bidders are ineligible for Award:

- Because their Bids were nonresponsive; or
- The Agency committed a substantial violation of a provision in the Solicitation Documents or of an applicable Procurement statute or administrative rule, and the protesting Bidder was unfairly evaluated and would have, but for such substantial violation, been the Responsible Bidder offering the lowest Bid.

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

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

- Public Improvement Contract
- Performance Bond
- Payment Bond
- Prevailing Wage Rates
Special Provisions

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

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

The successful Bidder shall submit the standard bond forms, which are bound in the Contract Booklet or alternative bond forms acceptable to the Agency. Faxed or photocopied bond forms will not be accepted. The amount of each bond shall be equal to the Contract Amount. The Performance Bond and the Payment Bond must be signed by the Surety’s authorized Attorney-in-Fact, and the Surety’s seal must be affixed to each bond. A power of attorney for the Attorney-in-Fact shall be attached to the bonds in the Contract booklet, which must include bond numbers, and the Surety’s original seal must be affixed to the power of attorney. Bonds shall not be canceled without the Agency’s consent, nor will the Agency normally release them prior to Contract completion. The amount of the Performance and Payment Bonds shall be increased to equal the new Contract Amount whenever the Contract Amount is increased for any reason.

(b) Certificates of Insurance - The successful Bidder shall furnish the Agency certificates of insurance applicable to the Project, according to 00170.70. The insurance coverages shall remain in force throughout the performance of the Contract and shall not be allowed to lapse without prior written approval of the Agency. Bidders shall may refer to 00170.70 for minimum coverage limits and other requirements.

For specified Contracts, certified copies, and in some instances the original, of insurance policies may be required by the Special Provisions.

(c) Registration Requirements:

(1) ORS 701.021, ORS 701.026, and ORS 671.530 require that Bidders be registered with the Oregon Construction Contractors Board or licensed by the State Landscape Contractors Board prior to submission of a Bid on a Project not involving federal funds. Registration with the Construction Contractors Board or licensing by the State Landscape Contractors Board is not a prerequisite to bidding on Federal-Aid Projects; however, the Agency will not execute a Contract until the Contractor is so registered or licensed.

(2) Bidders must be registered with the Corporation Division, Oregon Secretary of State, if bidding as a corporation, limited liability company, joint venture, or limited liability partnership, or if operating under an assumed business name and the legal name of each person carrying on the business is not included in the business name.

(3) A Contractor registered under ORS 701 may bid on a landscaping Project or perform a construction project that includes landscape contracting as a portion of the project if the landscape contracting is subcontracted to a licensed landscaping business as defined in ORS 671.520.

(4) A landscaping business may bid on a Project or perform a Contract that includes the phase of landscape contracting for which it is not licensed if it employs a landscape contractor, or subcontracts with another licensed landscaping business, licensed for that phase.

00130.50 Execution of Contract and Bonds:

(a) By the Bidder - The successful Bidder shall deliver the required number of Contract booklets with the properly executed Contract, Performance Bond, Payment Bond, certification of workers' compensation coverage, and the required certificates of insurance, to the Agency within 14 Calendar Days after the date on which the Contract booklets are sent or otherwise conveyed to the Bidder under 00130.10. The Bidder shall return the originals of all documents received from the Agency and named in this Subsection, with original signatures or digital signatures. Certificates of insurance shall also be originals. Certificates of insurance for coverages that are permitted by the Agency under 00170.70(a) to be obtained by appropriate subcontractors shall be delivered by the Contractor to the Agency, together with the Contractor's request under 00180.21 for approval of the subcontract with that subcontractor. No copies of these documents will be accepted by the Agency.

Proper execution requires that:

- If the Contractor is a partnership, limited liability partnership, joint venture, or limited liability company, an authorized representative of each Entity comprising it shall sign the Contract, Performance Bond, and Payment Bond, and an authorization to sign shall be attached.

- If the Contractor is a corporation, the President and the Secretary of that corporation shall sign the Contract, Performance Bond, and Payment Bond. However, if other corporate officers are authorized to execute contracts and bonds, the successful Bidder shall furnish with those documents a certified, true and correct copy of the corporate bylaws or minutes stating that authority. If only one officer is signing, then the bylaws or minutes must include the authority to sign without the signature of others. The successful Bidder shall also include the title(s) or corporate office(s) held by the signer(s).

(b) By the Agency - Within 10 Working Days after the Agency has received and verified the properly executed documents specified in 00130.50(a), and received legal sufficiency approval from the Agency's attorney (if required), the Agency will execute the Contract. The Agency will then send a fully-executed original Contract booklet to the successful Bidder, who then officially becomes the Contractor.

00130.60 Failure to Execute Contract and Bonds - Failure of the successful Bidder to execute the Contract and provide the required certificates, certifications, and bonds may be cause for cancellation of the Award, and may be cause for forfeiture of the Bid guaranty under ORS 279C.385.

Award may then be made to the next lowest responsible Bidder, the Project may be re-advertised, or the Work may be performed otherwise as the Agency decides.

The forfeited Bid guaranty will become the Agency's property, not as a penalty but as liquidation of damages resulting from the Bidder's failure to execute the Contract and provide the certificates, certifications, and bonds as required by these Specifications.

00130.70 Release of Bid Guaranties - Bid guaranties will be released and checks returned seven Calendar Days after Bids are opened, except for those of the three apparent lowest Bidders on each Project. The guaranties of the three apparent lowest Bidders will be released and checks returned to unsuccessful Bidders within seven days of the Agency's execution of the Contract.

00130.80 Project Site Restriction - Until the Agency sends the Contractor written Notice to Proceed with the Work, and the Contractor has filed the public works bonds required in 00170.20, the Contractor shall not move Materials, Equipment, or workers onto that Project Site.

00130.85 Lake Oswego Business License – Contractor shall obtain a Lake Oswego Business License or Metro License for builders and landscape contractors prior to delivering services under this Contract. See ORS 701.015.
00130.90 Notice to Proceed - Notice to Proceed will be issued within five Calendar Days after the Contract is executed by the Agency.

Should the Agency fail to issue the Notice to Proceed within five Calendar Days of Contract execution, the Contractor may apply for an adjustment of Contract Time according to 00180.80(c).
Section 00140 - Scope of Work

00140.00 Purpose of Contract - The purpose of the Contract is to set forth the rights and obligations of the parties and the terms and conditions governing completion of the Work. The Contractor's obligations shall include without limitation the following:

- The Contractor shall furnish all Materials, Equipment, labor, transportation, and Incidentals required to complete the Work according to Plans, Specifications, and terms of the Contract.
- The Contractor shall perform the Work according to the lines, grades, Typical Sections, dimensions, and other details shown on the Plans, as modified by written order.
- The Contractor shall perform all Work determined by the Engineer to be necessary to complete the Project, including Agency required changes in the Work in accordance with 00140.30
- The Contractor shall contact the Engineer for any necessary clarification or interpretation of the Contract.

00140.10 Typical Sections - The Typical Sections are intended to apply in general. At other locations where the Typical Section is not appropriate, the Contractor shall perform construction to the identified alignment as directed by the Engineer.

00140.20 Thickness - The thickness of Courses of Materials shown on the Plans, given in the Specifications, or established by the Engineer is considered to be the compacted thickness. Minor variations are acceptable when within tolerances specified in the Specifications or Plans, or when approved by the Engineer.

00140.30 Agency-Required Changes in the Work - Changes to the Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of Project construction.

Without impairing the Contract, the Agency reserves the right to require changes it deems necessary or desirable within the scope, which in the Specifications means general scope, of the Project. These changes may modify, without limitation:

- Specifications and design
- Grade and alignment
- Cross Sections and thicknesses of Courses of Materials
- Method or manner of performance of Work
- Project Limits

or may result in:

- Increases and decreases in quantities
- Additional Work
- Elimination of any Contract item of Work
- Acceleration or delay in performance of Work

Upon receipt of a Change Order, the Contractor shall perform the Work as modified by the Change Order. If the Change Order increases the Contract Amount, the Contractor shall notify its Surety of the increase and direct the Surety to increase the amount of the performance and payment bonds to equal the new Contract Amount. If requested, the Contractor shall provide the Agency with a copy of the modified bond documents within 15 calendar days of receipt of the Change Order. The Contractor's performance of Work according to
Change Orders shall neither invalidate the Contract nor release the Surety. Payment for changes in the Work will be made according to 00195.20. Contract Time adjustments, if any, will be made according to 00180.80. A Change Order signed by the Contractor is the agreement that the adjustment in the Contract Amount or Contract Time indicated is full compensation for all change order items including the impact of the change order on the balance of the Work to be accomplished.

00140.40 Differing Site Conditions - The following constitute differing Project Site conditions provided such conditions are discovered at the Project Site after commencement of the Work:

- Type 1 - Subsurface or latent physical conditions that could not have been discovered by careful examination of the Project site, utility locations and available records as described in 00120.15 and that differ materially from those indicated in the Contract Documents; or
- Type 2 - Unknown physical conditions of unusual nature that differ materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract.

The party discovering such a condition shall promptly notify the other party, in writing, of the specific differing conditions before they are disturbed and before the affected Work is performed. The Contractor shall not continue Work in the affected area until the Engineer has inspected such condition according to 00195.30 to determine whether an adjustment to Contract Amount or Contract Time is required.

Payment adjustments due to differing Project Site conditions, if any, will be made according to 00195.30. Contract Time adjustments, if any, will be made according to 00180.80.

00140.50 Environmental Pollution Changes - ORS 279C.525 will apply to any increases in the scope of the Work required as a result of environmental or natural resources laws enacted or amended after the submission of Bids for the Contract. The Contractor shall comply with the applicable notice and other requirements of ORS 279C.525. The applicable rights and remedies of that statute will also apply.

In addition to ORS 279C.525, the Agency has compiled a list at 00170.01 of those federal, State, and local agencies, of which the Agency has knowledge, that have enacted ordinances, rules, or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that may affect the performance of Agency contracts.

00140.60 Extra Work - If directed by the Engineer's written order, the Contractor shall perform work not included in the Contract. The Contractor shall perform this work according to:

- Standard Specifications
- Standard Drawings
- Other Plans and Specifications issued by the Engineer

Payment for Extra Work will be made according to Section 00196. Contract Time adjustments, if any, will be made according to 00180.80.

00140.65 Disputed Work - The Contractor may dispute any part of a Change Order, written order, or an oral order from the Engineer by the procedures specified in Section 00199.

00140.70 Cost Reduction Proposals - The Contractor may submit written proposals to the Engineer that modify Plans, Specifications, or other Contract Documents for the sole purpose of reducing the total cost of construction. Unless otherwise agreed to in writing by the Agency, a proposal that is solely or primarily a proposal to reduce estimated quantities or delete Work, as determined by the Engineer, is not eligible for consideration as a cost reduction proposal and will instead be addressed under 00140.30, whether proposed or suggested by the Agency or the Contractor.
(a) **Proposal Requirements** - The Agency will not adopt a cost reduction proposal that impairs essential functions or characteristics of the Project including but not limited to service life, economy of operation, ease of maintenance, designed appearance, or design and safety standards.

To conserve time and funds, the Contractor may first submit a written request for a feasibility review by the Engineer. The request should contain a description of the proposal together with a rough estimate of anticipated dollar and time savings. The Engineer will, within a reasonable time, advise the Contractor in writing whether or not the proposal would be considered by the Agency, should the Contractor elect to submit a detailed cost reduction proposal.

A detailed cost reduction proposal shall include without limitation the following information:

- A description of existing Contract requirements for performing the Work and the proposed change;
- The Contract items of Work affected by the proposed change, including any quantity variation caused by the proposed change;
- Pay Items affected by the proposed change including any quantity variations;
- A detailed cost estimate for performing the Work under the existing Contract and under the proposed change. Cost estimates shall be made according to Section 00197. Costs of re-design, which are incurred after the Agency has accepted the proposal, shall be included in the cost of proposed work; and
- A date by which the Engineer must accept the proposal in order to accept the proposed change without impacting the Contract Time or cost reduction amount.

(b) **Continuing to Perform Work** - The Contractor shall continue to perform the Work according to Contract requirements until the Engineer issues a Change Order incorporating the cost reduction proposal. If the Engineer fails to issue a Change Order by the date specified in the proposal, the proposal shall be deemed rejected.

(c) **Consideration of Proposal** - The Engineer is not obligated to consider any cost reduction proposal. The Agency will not be liable to the Contractor for failure to accept or act upon any cost reduction proposal submitted.

The Engineer will determine in its sole discretion whether to accept a cost reduction proposal as well as the estimated net savings in construction costs from the adoption of all or any part of the proposal. In determining the estimated net savings, the Engineer may disregard the Schedule of Items. The Engineer will establish prices that represent a fair measure of the value of Work to be performed or to be deleted as a result of the cost reduction proposal.

(d) **Sharing Investigation Costs** - As a condition for considering a Contractor's cost reduction proposal, the Agency reserves the right to require the Contractor to share in the Agency's costs of investigating the proposal. If the Agency exercises this right, the Contractor shall provide written acceptance of the condition to the Engineer. Such acceptance will authorize the Agency to deduct its share of investigation costs from payments due or that may become due to the Contractor under the Contract.

(e) **Acceptance of Proposal Requirements** - If the Contractor's cost reduction proposal is accepted in whole or in part, acceptance will be made by a Change Order that will include without limitation the following:

- Statement that the Change Order is made according to 00140.70;
- Revised Contract Documents that reflect all modifications necessary to implement the approved cost reduction measures;
- Any conditions to which the Agency's approval is subject;
• Estimated net savings in construction costs attributable to the approved cost reduction measures; and
• A payment provision according to which the Contractor will be paid 50% of the estimated net savings amount as full and adequate consideration for performance of the Work of the Change Order.

The Contractor's cost of preparing the cost reduction proposal and the Agency's costs of investigating the proposal, including any portion paid by the Contractor, will be excluded from determination of the estimated net savings in construction costs. Costs of re-design, which are incurred after the Agency has accepted the proposal, will be included in the cost of the Work attributable to cost reduction measures.

If the Agency accepts the cost reduction proposal, the Change Order that authorizes the cost reduction measures will also address any Contract Time adjustment.

(f) Right to General Use - Once submitted, the cost reduction proposal becomes the property of the Agency. The Agency reserves the right to adopt the cost reduction proposal for general use without additional compensation to the Contractor when it determines that a proposal is suitable for application to other contracts.

00140.80 Use of Publicly Owned Equipment - The Contractor is prohibited from using publicly-owned Equipment except in the case of emergency. In an emergency, the Contractor may rent publicly-owned Equipment provided that:
• The Engineer provides written approval that states that such rental is in the public interest; and
• Rental does not increase the Project cost.

00140.90 Final Trimming and Cleanup - Before Final Inspection as described in 00150.90, the Contractor shall neatly trim and finish the Project and remove all remaining unincorporated Materials and debris. Final trimming and cleanup shall include without limitation the following:
• The Contractor shall retrim and reshape earthwork, and shall repair deteriorated portions of the Project Site.
• Where the Work has impacted existing facilities or devices, the Contractor shall restore or replace those facilities to their pre-existing condition.
• The Contractor shall clean all drainage facilities and sanitary sewers of excess Materials or debris resulting from the Work.
• The Contractor shall clean up and leave in a neat, orderly condition, Rights-of-Way, Materials sites, and other property occupied in connection with performance of the Work.
• The Contractor shall remove temporary buildings, construction plants, forms, falsework and scaffolding, surplus and discarded Materials, and rubbish.
• The Contractor shall dispose of Materials and debris including without limitation forms, falsework, scaffolding, and rubbish resulting from clearing, grubbing, trimming, clean-up, removal, and other Work. These Materials and debris become the property of the Contractor. The Contractor shall dispose of these Materials and debris immediately.
• The Contractor shall restore and replant or resurface adjoining properties to match existing grades and existing surfaces.
• The Contractor shall install erosion and sediment control needed to stabilize the Project site.

Unless the Contract specifically provides for payment for this item, the Agency will make no separate or additional payment for final trimming and cleanup.
00140.95 “AS-BUILT” Records – The Contractor shall maintain a current and accurate record of Work completed during the course of this Contract and make available to the Engineer updated copies of the project “As-Builts” for Engineer’s review at any time. These “As-Builts” drawings shall be kept by accurately marking a designated set of the Contract plans with the specified information as Work proceeds. Accurate, complete and current “As-Built” drawings are a specified requirement for monthly progress payments of the Work completed. “As-Builts” shall be reviewed for completeness before recommendation of payment is granted. Incomplete or insufficient “As-Builts” will be returned to the Contractor and recommendation for progress payment denied. At project completion and as a condition of final payment, the Contractor shall deliver an acceptable complete and legible set of “As-Built” drawings to the Engineer.

The “As-Built” drawings shall show the information listed below. Where the term “locate” or “location” is used, it shall mean record of position with respect to both the construction vertical datum and either construction horizontal datum or a nearby permanent improvement.

- As-built location of underground and surface services and utilities as installed
- As-built location of existing underground and surface utilities and services that are to remain and that are encountered during the course of the Work
- As-built changes in dimension, location, grade or detail to that shown on plans
- As-built changes made by change order
- As-built details not in original plans
- Provide fully completed shop drawings reflecting all revisions

Upon completion of the construction, the Contractor shall review and certify the construction set of “As-Built” drawings for completeness and accuracy of representation of any changes. Final payment will not be processed until “As-Built” drawings have been submitted and approved.
Section 00150 - Control of Work

00150.00 Authority of the Engineer (Project Manager) - The Engineer has authority over the Work and its suspension. (see Section 00180)

The Contractor shall direct all requests for clarification or interpretation of the Contract, in writing, to the Engineer. The Engineer will respond within a reasonable time. Contract clarification or interpretation obtained from persons other than the Engineer will not be binding on the Agency.

The Engineer's decision is final on all matters, including but not limited to the following:

- Quality and acceptability of Materials and workmanship
- Measurement of unit price Work
- Timely and proper prosecution of the Work
- Interpretation of Contract Documents
- Payments due under the Contract

and, except as provided in Section 00199 for claims for additional Contract Time or Contract Price, may be challenged only through the dispute resolution process provided for in these General Provisions (00199) and, if applicable, the Special Provisions.

Work performed under the Contract will not be considered complete until it has passed Final Inspection by the Engineer and has been accepted in writing by the Agency.

Interim approvals issued by the Engineer, including but not limited to Final Acceptance, will not discharge the Contractor from responsibility for errors in prosecution of the Work, for improper fabrication, for failure to comply with Contract requirements, or for other deficiencies, the nature of which are within the Contractor's control.

The Agency may appoint Inspectors and other personnel to assist in the administration of the Contract.

The authority stated in this subsection is subject to the individual's delegated authority by the Agency. If the individual does not have the stated authority, the subsection reference shall include Agency personnel that have such authority.

00150.02 Inspector's Authority and Duties - To the extent delegated under 00150.01, Inspectors are authorized to represent the Engineer and Project Manager to perform the following:

- Inspect Work performed and Materials furnished, including without limitation, the preparation, fabrication, or manufacture of Materials to be used;
- Orally reject defective Materials and to confirm such rejection in writing;
- By oral order, temporarily suspend the Work for improper prosecution pending the Engineer's decision; and
- Exercise additional delegated authority.

Inspectors are not authorized to:

- Accept Work or Materials.
- Alter or waive provisions of the Contract.
- Give instructions or advice inconsistent with the Contract Documents.
00150.10 Coordination of Contract Documents - The Contract Documents, including but not limited to Contract Change Orders, the Special Provisions, the Plans, and the Standard Specifications are intended to collectively describe all of the items of Work necessary to complete the Project. The Contract Documents are complementary; what is required by one is as binding as if required by all.

(a) Order of Precedence - The Engineer will resolve any discrepancies between these documents in the following order of precedence:

1. Permits from governmental agencies;
2. Engineer’s written interpretations and clarifications issued on or after the Date of Contract;
3. Contract Change Orders;
4. This Contract, Addenda;
5. Bid;
6. Drawings (including written amendments) in the following order:
   - Supplementary Drawings
   - Reviewed and accepted stamped Working (Shop) Drawings
   - Agency-prepared Standard Drawings
   - Other agency-incorporated generic drawings
7. Special Provisions;
8. Standard Specifications;
9. Geotechnical Data Reports;
10. Bonds (if required);
11. General Conditions;
12. Notice to Proceed;
13. Solicitation Documents;
14. All other Contract Documents not listed above.

Notes on a drawing shall take precedence over drawing details. Dimensions shown on the drawings, or that can be computed, shall take precedence over scaled dimensions. The drawings with the higher level of detail take precedence over less detailed drawings.

(b) Immaterial Discrepancies - The Contract Documents specify details for the construction and completion of the Work. If Contract Documents describe portions of the Work in sufficient detail but are silent in some minor respect, the Contractor may proceed utilizing the current best industry practices.

(c) Material Discrepancies - If the Contractor identifies a discrepancy, error, or omission in the Contract Documents that cannot be resolved by the approach specified in (b) above, the Contractor shall immediately request clarification from the Engineer.

00150.15 Construction Stakes, Lines, and Grades:

(a) Agency Responsibilities - The Engineer will provide the location of the existing benchmarks and horizontal control locations used to design the project and prepare the Plans.

(b) Contractor Responsibilities - The Contractor shall:

- Accurately measure detailed dimensions, elevations, and slopes from the Engineer's benchmarks and horizontal control locations;
• Provide all labor, materials and equipment to properly stake out the project so that it can be constructed in accordance with the Contract Documents. Any changes made shall be recorded and the changed vertical and horizontal locations incorporated into the “as-built” drawings.

• Inform the Engineer of any property corners monuments and/or survey markers that are not shown on the Plans and are found during construction activities prior to disturbing the monuments. Allow the Agency two Work days for referencing all found markers before they are removed. Monuments that are noted on the Plans to be protected and are disturbed by the Contractor's activities shall be replaced by the Contractor's surveyor at the Contractor's expense in accordance with ORS Chapter 209.

00150.20 Inspection:

(a) Inspection by the Engineer - The Engineer may test Materials furnished and inspect Work performed by the Contractor to ensure Contract compliance. The Contractor shall notify the Engineer 48 hours (two full Work Days) in advance for inspection of each portion of the Work.

Contractor shall not begin placing successive Courses or portions of Work until preceding Courses or portions of the Work have been inspected and approved by the Engineer.

If the Contractor performs Work without the Engineer's inspection or uses Materials that the Engineer has not approved, the Engineer may order affected portions of the Work removed at the Contractor's expense.

At the Engineer's direction, any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore these portions of Work to the standard required by the Contract. If the Engineer rejects Work due to Materials or workmanship, or if the Contractor performed such Work without providing sufficient advance request for inspection to the Engineer, the Contractor shall bear all costs of uncovering and restoring the Work. If the Engineer accepts the uncovered Work, and the Contractor performed the Work only after providing the Engineer with sufficient advance notice, the costs of uncovering and restoring the Work will be paid for by the Agency according to 00195.20.

(b) Inspection Facilities - The Contractor shall furnish walkways, railings, ladders, shoring, tunnels, platforms, and other facilities necessary to permit the Engineer to have safe access to the Work to be inspected. The Contractor shall require producers and fabricators to provide safe inspection access as requested by the Engineer.

(c) Sampling - When directed by the Agency, the Contractor shall furnish the Engineer with samples of Materials that the Engineer will test. All of the Contractor's costs related to this required sampling are Incidental.

(d) Inspection by Third Parties - Where third parties have the right to inspect the Work, the Contractor shall coordinate with the Engineer and shall provide safe inspection access.

(e) Contractor's Duty to Make Corrections - The Contractor shall perform all Work according to the Contract Documents. The Contractor shall correct Work that does not comply with the Contract Documents at its own expense. Inspection of the Work by the Engineer does not relieve the Contractor of responsibility for improper prosecution of the Work.

00150.25 Acceptability of Materials and Work - The Contractor shall furnish Materials and shall perform Work in Close Conformance to the Contract Documents. If the Engineer determines that the Materials furnished or the Work performed are not in Close Conformance with the Contract Documents, the Engineer may:
Reject the Materials or Work and order the Contractor, at the Contractor's expense, to remove, replace, or otherwise correct any non-conformity; or

Accept the Materials or Work as suitable for the intended purpose, adjust the amount paid for applicable Pay Items to account for diminished cost to the Contractor or diminished value to the Agency, document the adjustment, and provide written documentation to the Contractor regarding the basis of the adjustment.

The Engineer's decisions concerning acceptability of Materials or Work will be final.

00150.30 Delivery of Notices - Written notices to the Contractor by the Engineer or the Agency will be delivered:

- In person;
- By U.S. Postal Service certified or registered mail (return receipt requested) to the current office address as shown in the records of the Agency; or
- By overnight delivery service of a private industry courier, to the current office address as shown in the records of the Agency.

Notices shall be considered as having been received by the Contractor:

- At the time of actual receipt when delivered in person;
- At the time of actual receipt or seven Calendar Days after the postmarked date when deposited for delivery by certified or registered mail, whichever is earlier; or
- At the time of actual receipt or three Calendar Days after deposit with a private industry courier for overnight delivery service, whichever is earlier.

Written notices to the Engineer or the Agency by the Contractor shall be delivered to the Agency address shown in the Special Provisions, unless a different address is agreed to by the Engineer, and shall be delivered:

- In person;
- By U.S. Postal Service certified or registered mail (return receipt requested); or
- By overnight delivery service of a private industry courier.

Notices will be considered as having been received by the Engineer and Agency:

- At the time of actual receipt when delivered in person;
- At the time of actual receipt or seven Calendar Days after the postmarked date when deposited for delivery by certified or registered mail, whichever is earlier; or
- At the time of actual receipt or three Calendar Days after deposit with a private industry courier for overnight delivery service, whichever is earlier.

00150.35 Submittals:

(a) Description - Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous Work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and warranty information and other instructions as specifically required in the Contract Documents to demonstrate fully that the materials
and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract Documents.

(b) Contractor’s Responsibilities

(1) The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where his submittal may affect the work of another contractor or the Agency. The Contractor shall coordinate submittals among its subcontractors and suppliers including those submittals complying with unit responsibility requirements specified in applicable technical sections.

(2) The Contractor shall coordinate submittals with the Work so that Work will not be delayed. It shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to property schedule submittals. The Contractor shall not proceed with Work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor with the indication "No Exceptions Taken" or "Make Corrections Noted."

(3) Submittals shall be carefully reviewed by an authorized representative of the Contractor prior to submission to the Engineer. Each submittal shall be dated and signed by the Contractor as being correct and in strict conformance with the Contract Documents. In the case of Shop Drawings, each sheet shall be so dated and signed. Any deviations from the Contract Documents shall be noted by the Contractor on the transmittal form and such deviation shall be subject to approval in writing by the Engineer. The Engineer will only review submittals that have been so verified by the Contractor. Non-verified submittals will be returned to the Contractor without action taken by the Engineer, and any delays caused thereby shall be the total responsibility of the Contractor.

(4) The Contractor shall certify on each submittal document that it has reviewed the submittal, verified field conditions, and complied with the contract documents.

(5) The Contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer or with the Agency with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the Work.

(c) Shop Drawings and Product Submittals

(1) Wherever called for in the Contract Documents or where required by the Engineer, the Contractor shall furnish to the Engineer for review, five (5) copies plus one reproducible copy or electronic file, of each Shop Drawing or Product submittal. Shop Drawings may include detail design calculations, shop-prepared drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. If a list, graph, catalog sheet, data sheet, etc. includes more than one item, clearly mark which item is the subject of the submittal. Shop Drawings shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of Oregon, unless otherwise indicated. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of Oregon, unless otherwise indicated.
(2) Shop Drawing and Product submittals shall be accompanied by the Engineer’s standard submittal transmittal form, a reproducible copy of which is available from the Engineer. A submittal without the form or where applicable items on the form are not completed will be returned for resubmittal.

(3) Organization

- A single submittal transmittal form shall be used for each technical specification section or item or class of material or equipment for which a submittal is required. A single submittal covering multiple sections will not be acceptable, unless the primary specification references other sections for components. Example: if a pump section references other sections for the motor, shop-applied protective coating, anchor bolts, local control panel, and variable frequency drive, a single submittal would be acceptable. A single submittal covering vertical turbine pumps and horizontal split case pumps would not be acceptable.

- On the transmittal form, index the components of the submittal and insert tabs in the submittal to match the components. Relate the submittal components to specification paragraph and subparagraph, Drawing number, detail number, schedule title, room number, or building name, as applicable.

- Unless indicated otherwise, terminology and equipment names and numbers used in submittals shall match those used in the Contract Documents.

(4) Format

- Minimum sheet size shall be 8.5 inches by 11 inches. Maximum sheet size shall be 22 inches by 34 inches. Every page in a submittal shall be numbered in sequence. Each copy of a submittal shall be collated and stapled or bound, as appropriate. The Engineer will not collate sheets or copies.

- Where product data from a manufacturer is submitted, clearly mark which model is proposed, with complete pertinent data capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Sufficient level of detail shall be presented for assessment of compliance with the Contract Documents.

- Each submittal shall be assigned a unique number. Submittals shall be numbered sequentially, and the submittal numbers shall be clearly noted on the transmittal. Original submittals shall be assigned a numeric submittal number (e.g., 25). If submittal “25” requires a resubmittal, the first resubmittal will bear the designation “25.A” and the second resubmittal will bear the designation “25.B” and so on.

- If there is a follow-up submittal related to a previously submitted class of material or type of equipment (e.g., follow-up submittal to submittal “25”), it shall be assigned the number “25.1”. If submittal “25.1” requires a resubmittal, the first resubmittal will bear the designation “25.1.A” and the second resubmittal will bear the designation “25.1.B” and so on.

(5) Disorganized submittals that do not meet the requirements of the Contract Documents will be returned without review.

(6) Except as may otherwise be indicated, the Engineer will return prints of each submittal to the Contractor with comments noted thereon, within 21 Days following receipt by the Engineer. It is considered reasonable that the Contractor will make a complete and acceptable submittal to the Engineer by the first resubmittal on an item. The Agency reserves the right to withhold monies due
to the Contractor to cover additional costs of the Engineer's review beyond the first resubmittal. Engineer's cost for submittal review beyond the first resubmittal is provided in the Special Provisions. The Engineer's maximum review period for each submittal or resubmittal will be 21 Days.

(7) If a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN," formal revision and resubmission will not be required.

(8) If a submittal is returned marked "MAKE CORRECTIONS NOTED," Contractor shall make the corrections on the submittal, but formal revision and resubmission will not be required, except where specifically required by Engineer as indicated on the submittal review form.

(9) If a submittal is returned marked "AMEND-RESUBMIT," the Contractor shall revise it and shall resubmit the required number of copies to the Engineer for review. Resubmittal of portions of multi-page or multi-drawing submittals will not be allowed. For example, if a Shop Drawing submittal consisting of 10 drawings contains one drawing noted as "AMEND - RESUBMIT," the submittal as a whole is deemed "AMEND-RESUBMIT," and 10 drawings are required to be resubmitted.

(10) If a submittal is returned marked "REJECTED-RESUBMIT," it shall mean either that the proposed material or product does not satisfy the specification, the submittal is so incomplete that it cannot be reviewed, or is a substitution request not submitted in accordance with the General Conditions. In the first two cases, the Contractor shall prepare a new submittal and shall submit the required number of copies to the Engineer for review. In the latter case, the Contractor shall submit the substitution request according to the General Conditions.

(11) Resubmittal of rejected portions of a previous submittal will not be allowed. Every change from a submittal to a resubmittal or from a resubmittal to a subsequent resubmittal shall be identified and flagged on the resubmittal.

(12) Fabrication of an item may commence only after the Engineer has reviewed the pertinent submittals and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as changes to the Contract requirements.

(13) Corrections or comments made on the Contractor's Shop Drawings during review do not relieve the Contractor from compliance with Contract Drawings and Specifications. Review is for conformance to the design concept and general compliance with the Contract Documents only. The Contractor is responsible for confirming and correlating quantities and dimensions, fabrication processes and techniques, coordinating Work with the trades, and satisfactory and safe performance of the Work.

(d) Quality Control (QC) Submittals

(1) Quality control submittals are defined as those required by the Specifications to present documentary evidence to the Engineer that the Contractor has satisfied certain requirements of the Contract Documents.

(2) Unless otherwise indicated, QC submittals shall be submitted:
   
   - Before delivery and unloading, for the following types of submittals:
     
     o Manufacturers' installation instructions
• Manufacturers' and Installers' experience qualifications
• Ready mix concrete delivery tickets
• Design calculations
• Affidavits and manufacturers' certification of compliance with indicated product requirements
• Laboratory analysis results
• Factory test reports

• For the following types of submittals, the manufacturer's field representative shall submit a draft certification prior to leaving the Project site and a final certification within seven days of the event documented:
  o Manufacturers' field representative certification of proper installation

• Within 30 Days of the event documented for the following types of submittals:
  o Field measurement
  o Field test reports
  o Receipt of permit
  o Receipt of regulatory approval

(3) The Engineer will record the date that a QC submittal was received and review it for compliance with submittal requirements, but the review procedures above for Shop Drawings and samples will not apply.

(e) Deferred Submittals to Agency

(1) For the purposes of this section, Deferred Submittals are defined as those portions of the Project that are Contractor-designed and must be submitted to the Agency's building official for approval and to meet Building Permit plan review requirements.

(2) The Engineer will schedule a pre-submittal conference with the Contractor and Agency's building official to discuss proposed Deferred Submittal items, requirements, and review schedule.

(3) The Contractor shall list the Deferred Submittals on the title or cover sheet of the Drawings for submission to the Agency and shall state the design criteria/assumptions of the Deferred Submittal items on the plans. Deferred Submittals shall include details for connection of materials to the structure and calculations showing that the specified structural requirements are met.

(4) The Contractor shall submit Deferred Submittals to the Engineer for review for general conformance to the design of the structure. The Engineer is not responsible for coordination of Deferred Submittal components with Contract Documents. Review does not lessen nor shift burden or responsibility from Contractor or assigned subcontractor/supplier to the Agency or
Engineer. The Engineer shall determine that the Deferred Submittals are in general conformance with the design, and shall forward the Deferred Submittals to the building official. Contractor is responsible, with no exceptions, to ensure that the Deferred Submittal review will not adversely affect Project’s construction schedule. The Deferred Submittal items shall not be installed by the Contractor until the design and Deferred Submittals have been approved by the building official.

(f) Effect of Review of Contractor’s Submittals

(1) Review of Contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Agency, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. An indication of “NO EXCEPTIONS TAKEN” or “MAKE CORRECTIONS NOTED” shall mean that the Agency or Engineer has no objection to the Contractor, upon its own responsibility, using the plan or method of Work proposed, or providing the materials or equipment proposed.

00150.37 Equipment Lists and Other Submittals - The Contractor shall submit Equipment lists, and other required submittals for approval by the Engineer. With each submittal, the Contractor shall clearly identify the applicable specification sub-section and the product make, model, size and proposed options.

00150.40 Cooperation and Superintendence by the Contractor - The Contractor is responsible for full management of all aspects of the Work, including superintendence of all Work by Subcontractors, Suppliers, and other providers. The Contractor shall appoint a single Superintendent and may also appoint alternate Superintendents as necessary to control the Work. The form of appointment of the alternate shall state, in writing, the alternate’s name, duration of appointment in the absence of the Superintendent, and scope of authority. The Contractor shall:

- Provide for the cooperation and superintendence on the Project by:
  - Furnishing the Engineer all data necessary to determine the actual cost of all or any part of the Work, added Work, or changed Work.
  - Allowing the Engineer reasonable access to the Contractor’s books and records at all times. To the extent permitted by public records laws, the Engineer will make reasonable efforts to honor the Contractor's request for protection of confidential information.
  - Keeping one complete set of Contract Documents on the Project Site at all times, available for use by all the Contractor's own organization, and by the Engineer if necessary.
- Appoint a single Superintendent and any alternate Superintendent who shall meet the following qualifications:
  - Appointees shall be competent to manage all aspects of the Work.
  - Appointees shall be from the Contractor's own organization.
  - Appointees shall have performed similar duties on at least one previous project of the size, scope and complexity as the current Contract.
  - Appointees shall be experienced in the types of Work being performed.
  - Appointees shall be capable of reading and thoroughly understanding the Contract Documents.
- The appointed single Superintendent, or any alternate Superintendent shall:
  - Be present for all On-Site Work, regardless of the amount to be performed by the Contractor, Subcontractors, Suppliers, or other providers, unless the Engineer provides prior approval of the Superintendent's or alternate Superintendent's absence.
  - Be equipped with a two way radio or cell phone capable of communicating throughout the project during all the hours of Work on the Project Site and be available for communication with the Engineer.
  - Have full authority and responsibility to promptly execute orders or directions of the Engineer.
• Have full authority and responsibility to promptly supply the Materials, Equipment, labor, and Incidents required for performance of the Work.

• Coordinate and control all Work performed under the Contract, including without limitation the Work performed by Subcontractors, Suppliers, and Owner operators.

• Diligently pursue progress of the Work according to the schedule requirements of Section 00180.

• Cooperate in good faith with the Engineer, Inspectors, and other contractors in performance of the Work.

• Provide all assistance reasonably required by the Engineer to obtain information regarding the nature, quantity, and quality of any part of the Work.

• Provide access, facilities and assistance to the Engineer in establishing such lines, grades and points as the Engineer requires.

• Carefully protect and preserve the Engineer's benchmarks and horizontal control locations.

Any Superintendent or alternate Superintendent who repeatedly fails to follow the Engineer's written or oral orders, directions, instructions, or determinations, shall be subject to removal from the Project.

If the Contractor fails or neglects to provide a Superintendent, or an alternate Superintendent, and no prior approval has been granted, the Engineer has the authority to suspend the Work according to 00180.70. Any continued Work by the Contractor, Subcontractors, Suppliers, or other providers may be subject to rejection and removal. The Contractor's repeated failure or neglect to provide the superintendence required by these provisions constitutes a material breach of the Contract, and the Engineer may impose any remedies available under the Contract, including but not limited to Contract termination.

00150.50 Cooperation with Utilities:

(a) General - As specified in the Special Provisions or as shown on the Plans, existing Utilities requiring adjustment may be adjusted by the Utility before, during, or after Project construction. "Adjustment of Utilities" shall mean the alteration, improvement, connection, disconnection, relocation, or removal of existing Utility lines, facilities, or systems in temporary or permanent manner.

(b) Contractor's Responsibilities - The Contractor shall:

• Follow applicable rules adopted by the Oregon Utility Notification Center;

• Contact Utility owners after the Contract is awarded to verify all Utilities' involvement on the Project Site;

• Coordinate Project construction with the Utilities' planned adjustments, take all precautions necessary to prevent disruption of Utility service, and perform its Work in the manner that results in the least inconvenience to the Utility owners;

• Include all Utility adjustment work, whether to be performed by the Contractor or the Utilities, on the Contractor's Project Work schedule submitted under 00180.41;

• Protect from damage or disturbance any Utility that remains within the area in which Work is being performed;

• Not disturb an existing Utility if it requires an unanticipated adjustment, but shall protect it from damage or disturbance and promptly notify the Engineer; and

• Report to the Engineer any Utility owner who fails to cooperate or fails to follow the planned Utility adjustment.

Subject to the Engineer's approval, the Contractor may propose adjustments to the Utilities by asking the Utility owners to move, remove, or alter their facilities in ways other than as shown on the Plans or in the
Special Provisions. The Contractor shall conduct all negotiations, make all arrangements, and assume all costs that arise from such changes.

(c) Notification – This Project is located within the Oregon Utility Notification Center area which is a Utilities notification system for notifying owners of Utilities about Work being performed in the vicinity of their facilities. The Utilities notification system telephone number is 811 (or use the old number which is 1-800-332-2344).

The Contractor shall comply with the rules of the Oregon Utility Notification Center, OAR 952-001-0010 through OAR 952-001-0090, and ORS 757.993. The Contractor may contact the Oregon Utility Notification Center at 503-232-1987 about these rules.

00150.53 Utilities and Existing Improvements:

(a) General – Information shown on the Plans as to the location of existing water courses and utilities has been compiled from available sources and may not be accurate. The Contractor shall determine the location and nature of affected water courses, utilities and underground improvements prior to commencing Work.

The Contractor shall provide for the flow of water courses and essential utilities that may be interrupted during the progress of the Work and shall restore such water courses or utilities after completion of the Work.

The Contractor shall be responsible for exploratory excavations as it deems necessary to determine the exact locations and depths of utilities which may interfere with Work. All such exploratory excavations shall be performed as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor’s progress. When such exploratory excavations show the utility location as shown on the Plans to be in error, the Contractor shall so notify the Engineer.

The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. Unless otherwise provided in the Special Provisions, all potholing and exploratory work shall be incidental to the Work and no separate payment shall be made therefore.

The Contractor shall coordinate project construction with the adjustment of utilities, take all necessary precautions to prevent disturbing the utilities, and perform work so that utility owners and users are caused a minimum of inconvenience.

The Contractor shall protect underground utilities and other improvements which may be impaired during construction operations, regardless of whether or not the utilities are indicated on the Plans. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

To ease or streamline the work, the Contractor may desire to adjust the utilities by asking the utility owners to move, remove, or alter their equipment in ways other than those shown on the Plans or in the Contract Documents. The Contractor shall conduct the negotiations, make the arrangements, and pay all costs that arise from such changes.

(b) Utilities to be Removed or Relocated – Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of the property of any public utility or franchise holder, such utility company or franchise holder shall be notified by the Contractor to remove or relocate such property within a specified reasonable time. When utility lines that are to be removed or relocated are encountered within the area of operations, the Contractor shall notify the utility company and the Engineer a sufficient time in advance for the necessary measures to be taken to prevent the interruption of service.
(c) **Underground Utilities and Improvements Indicated** – Existing utility lines and underground improvements that are indicated or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines and underground improvements that are encountered during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the Contractor, unless otherwise repaired by the owner of damaged utility. If the owner of the damage facility performs its own repairs, the Contractor shall reimburse said owner for the costs of repair.

(d) **Underground Utilities and Improvements Not Indicated** – In the event that the Contractor damages existing utility lines or underground improvements that are not indicated in the Plans or marked in the field, or are not indicated or marked with reasonable accuracy, or the locations of which are not made known to the Contractor prior to excavation, the Contractor shall immediately provide a verbal report of such damage to the Engineer, and provide a written report thereof promptly thereafter. The Contractor shall immediately notify the owner of the damaged utility. If directed by the Engineer, repairs shall be made by the Contractor under the provisions for changes and extra work contained in the General Conditions.

This subsection applies only to public main line utilities. For service lines to private property, see Subsection 00150.53(e).

For purposes of this section, "reasonable accuracy" is defined as within two (2) feet from the outside lateral dimensions of both sides of an underground utility or facility from actual location. No representation shall be made concerning the accuracy of vertical elevations of existing utilities, even if indicated in the plans, and no additional payment will be made for damage to utilities encountered at depths differing from those indicated.

(e) **Underground Services Indicated or Not** – If service lines are encountered, whether shown, marked or not, the Contractor shall take precautions to carefully work around them and repair them if they are damaged by the Contractor, at no additional cost to the Agency. For purposes of this subsection, service lines to private property are defined as:

- Sanitary sewer service laterals of 6-inch diameter or less
- Water service lines of 2-inch diameter or less.

(f) **Approval of Repairs** – All repairs to a damaged utility or improvement shall be inspected and approved by an authorized representative of the utility or improvement owner, and accepted by the Agency before being concealed by backfill or other Work.

(g) **Agency’s Right of Access** – The right reserved to the Agency and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.

00150.55 **Cooperation with Other Contractors** - The Agency reserves the right to perform other work on or near the Project Site, including without limitation any Materials site, with forces other than those of the Contractor.

If such work takes place on or near the Project Site, the Contractor shall have the following obligations:

- The Contractor shall coordinate Work with other contractors or forces.
- The Contractor shall cooperate in good faith with all other contractors or forces.
- The Contractor shall perform the Work specified in the Contract in a way that will minimize interference and delay for all forces involved.
• The Contractor shall place and dispose of the Materials being used so as not to interfere with the operations of other forces.
• The Contractor shall join the Work with that of other forces in a manner acceptable to the Engineer or the Agency, and shall perform it in the accepted sequence with the work of the other force.

The Engineer will resolve any disagreements under this Subsection that may arise among the Contractor and other work forces, or between the Contractor and the Agency. The Engineer's decision in these matters is final, as provided in 00150.00.

When the schedules for Work of the Contractor and the work of other forces overlap, each contractor involved shall submit a current, realistic progress schedule to the Engineer. Before the Engineer accepts the schedule, each party shall have the opportunity to review all schedules. After this review and any necessary consultations, the Engineer will determine acceptable schedules.

The Contractor waives any right it may have to make claims against the Agency for any damages or claims that may arise because of inconvenience, delay, or loss due solely to the presence of other contractors working on or near the Project Site.

If the Contract gives notice of work to be performed by other forces that may affect the Contractor's Work under the Contract, the Contractor shall include any costs associated with coordination of the Work in the appropriate Pay Item or as a portion of a Pay Item.

In an emergency, the Contractor most immediately able to respond may repair a facility or Utility of another contractor in order to prevent further damage to the facility, Utility, or other Structure as a result of the emergency.

00150.60 Construction Equipment Restrictions:

(a) Load and Speed Restrictions for Construction Vehicles and Equipment – The Contractor shall comply with legal weight and speed restrictions when moving Materials or Equipment beyond the limits of the Project Site.

The Contractor shall control vehicle and Equipment loads and speeds within the Project Site according to the following restrictions, unless the Special Provisions provide otherwise:

• The Contractor shall restrict loads and speeds as necessary to avoid displacement or loss of Materials on Subgrades and Aggregate Bases.
• The Contractor shall restrict weights to legal loads, and shall travel at speeds of no more than 45 mph or the posted construction speed, whichever is less, on treated Bases, Pavement, or wearing Courses.
• The Contractor shall not cross Bridges or other Structures with Equipment or vehicles exceeding the legal load limit without prior written permission of the Engineer. The Contractor shall make any such request in writing, describing the loading details and the arrangement, movement, and position of the Equipment on the Structure. The Contractor shall comply with any restrictions or conditions included in the Engineer's written permission.

(b) Protection of Buried Items - The Contractor shall use temporary fill or other methods to avoid overload of pipes, box culverts, and other items that are covered, or to be covered, by fill or backfill.

(c) Responsibility for Damages - The Contractor shall assume responsibility for damages caused by excessive Equipment speed or loads while performing the Work, both inside and outside the Project Site. The Engineer's permission to cross Bridges and other Structures, according to 00150.60(a) will not relieve the Contractor from responsibility for load-caused damages.
00150.70 Detrimental Operations - The Contractor shall avoid operations whose methods, conditions, or timing may injure people or damage property or the Work. Damage may include without limitation, staining surfaces with mud or asphalt, or damaging utilities, structures or foundations. (Also see 00150.60, 00150.75, and Section 00170)

When any such damage occurs, the Engineer will determine if it is to be corrected by repair, replacement, or compensatory payment by the Contractor. If compensatory payment is required, the Engineer will determine the amount. Compensatory payment may be deducted from monies due or to become due to the Contractor under the Contract.

00150.75 Protection and Maintenance of Work During Construction - The Contractor shall protect and maintain the Work during construction and until Third Notification has been issued, unless otherwise provided in the Contract. For the purposes of this Subsection, "maintenance" shall include measures to prevent deterioration of Roadway and Structures at the Project Site, and to keep them in good condition at all times during the prosecution of the Work. The Contractor shall continuously allocate sufficient Equipment and workers to achieve such maintenance.

If the Contract requires the placement of a Course upon a previously constructed Course or Subgrade, the Contractor shall maintain the previous Course or Subgrade during all construction operations.

The Contractor shall include costs of protecting and maintaining the Work during construction in the unit prices bid for the various Pay Items. The Contractor will not be paid an additional amount for this Work, unless otherwise specified.

The Engineer will timely notify the Contractor of Contractor's noncompliance with this Subsection. If the Contractor fails to remedy unsatisfactory protection or maintenance within 24 hours after receipt of such notice, the Engineer may proceed to remedy the deficiency, and deduct the entire cost from monies due or to become due the Contractor under the Contract.

00150.80 Removal of Unacceptable and Unauthorized Work - The Contractor shall correct or remove unacceptable Work and remove unauthorized work, as directed by the Engineer in writing. The Contractor shall replace such work with Work and Materials conforming to the requirements of the Contract.

For the purposes of this Subsection, "unauthorized work" shall include without limitation the following:

- Work that extends beyond lines shown on the Plans or otherwise established by the Engineer;
- Work that is contrary to the Engineer's instructions; and
- Work that is conducted without the Engineer's written authorization.

The Agency will not pay the Contractor for unacceptable Work, except as provided in 00150.25, or unauthorized work. The Engineer may issue a written order for the correction or removal of such work at the Contractor's sole expense.

If, when ordered by the Engineer, the Contractor fails to correct or remove unacceptable Work or unauthorized work, the Engineer may have the correction, removal, or removal and replacement, done by others and deduct the entire cost from monies due or to become due the Contractor under the Contract.

00150.90 Final Inspection:

(a) On-site Construction Work - The Engineer will inspect the Project at a time close to the completion of On-Site Work for Contractor's compliance with the Contract Documents.

When all On-Site Work on the Project is completed, including but not limited to Change Order Work and Extra Work, the Engineer will issue Second Notification as specified in 00180.50(g), including notification
of required corrective work (punch list) to be completed prior to Engineer’s issuance of Third Notification (Final Completion).

Within 15 Calendar Days after the Engineer receives the Contractor’s written notification that all punch list items, final trimming and cleanup according to 00140.90 have been completed, the Engineer will inspect the Project and notify the Contractor that all Work is complete, or within 15 Calendar Days of inspection will give the Contractor written instruction regarding incomplete or unsatisfactory Work.

(b) All Contract Work - The Engineer will issue the Third Notification when the Contractor has satisfactorily accomplished all of the following:

- The Contractor has completed all On-Site Work required under the Contract, including the punch list items from (a) above;
- The Contractor has removed all Equipment; and
- The Contractor has submitted all required certifications, bills, forms, warranties and other documents.
- The Contractor has submitted complete and acceptable “As-Built” drawings as specified in 00140.95.

00150.91 Post-Construction Review - The Contractor or the Engineer may request a Post-Construction Review meeting, to be held at a time prior to issuance of Third Notification but not earlier than 15 Days following the date of Second Notification. The meeting may be held if agreed to by both parties. The party making the request will conduct the meeting, and will announce the time and place of the meeting at least 15 Days prior to the meeting date. The purpose of this meeting is to examine the Project for possible process improvements that may benefit future projects.

00150.95 Final Acceptance - After the Engineer completes Final Inspection of all Work including all corrective work identified by the Agency during the Correction Period, the Agency will acknowledge Final Acceptance. The Agency will notify the Contractor in writing of the date of Final Acceptance within seven Calendar Days after Final Acceptance, or as soon thereafter as is practicable.

00150.96 Maintenance Warranties and Guarantees - Prior to Third Notification, the Contractor shall transfer to the Agency all unexpired manufacturers’, suppliers’ and installers’ warranties and guarantees for Materials and Equipment installed on the Project. Such warranties and guarantees shall recite that they are enforceable by the Agency.

00150.97 Responsibility for Materials and Workmanship:

(a) The Contractor shall perform the Work according to the terms, conditions, and requirements of the Contract.

(b) Until the Agency’s Final Acceptance of the Work, the Contractor shall be responsible for:

- Correcting or repairing any defects in, or damage to, the Work which results from the use of improper or defective materials or workmanship; or
- Replacing, in its entirety, the Work affected by the use of improper or defective materials or workmanship to the extent provided by law; and
- Correcting or repairing any Work, Materials, Structures, Existing Surfacings, Pavement, Utilities, or sites, including without limitation Wetlands, damaged or disturbed in that correction, repair, or replacement. (see 00170.80 to 00170.85)
Section 00160 - Source of Materials

00160.00 Definitions - The following definitions apply to Section 00160:

(a) Prospective Source - Agency-furnished Materials source, use of which by the Contractor is optional. The Agency makes no guarantee or representation, by implication or otherwise, of the land use status, quantity, quality, or acceptability of Materials available from it, except as may be stated in the Special Provisions.

(b) Mandatory Source - Agency-furnished Materials source, use of which by the Contractor is required.

00160.01 Notification of Source of Supply and Materials:

(a) All Materials - The Contractor shall notify the Engineer in writing of all proposed Materials sources of supply, including without limitation any steel or other fabricators within the following time frames:

- At least 15 Calendar Days before using or fabricating Materials, if source is within the State; or
- At least 45 Calendar Days before using or fabricating Materials, if source is outside the State

(b) Prospective Source Materials - When given an option to use Prospective Sources of Materials to be incorporated into the Work, the Contractor shall notify the Engineer in writing of the option selected within 15 Calendar Days from date of Notice to Proceed. Otherwise, such Materials sources may become unavailable.

(c) Approval Required - Before allowing production or delivery of Materials to begin from any source, the Contractor must obtain the Engineer's approval. Approval to use any source does not imply that Materials from that source will be accepted. If approved sources do not provide Materials that meet Specifications, the Materials will be rejected. The Contractor will then be responsible for locating other sources and obtaining the Engineer's approval.

(d) Terms Required - The Contractor shall comply with 00170.07.

00160.05 Qualified Products List (QPL) - The QPL is a listing of manufactured products available on the market (shelf items) that ODOT has evaluated and found suitable for a specified use in construction. The QPL is available from ODOT's Construction Section website.

The most current published PDF version of the QPL on ODOT's Construction Section website at the first time of Invitation For Bids advertisement is the version in effect for the Project. The Engineer may approve for use a conditionally qualified product, or a product qualified for inclusion in a later edition of the QPL, if the Engineer finds the product acceptable for use on the Project.

Use of listed products shall be restricted to the category of use for which they are listed. The Contractor shall install all products as recommended by the manufacturer. The Contractor shall replace qualified products not conforming to Specifications or not properly handled or installed at no additional cost to the Agency.

00160.10 Ordering, Producing, and Furnishing Materials - The Contractor shall not place orders for or produce full quantities of Materials anticipated to be required to complete the Work until the Work has advanced to a stage that allows the quantities to be determined with reasonable accuracy.

(a) Contractor's Duties - In purchasing, producing, or delivering Materials, the Contractor shall take into account the following:

- Kind of work involved;
- Amount of work involved;
- Time required to obtain Materials; and
- Other relevant factors.

(b) **Quantity of Materials** - Materials quantities shown on the Plans, or indicated by quantities and Pay Items, are subject to change or elimination. The Contractor is responsible for payment for excess Materials delivered to the Project Site or storage sites. Unless otherwise specified in the Contract, the Agency will not be responsible for:

- Materials the Contractor may deliver or produce in excess of Contract requirements;
- Extra expense the Contractor may incur because Materials were not ordered or produced earlier; or
- The Contractor's expenses related to Materials ordered by the Contractor that are not subsequently approved for use.

00160.20 **Preferences for Materials:**

(a) **Buy America** - If federal highway funds are involved on the Project, the Contractor shall limit the quantity of foreign Materials incorporated into the Work as follows. Section 635.410 of Title 23, Code of Federal Regulations, and the Intermodal Surface Transportation Efficiency Act require that all iron or steel manufacturing processes, including without limitation the casting of ingots, for iron or steel Materials permanently incorporated into the Project shall occur in the United States, unless the cost of foreign-origin iron or steel Materials does not exceed one-tenth of one percent (0.1%) of the Contract Amount or $2,500, whichever is greater. The Contractor shall not incorporate foreign-origin iron or steel Materials in excess of this amount into the Project. All foreign-origin iron or steel Materials incorporated in the Project in excess of the amount indicated above shall be removed and replaced with domestic iron or steel Materials at the Contractor's expense. For purposes of this Specification, the cost of foreign-origin iron or steel Materials shall be the value of the iron or steel products as of the date they are delivered to the Project Site.

Manufacturing processes include without limitation the application of coatings to finished iron or steel products or components. Coatings include epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the steel or iron product or component.

The Contractor shall provide the Engineer with a Certificate of Materials Origin, on a form furnished by the Engineer, before incorporating any iron or steel products into the Project. Unless a Certificate of Materials Origin has been provided to the Engineer, the Materials shall be considered of foreign origin.

The Contractor shall retain manufacturers' certificates verifying the origin of all domestic iron or steel Materials for 3 years after the date of final payment for the Project, and shall furnish copies to the Engineer upon request.

(b) **Buy Oregon** - According to ORS 279A.120, the Contractor shall give preference to goods or services produced in Oregon if price, fitness, availability, and quality are equal. This provision does not apply to Contracts financed wholly or in part by federal funds.

(c) **Recycled Materials** - According to ORS 279A.010, ORS 279A.125, ORS 279A.145, ORS 279A.150, and ORS 279A.155, and subject to the approval of the Engineer, the Contractor shall use recycled products to the maximum extent economically feasible.

00160.30 **Agency-Furnished Materials** - Unless otherwise specified in the Special Provisions, Materials listed as Agency-furnished will be available to the Contractor free of charge.
The Contractor shall be responsible for all Materials furnished by the Agency and shall pay all demurrage and storage charges. The Contractor shall replace at its expense Agency-furnished Materials lost or damaged due to any cause.

The locations at which Agency-furnished Materials are available will be specified in the Special Provisions. If the locations are not listed in the Special Provisions, the Agency-furnished Materials will be furnished to the Contractor at the Project Site. In either case, all costs of handling, hauling, unloading, and placing Agency-furnished Material shall be considered included in the price paid for the Pay Item involving such Material.

All Agency-furnished Materials not incorporated into the Work remains the property of the Agency. The Contractor shall deliver such Materials as directed by the Engineer.

00160.50 Agency-Controlled Land; Limitations and Requirements:

(a) General - The Contractor shall have no property rights in, or right of occupancy on, Agency-Controlled Land. Nor shall the Contractor have the right to sell, use, remove, or otherwise dispose of any material from Agency-Controlled Land, areas, or property, except as specified in the Special Provisions or by the written authorization of the Engineer.

Unless authorized in the Contract, the Contractor shall not disturb any material within Rights-of-Way without written authorization from the Engineer.

Unless otherwise specified in the Contract, the ownership of all materials originating on Agency-Controlled Lands will at all times vest in, and remain within the control of, the Agency.

(b) Waste, Excess, and By-Product Materials - All waste, excess, and by-product materials, collectively referred to in this Subsection as "By-Products", from the manufacture or production of Materials from Agency-Controlled Lands shall remain Agency property. Unless otherwise ordered by the Engineer in writing, By-Products shall be placed as required in the Special Provisions:

- In stockpiles at designated locations;
- At locations and in shapes that are readily accessible; and
- In such a manner as to avoid fouling areas containing useable materials, or interfering with future plant setups to use materials from the property.

The Agency will not compensate the Contractor for handling and stockpiling By-Products according to the Special Provisions requirements. If by written order the Engineer directs the Contractor to stockpile or place designated By-Products at alternate sites, the By-Products designated shall be loaded, hauled, and placed as directed, and this work will be paid for according to 00195.20.

00160.60 Contractor-Furnished Materials and Sources:

(a) General - The Contractor shall furnish, at its own expense, all products and Materials required for the Project from sources of its own choosing, unless such sources have been specified in the Special Provisions or Plans as Prospective or Mandatory Sources.

(b) Acquisition of Sources - The Contractor shall acquire, at its own expense, the rights of access to, and the use of, all sources the Contractor chooses that are not Agency-controlled and made available by the Agency to the Contractor.

(c) Additional Requirements - Except for continuously-operated commercial sources, Work shall not begin, nor will any Materials be accepted by the Engineer, until the Contractor has:

(1) Given to the Engineer a copy of permits from, or proof that permits are not required from:
• The Department of Geology and Mineral Industries, as required under ORS 517.790;
• The Department of State Lands, as required under ORS 196.815 (when removing material from the bed or banks of any waters or from any Wetland); and
• Local governmental authorities having jurisdiction over land use at the source location.

(2) Furnished to the Engineer written approval of the property owner, if other than the Contractor, for the Contractor's proposed plans of operation in, and reclamation of, the source. The Contractor shall include in the document containing the property owner's written approval a summary of the requirements of the permits described above, which shall be subject to the Engineer's approval.

00160.70 Requirements for Plant Operations - Before operating mixing plants, Rock crushers, or other Equipment, the Contractor shall provide the Engineer copies of all applicable discharge permits for noise, air contaminants, and water pollutants from DEQ or applicable local jurisdictions, or a letter from DEQ or the local jurisdiction stating that no permits are required for the use of the Equipment and sites.

00160.80 Requirements for Sources of Borrow and Aggregate - The Contractor shall conduct operations according to all applicable federal, State, and local laws (including without limitation ORS 517 and OAR 632-030) when developing, using, and reclaiming all sources of Borrow material and Aggregate. The Contractor shall provide erosion control at Borrow sources that are not within the Project Site. The Contractor shall not operate in Wetlands except as allowed by permit. The Contractor shall comply with all requirements for pollution and sediment control, including without limitation the National Pollutant Discharge Elimination System where applicable.

Except for continuously-operated commercial sources, the Contractor shall also conform to the following:

(a) If a natural growth of trees or shrubs is present, preserve a border of such to conceal land scars.

(b) Excavate Borrow sources and Aggregate sources, except for those in streams and rivers, to provide:

• Reasonably uniform depths and widths;
• Natural drainage so no water stands or collects in excavated areas, when practicable;
• Slopes trimmed to blend with the adjacent terrain upon completion of operations;
• Slopes covered with native soil, or acceptable plant rejects to support plant growth, if required by Specifications, Plans, or permits; and
• A vegetative cover that blends with the adjacent natural growth.

(c) Excavate in quarries so that:

• Faces will not be steeper than vertical (no overhang);
• Vertical faces conform to Oregon OSHA standards, Division 3, and as shown on an approved development plan;
• Floors or benches are excavated to a uniform Slope free of depressions and will drain and not interfere with the downland owner's property; and
• Upon completion, the quarry is left appearing neat and compatible with surrounding terrain.

(d) Obliterate haul roads specifically built for access to sources, and restore the areas disturbed by these roads as nearly as practicable to the conditions that existed before the roads were built, unless otherwise directed by the landowner or regulatory body.
Section 00165 - Quality of Materials

00165.00 General - The Contractor shall incorporate into the Work only Materials conforming to the Specifications and approved by the Engineer. The Contractor shall incorporate into the Work only manufactured products made of new materials unless otherwise specified in the Contract. The Agency may require additional testing or retesting to determine whether the Materials or manufactured products meet Specifications.

Materials or manufactured products not meeting the Specifications at the time they are to be used are unacceptable and must be removed immediately from the Project Site, unless otherwise directed by the Engineer.

00165.01 Rejected Materials - The Engineer may reject any Materials that appear to be defective (00150.25) or that contain asbestos. The Contractor shall not incorporate any rejected Materials into the Work. Rejected Materials whose defects have been corrected may not be incorporated into the Work until the Engineer has approved their use. The Engineer may order the removal and replacement by the Contractor, at Contractor's expense, of any defective Materials. (refer also to 00150.20)

00165.03 Testing by Agency - When testing Materials, the Agency will conduct the tests in its central laboratory, field laboratories, or other laboratories designated by the Engineer, even though certain AASHTO, ASTM, and other Materials specifications may require testing at the place of manufacture. Results of the Agency's tests will be made available to the Contractor.

00165.04 Costs of Testing - When the Contract requires that the Agency performs the testing, the testing will be at the Agency's expense.

Unless otherwise provided in the Contract, all testing required to be performed by the Contractor will be at the Contractor's expense.

00165.10 Materials Acceptance Guides - Unless otherwise specified elsewhere in the Contract, Materials will be accepted according to the following guides:

(a) Field-Tested Materials - Field-tested Materials will be accepted according to the ODOT Manual of Field Test Procedures (MFTP) unless otherwise specified in the Special Provisions. The MFTP is published once per year and is available from the ODOT – Construction Section, 800 Airport Road SE; Salem, OR 97301-4798; phone 503-986-3000. The MFTP is also available on the ODOT Construction Section web site.

(b) Nonfield-Tested Materials - Nonfield-tested Materials will be accepted according to the ODOT Nonfield Tested Materials Acceptance Guide (NTMAG), unless otherwise specified in the Special Provisions. The NTMAG is available on the ODOT Construction Section web site.

00165.20 Materials Specifications and Test Method References - References to Materials specifications and test methods of ODOT, WAQTC, AASHTO, ASTM, other governmental agencies, or other recognized organizations mean those officially adopted and in current use by the agency or organization on the first date of Invitation for Bids.

If there are conflicting references, or if no reference is made to Materials specifications or test method, the Engineer will resolve any discrepancies among these documents in the following order of precedence:

Field-Tested Materials:
- Contract Change Orders
- Special Provisions;
• Standard Specification; and
• MFTP.

Material Test Methods:
• ODOT;
• WAQTC;
• AASHTO;
• ASTM;
• Other recognized national organizations, such as ANSI, AWPA, IMSA, and UL; and
• Industry standards in the location where the Work is being performed.

If there are conflicting references in the Contract to required sampling and testing frequencies, the Contractor shall sample and test the Materials according to the first applicable of the following:
• Contract Change Orders
• Special Provisions;
• Standard Specification; and
• MFTP.

00165.30 Field-Tested Materials

(a) Acceptance of Field-Tested Materials The Contractor's test results for field-tested Materials may be verified by the Agency. Materials will be analyzed as determined by the Engineer for acceptance before the Engineer will accept them for incorporation into the Work. Incorporated Materials that do not meet Specifications will be evaluated according to 00165.01 and 00150.25.

If the Agency's verification test results do not verify the Contractor's test results, the Agency may require additional testing to determine whether the Materials meet Specifications. The Contractor shall perform additional testing or provide samples to the Agency for testing as directed. If the Materials do not meet Specifications, the Contractor shall reimburse the Agency for the cost of the additional testing, which may be deducted from monies due or to become due the Contractor under the Contract. Incorporated Materials that do not meet Specifications will be evaluated according to 00165.01 and 00150.25. If the Materials meet Specifications the Agency will pay the cost for the additional testing.

00165.35 Nonfield-Tested Materials - Materials will be subject to acceptance testing if the Engineer so elects. The Engineer may reject damaged or non-Specification Materials regardless of the Materials Test Results and Quality Compliance Certificates furnished.

(a) Test Results Certificate - The Certificate shall:
• Be from the manufacturer verifying that the Material furnished has been sampled and tested and the test results meet the Specifications.
• Include, or be accompanied by, a copy of the specified test results (ODOT, AASHTO, ASTM, UL or other).
• Identify the independent testing agency and the representative responsible for the test results.
• Permit positive determination that Material delivered to the Project is the same Material covered by the test results.
• Be delivered to the Engineer with the shipment of the material.
(b) **Quality Compliance Certificate** - The certificate shall be from the manufacturer and shall:
- Verify that the Material meets the Specifications, and identify by number the specified test methods used, (ODOT, AASHTO, ASTM, UL, or other)
- Permit positive determination that Material delivered to the Project is the same Material covered by the certificate,
- Be delivered to the Engineer with the shipment of the Material, or be an identification plate or mark, decal, sticker, label, or tag attached to the container or Material,

(c) **Equipment List and Drawings** - These consist of lists of proposed Equipment and Materials, such as:
- Shop drawings
- Material lists
- Equipment lists
- Catalog description sheets
- Manufacturer’s brochures

Submit these lists to the Engineer for review of conformance with the Specifications.

(d) **Certificate of Origin of Steel Materials** - When specified, complete this document (ODOT Form 734-2126) as required by 00160.20 for Federal-aid projects.

00165.50 **Acceptance Sampling and Testing** - The Contractor shall sample and test Materials for acceptance, as required by the Contract. Materials will be analyzed as determined by the Engineer for acceptance before the Engineer will accept them for incorporation into the Work. When the Engineer determines the Materials or Work does not conform to the Specifications the Engineer may accept the Materials or Work with pay adjustments or reject the Materials or Work per 00150.25.

00165.70 **Use of Materials without Engineer’s Acceptance:**

(a) **General** - The Contractor shall not incorporate Materials into the Project prior to acceptance by the Engineer. The Engineer may waive this requirement temporarily if Materials are necessary for immediate traffic safety.

(b) **Materials Incorporated for Immediate Traffic Safety** - If Materials are incorporated into the Project for immediate traffic safety before acceptance by the Engineer, no payment will be made for the value of the Materials, or the costs of incorporating them, until Materials are accepted by the Engineer, or the Materials are otherwise found through testing to comply with Specifications.

00165.75 **Storage and Handling of Materials** - The Contractor shall store and handle Materials so as to preserve their quality and fitness for incorporation into the Work. The Contractor shall restore all storage sites to their original condition according to 00140.90, or to comply with any applicable permits, orders, or agreements, at the Contractor’s expense.

**Stored Materials:**
- Shall be readily accessible for inspection;
- May be stored on approved parts of the Right-of-Way; and
- May be stored on private property if written permission of the owner or lessor is obtained.

00165.80 **Measurement** - No separate measurement will be made of Work performed under this Section.
00165.90 Incidental Basis - No separate or additional payment will be made for sampling, testing, certification, or other associated Work performed under this Section, whether performed by the Contractor, manufacturer, producer or supplier. No payment will be made for providing quality control personnel.
Section 00170 - Legal Relations and Responsibilities

00170.00 General - The Contractor shall comply with all laws, ordinances, codes, regulations and rules, (collectively referred to as "Laws" in this Section), that relate to the Work or to those engaged in the Work. Where the provisions of the Contract are inconsistent or in conflict, the Contractor shall comply with the more stringent standard.

The Contractor shall indemnify, defend, and hold harmless the Agency and its representatives from liability arising from or related to the violation of Laws by those engaged in any phase of the Work. This provision does not apply to Work performed by Agency employees.

In any litigation, the entire text of any order or permit issued by a governmental or regulatory authority, as well as any documents referenced or incorporated therein by reference, shall be admissible for the purpose of Contract interpretation.

The Contract shall not be construed against either party regardless of which party drafted it. Other than as modified by the Contract, the applicable rules of contract construction and evidence shall apply. This Contract shall be governed by and construed and enforced according to the laws of the State of Oregon without regard to principles of conflict of laws.

Any dispute between the Agency and the Contractor that arises from or relates to this Contract shall be brought and conducted solely and exclusively decided under the provisions of Section 00199. If an arbitration award is to be enforced by judicial means, venue shall lie within Clackamas County Circuit Court, except that if enforcement of the arbitration award must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this Subsection be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR BY EXECUTION OF THE CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION.

00170.01 Other Agencies Affecting Agency Contracts - Representatives of regulatory bodies or units of government whose Laws may apply to the Work shall have access to the Work according to 00150.20(d). These may include but are not limited to those in the following (a), (b), (c), and (d).

(a) Federal Agencies:

Agriculture, Department of
   Forest Service
   Natural Resource Conservation Service
Army, Department of the
   Corps of Engineers
Commerce, Department of
   National Marine Fisheries Service
Defense, Department of
Energy, Department of
   Environmental Protection Agency (EPA)
Federal Energy Regulatory Commission
Geology Survey
Health and Human Services, Department of
Homeland Security, Department of
   U.S. Coast Guard (USCG)
Housing and Urban Development, Department of
Interior, Department of
  Heritage, Conservation, and Recreation Service
  Bureau of Indian Affairs
  Bureau of Land Management
  Bureau of Mines
  Bureau of Reclamation
  Geological Survey
  Minerals Management Service
  Office of Surface Mining, Reclamation, and Enforcement
National Oceanic and Atmospheric Administration
Solar Energy and Energy Conservation Bank
U.S. Fish and Wildlife Service
Labor, Department of
  Mine Safety and Health Administration
  Occupational Safety and Health Administration (OSHA)
Transportation, Department of
  Federal Highway Administration
Water Resources Council

(b) State of Oregon Agencies:
Administrative Services, Department of
Agriculture, Department of
  Natural Resources Division
  Soil and Water Conservation District
Columbia River Gorge Commission
Consumer and Business Services, Department of
  Insurance Division
  Oregon Occupational Safety and Health Division (OR-OSHA)
Energy, Office of
Environmental Quality, Department of (DEQ)
Fish and Wildlife, Department of
Forestry, Department of
Geology and Mineral Industries, Department of
Human Resources, Department of
Labor and Industries, Bureau of
Land Conservation and Development Department
Parks and Recreation, Department of
State Lands, Department of
Water Resources Department

(c) Local Agencies:
City Councils
County Courts
County Commissioners, Boards of
Design Commissions
Historical Preservation Commissions
Lane Regional Air Pollution Authority (LRAPA)
Planning Commissions
Port Districts
Special Districts

(d) Oregon Federally Recognized Tribal Governments:

Burns Paiute Tribe
Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz
Confederated Tribes of Umatilla Indian Reservation
Confederated Tribes of Warm Springs
Coquille Tribe
Cow Creek Band of Umpqua Indians
Klamath Tribe

00170.02 Permits, Licenses, and Taxes - As required to accomplish the Work, the Contractor shall do the following:

- Obtain all necessary permits and licenses, except for those noted in 00170.03;
- Pay all applicable charges, fees and taxes, except for those noted in 00170.03;
- Give all notices required by applicable Laws, or under the terms of the Contract;
- Comply with ORS 274.530 relating to lease of stream beds by Oregon Division of State Lands;
- License, in the State of Oregon, all vehicles subject to licensing;
- Comply with ORS 477.625 and ORS 527.670 relating to clearing and fire hazards on forest lands; and
- Comply with all orders and permits issued by a governmental authority, whether local, State, or federal.

00170.03 Furnishing Rights-of-Way, Easements and Permits - Unless required to be obtained in the name of the Contractor, the Agency will obtain and pay for the following when they are required by the applicable Laws or by Plans or Specifications:

- All necessary Rights-of-Way, Easements and Rights-of-Entry;
- Permits required for crossing or encroaching upon navigable streams;
- Permits required for removing materials from or depositing materials in waterways;
- Permits required for operating in Agency-controlled source of Materials or disposal area;
- System development fees charged by local units of government;
- Building construction permits, not including specialty work such as heating, ventilation, air conditioning, or electrical;
- Cost of referencing and replacing endangered survey monuments; and
- Environmental permits, excluding erosion control permits.
If, after the Bid Closing date, the Agency obtains any Permits, Rights-of-Way or Easements that require changes to the Work and thereby causes an increase or decrease in the cost of, or the time required for the performance of the Work, the Contractor shall submit information sufficient for the Engineer to determine the extent of the effects on the cost and/or schedule. If the Engineer agrees the cost and/or schedule will be affected by such changes, such effects will be handled in accordance with the General Conditions. The Engineer will provide the Contractor with a copy of any such Permits, Rights-of-Way or Easements.

**00170.04 Patents, Copyrights, and Trademarks** - Prior to use of designs, devices, materials, or processes protected by patent, copyright, or trademark, the Contractor shall obtain from the Entity entitled to enforce the patent, copyright, or trademark all necessary evidence of legal right.

The Contractor shall indemnify, defend and hold harmless the Agency and all third parties and political subdivisions having a possessory or ownership interest or regulatory authority over the Project or Project Site from claims of patent, copyright or trademark infringement, and from costs, expenses and damages the Contractor or Agency may be obligated to pay as a result of such infringement during or after completing the Work.

**00170.05 Assignment of Antitrust Rights** - The Contractor irrevocably assigns to the Agency any claim for relief or cause of action the Contractor acquires during the term of the Contract, or which may accrue thereafter, by reason of any violation of:

- Title 15 (Commerce and Trade), United States Code;
- ORS 646.725; and
- ORS 646.730.

In connection with this assignment, it is an express obligation of the Contractor to take no action that would in any way impair or diminish the value of the rights assigned to the Agency according to the provisions of this Subsection. Further, it is the express obligation of the Contractor to take all action necessary to preserve the rights assigned. It is an express obligation of the Contractor to advise the Agency's legal counsel:

- In advance, of its intention to commence any action involving such claims for relief or causes of action;
- Immediately upon becoming aware of the fact that an action involving such claims for relief or causes of action has been commenced by some other person or persons;
- The date on which it notified the obligor(s) of any such claims for relief or causes of action of the fact of the Contractor's assignment to the Agency according to the provisions of this Subsection; and
- Immediately upon the discovery of any such antitrust claim for relief or cause of action.

In the event any payment is made to the Contractor under any such claims for relief, the Contractor shall promptly pay the full sum over to the Agency. In the event the Contractor fails to make such payment, the Agency may deduct the amount from monies due or to become due the Contractor under the Contract.

**00170.07 Record Requirements** - For purposes of this Subsection the term "Contractor" includes the Contractor, all subcontractors, Material Suppliers, and providers of rented operated Equipment (except non-DBE truck drivers), at all tiers, for all subcontracts with first-tier Subcontractors, all subcontracts between the first-tier Subcontractors and their subcontractors and any other lower tier subcontracts, and "Related Entities" as that term is defined in OAR 731-005-0780. The Material Suppliers included in this definition are those for Aggregates, Asphalt Cement Concrete, Portland Cement Concrete and the supply and fabrication of structural steel items or Material Suppliers that provide quotes.
(a) Records Required - The Contractor shall maintain all records, whether created before or after execution of the Contract, or during Contract performance, or after Contract completion, to clearly document:

- The Contractor's performance of the Contract or a subcontract;
- The Contractor's ability to continue performance of the Contract or a subcontract; and
- All claims arising from or relating to performance under the Contract or a subcontract.

These records shall include all records, including fiscal records, regardless of when created for the Contractor's business. The records for the Contractor's business include without limitation the:

- Bidding estimates and records, worksheets, tabulations or similar documents.
- Job cost detail reports, including monthly totals.
- Payroll records (including without limitation the ledger or register, and tax forms) and all documents that establish the periods, individuals involved, the hours for the individuals, and the rates for the individuals.
- Records that identify the Equipment used by the Contractor and subcontractors in the performance of the Contract or subcontracts, including without limitation, Equipment lists, rental contracts and any records used in setting rental rates.
- Invoices from vendors, rental agencies, and subcontractors.
- Material quotes, invoices, purchase orders and requisitions.
- Contracts with subcontractors and contracts with Material Suppliers, Suppliers and providers of rented equipment.
- Contracts or documents of other arrangements with any Related Entity as defined in OAR 731-005-0780.
- General ledger.
- Trial Balance.
- Financial statements (including without limitation the balance sheet, income statement, statement of cash flows, and financial statement notes).
- Income tax returns.
- All worksheets used to prepare bids or claims, or to establish the cost components for the Pay Items, including without limitation, the labor, benefits and insurance, Materials, Equipment, and subcontractors.

The following are examples, but not an exhaustive list, of records that would be included, if generated by the Contractor. If the Contractor generates such records, or equivalent records, they are included among the records subject to 00170.07.

- Daily time sheets and supervisors’ daily reports.
- Collective bargaining agreements.
- Earnings records.
- Journal entries and supporting schedules.
- Insurance, welfare, and benefits records.
- Material cost distribution worksheet.
- Subcontractors' and lower tier subcontractors' payment certificates.
- Payroll and vendor's cancelled checks.
- Cash disbursements journal.
- All documents related to each and every claim together with all documents that support the amount of damages as to each claim.
- Additional financial statements (including without limitation the balance sheet, income statement, statement of cash flows, and financial notes) preceding the execution of the Contract and following final payment of the Contract.
- Depreciation records on all business Equipment maintained by the business involved, its accountant, or other Entity. (If a source other than depreciation records is used to develop cost for the Contractor’s internal purposes in establishing the actual cost of owning and operating Equipment, all such other source documents.)

The Contractor shall maintain all fiscal records in material compliance with generally accepted accounting principles, or other accounting principles that are accepted accounting principles and practices for the subject industry and adequate for the nature of the Contractor’s business, and in such a manner that providing a complete copy is neither unreasonably time consuming nor unreasonably burdensome for the Contractor or the Agency. Failure to maintain the records in this manner shall not be an excuse for not providing the records.

The Contractor shall include in its subcontracts, purchase orders, and all other written agreements, a provision requiring all subcontractors, Material Suppliers and providers of rented operated Equipment, (except non-DBE truck drivers), at all tiers to comply with 00170.07. The Contractor shall also require all subcontractors, Material Suppliers, and providers of rented operated Equipment, (except non-DBE truck drivers), at all tiers and Related Entities to include in their contracts, purchase orders, and all other written agreements, a provision requiring all lower tier subcontractors, Material Suppliers and providers of rented operated Equipment (except non-DBE truck drivers) to comply with 00170.07. The Material Suppliers to which this applies are those for Aggregates, Asphalt Cement Concrete, Portland Cement Concrete and the supply and fabrication of structural steel items or Material Suppliers that provide Material quotes and Related Entities as defined in OAR 731-005-0780.

(b) Access to Records - The Contractor shall provide the Engineer access to or a copy of all Contractor records upon request. A Project Manager's authority to request or access records is subject to OAR 731-005-0780(9). During the record retention period the Engineer, other employees of the Agency, representatives of the Agency, or representatives of regulatory bodies or units of government may:

- Inspect, examine and copy or be provided a copy of all Contractor records;
- Audit the records, a Contract or the performance of a Contract;
- Inspect, examine and audit the records when, in the Agency's sole discretion, the records may be helpful in the resolution of any claim, litigation, administrative proceeding or controversy arising out of or related to a Contract.

Reasons for access to audit, inspect, examine and copy records include without limitation, general auditing, reviewing claims, checking for collusive bidding, reviewing or checking payment of required wages, performance and contract compliance, workplace safety compliance, evaluating related Entities, environmental compliance, and qualifications for performance of the Contract, including the ability to perform and the integrity of the Contractor.

Where such records are stored in a computer or in other digital media, the Engineer may request, and the Contractor shall provide, a copy of the data files and such other information or access to software to allow the Engineer review of the records.

Nothing in 00170.07 is intended to operate as a waiver of the confidentiality of any communications privileged under the Oregon Evidence Code. Nothing in 00170.07 limits the records or documents that can be obtained by legal process.
(c) Record Retention Period - The Contractor shall maintain the records and keep the records accessible and available at reasonable times and places for at least three years from the date of final payment under the Contract, or until the conclusion of all audits, litigation, administrative proceedings, disputes and claims arising out of or related to the Contract, whichever date is later.

(d) Public Records Requests - If records provided under this section contain any information that may be considered exempt from disclosure as a trade secret under either ORS 192.501(2) or ORS 646.461(4), or under other grounds specified in Oregon Public Records Law, ORS 192.410 through ORS 192.505, the Contractor shall clearly designate on or with the records the portions which the Contractor claims are exempt from disclosure, along with a justification and citation to the authority relied upon. Entire records or documents should not be designated as a trade secret or otherwise exempt from disclosure. Only specific information within a record or document should be so designated.

To the extent allowed by the Oregon Public Records Law or other applicable law related to the disclosure of public records, Agency will not disclose records or portions of records the Contractor has designated as trade secrets to a third party, who is not a representative of the Agency, to the extent the records are exempt from disclosure as trade secrets under the Oregon Public Records Law or other applicable law, except to the extent Agency is ordered to disclose in accordance with the Oregon Public Records Law or by a court of competent jurisdiction. Application of the Oregon Public Records Law or other applicable law shall determine whether any record, document or information is actually exempt from disclosure.

In addition, in response to a public records request, the Agency will not produce or disclose records so identified as exempt by the Contractor to any person other than representatives of the Agency, and others with authorized access under 00170.07(b), without providing the Contractor a copy of the public records request, unless:

The Contractor consents to such disclosure; or

Agency is prohibited by applicable law or court order from providing a copy of the public records request to the Contractor.

00170.10 Required Payments by Contractors - The Contractor shall comply with ORS 279C.505 and ORS 279C.515 during the term of the Contract.

(a) Prompt Payment by Contractor for Labor and Materials - As required by ORS 279C.505, the Contractor shall:

- Make payment promptly, as due, to all Entities supplying labor or Materials under the Contract;
- Pay all contributions or amounts due the Industrial Accident Fund, whether from the Contractor or a subcontractor, incurred in the performance of the Contract;
- Not permit any lien or claim to be filed against the State or any political subdivision thereof, on account of any labor or Material furnished in performance of the Contract; and
- Pay to the Department of Revenue all sums withheld from employees according to ORS 316.167.

(b) Prompt Payment by Contractor to First-Tier Subcontractor(s) - According to ORS 279C.580(3)(a), after the Contractor has determined and certified to the Agency that one or more of its Subcontractors has satisfactorily performed subcontracted Work, the Contractor may request payment from the Agency for the Work, and shall pay the Subcontractor(s) within 10 Calendar Days out of such amounts as the Agency has paid to the Contractor for the subcontracted Work.

(c) Interest on Unpaid Amount - If the Contractor or a first-tier Subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract within 30 Days after the Contractor's receipt of payment, the Contractor or first-tier Subcontractor shall owe the Entity the amount due plus interest charges that begin at the end of the 10 day period within which payment is due under ORS 279C.580(3) and that end upon final payment, unless payment is subject to a good-faith
dispute as defined in ORS 279C.580(5)(b). The rate of interest on the amount due shall be in accordance with ORS 279C.515(2). The amount of interest shall not be waived.

(d) Agency's Payment of the Contractor's Prompt Payment Obligations - If the Contractor fails, neglects or refuses to make prompt payment of any invoice or other demand for payment for labor or services furnished to the Contractor or a Subcontractor by any Entity in connection with the Contract as such payment becomes due, the Agency may pay the Entity furnishing the labor or services and charge the amount of the payment against monies due or to become due the Contractor under the Contract. (The Agency has no obligation to pay these Entities, and Agency will not normally do so, but will refer them to the Contractor and the Contractor's Surety.)

The payment of a claim by the Agency in the manner authorized in this Subsection shall not relieve the Contractor or the Contractor's Surety from obligations with respect to any such claims.

(e) Right to Complain to the Construction Contractors Board - If the Contractor or a subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract, the Entity may file a complaint with the Construction Contractors Board, unless payment is subject to a good-faith dispute as defined in ORS 279C.580(5)(b).

(f) Notice of Claim Against Bond - An Entity (which by definition includes a natural person) claiming not to have been paid in full for labor or Materials supplied for the prosecution of the Work may have a right of action on the Contractor's Payment Bond as provided in ORS 279C.600 through ORS 279C.625.

The Commissioner of the Bureau of Labor and Industries (BOLI) may have a right of action on the Contractor's and Subcontractors' public works bonds and Payment Bonds for workers who have not been paid in full, as provided in ORS 279C.600 and ORS 279C.605.

00170.20 Public Works Bond - If the original Contract Amount is $100,000 or greater, then before starting work, or if the Contract Amount is amended to a Contract Amount $100,000 or greater, and unless otherwise exempt under ORS 279C.836(4), (7) – (9), the Contractor shall file a public works bond with the Oregon Construction Contractors Board in the amount required by ORS 279C.836 [$30,000 (1970)] before starting or continuing Work on the project. Further, the Contractor shall then include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the Oregon Construction Contractors Board in the amount required by ORS 279C.836 [$30,000 (1970)] before starting Work, or if the Contract Amount is amended to $100,000 or above, before continuing Work on the project. ORS 279C.830(3)(a,b) The Contractor shall verify subcontractors have filed a public works bond before the subcontractor begins Work.

00170.32 Protection of Navigable Waters - The Contractor shall comply with all applicable Laws, including without limitation the Federal River and Harbor Act of March 3, 1899 and its amendments.

The Contractor shall not interfere with waterway navigation or impair navigable depths or clearances, except as U.S. Coast Guard or Corps of Engineer permits allow.

00170.60 Safety, Health, and Sanitation Provisions - The Contractor shall comply with all Laws concerning safety, health, and sanitation standards. The Contractor shall not require workers to perform Work under conditions that are hazardous, dangerous, or unsanitary.

Workers exposed to traffic shall wear upper body garments or safety vests that are highly visible and meet the requirements of 00225.25.

Workers exposed to falling or flying objects or electrical shock shall wear hard hats.

Upon their presentation of proper credentials, the Contractor shall allow inspectors of the U.S. Occupational Safety and Health Administration (OSHA) and the Oregon Occupational Safety and Health Division (OR-OSHA) to inspect the Work and Project Site without delay and without an inspection warrant.
According to ORS 468A.715 and ORS 468A.720, the Contractor or a Subcontractor who performs Project Work involving asbestos abatement shall possess a valid DEQ asbestos abatement license.

00170.61 Industrial Accident Protection:

(a) Workers' Compensation - The Contractor shall provide workers' compensation coverage for on-the-job injuries as required by 00170.70(d).

(b) Longshoremen's and Harbor Workers' Compensation - If Work to be performed is over or adjacent to navigable waters, the Longshoremen's and Harbor Workers' Compensation Act, (Chapter 18, Title 33 of the USC) may apply, and the Contractor shall be responsible for complying with its provisions (which may include the provision of additional workers' compensation benefits to employees).

00170.62 Labor Nondiscrimination - The Contractor shall comply with all Laws concerning equal employment opportunity, including without limitation those prohibiting discrimination because of race, religion, color, sex, disability, or national origin.

00170.63 Payment for Medical Care - According to ORS 279C.530, the Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the Contractor, of all sums that the Contractor agrees to pay for the services and all moneys and sums that the Contractor has collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services.

00170.65 Minimum Wage and Overtime Rates for Public Works Projects:

(a) General - The Contractor is responsible for investigating local labor conditions. The Agency does not imply that labor can be obtained at the minimum hourly wage rates specified in State or federal wage rate publications, and no increase in the Contract Amount will be made if wage rates paid are more than those listed.

(b) State Prevailing Wage Requirements - The Contractor shall comply with the prevailing wage provisions of ORS 279C.800 through ORS 279C.870.

(1) Minimum Wage Rates - The Bureau of Labor and Industries (BOLI) determines and publishes the existing State prevailing wage rates in the publication "Prevailing Wage Rates for Public Works Contracts in Oregon". The Contractor shall pay workers not less than the specified minimum hourly wage rate according to ORS 279C.838 and ORS 279C.840 and shall include this requirement in all subcontracts.

See the Project Wage Rates page included with the Contract Booklet for additional information about which wage rates apply to the Project and how to access the applicable wage rates.

(2) Payroll and Certified Statements - As required in ORS 279C.845, the Contractor and every subcontractor shall submit written certified statements to the Engineer on the form prescribed by the Commissioner of BOLI in OAR 839-025-0010 certifying compliance with wage payment requirements and accurately setting out the Contractor's or subcontractor's weekly payroll records for each worker employed on the Project.

The Contractor and subcontractors shall preserve the certified statements for a period of six years from the date of completion of the Contract.
(3) Additional Retainage:

a. Agency - As required in ORS 279C.845(7) the Agency will retain 25% of any amount earned by the Contractor on the Project until the Contractor has filed the certified statements required in ORS 279C.845 and in FHWA Form 1273, if applicable. The Agency will pay to the Contractor the amount retained within 14 Days after the Contractor files the required certified statements, regardless of whether a subcontractor has failed to file certified statements.

b. Contractor - As required in ORS 279C.845(8) the Contractor shall retain 25% of any amount earned by a first tier subcontractor on the Project until the first tier subcontractor has filed with the Agency the certified statements required in ORS 279C.845 and in FHWA Form 1273, if applicable. Before paying any amount retained, the Contractor shall verify that the first tier subcontractor has filed the certified statement. Within 14 Days after the first tier subcontractor files the required certified statement the Contractor shall pay the first tier subcontractor any amount retained.

(4) Owner/Operator Data - For a project funded by the FHWA, the Contractor shall furnish data to the Engineer for each owner/operator providing trucking services. Furnish the data before the time the services are performed and include without limitation for each owner/operator:

- Drivers name;
- Copy of driver's license;
- Vehicle identification number;
- Copy of vehicle registration;
- Motor vehicle license plate number;
- Motor Carrier Plate Number;
- Copy of ODOT Motor Carrier 1A Permit; and Name of owner/operator from the side of the truck.

(c) State Overtime Requirements - As a condition of the Contract, the Contractor shall comply with the pertinent provisions of ORS 279.520 and 279C.540.

(1) Maximum Hours of Labor and Overtime Pay - According to ORS 279C.540, no person shall be employed to perform Work under this Contract for more than 10 hours in any one Day, or 40 hours in any one week, except in cases of necessity, emergency, or where public policy absolutely requires it. In such instances, the Contractor shall pay the employee at least time and a half pay:

- For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or
- For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and
- For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

For additional information on requirements for overtime and establishing a work schedule see OAR 839-025-0050 and OAR 839-025-0034.

(2) Notice of Hours of Labor - The Contractor shall give written notice to employees of the number of hours per day and days per week the employees may be required to work. Provide the notice either at the time of hire or before commencement of work on this Contract, or by posting a notice in a location frequented by employees.

(3) Exception - The maximum hours of labor and overtime requirements under ORS 279C.540 will not apply to the Contractor’s Work under this Contract if the Contractor is a party to a collective bargaining agreement in effect with any labor organization. For a collective bargaining agreement to be in effect it
shall be enforceable within the geographic area of the Project, and its terms shall extend to workers who are working on the Project (see OAR 839-025-0054).

(d) State Time Limitation on Claim for Overtime - According to ORS 279C.545, any worker employed by the Contractor is foreclosed from the right to collect any overtime provided in ORS 279C.540 unless a claim for payment is filed with the Contractor within 90 Days from the completion of the contract, provided the Contractor posted and maintained a circular as specified in this provision. Accordingly, the Contractor shall:

1. Cause a circular, clearly printed in boldfaced 12-point type and containing a copy of ORS 279C.545, to be posted in a prominent place alongside the door of the timekeeper's office or in a similar place that is readily available and freely visible to any or all workers employed to perform Work; and

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

(e) Additional Requirements When Federal Funds are Involved - When federal funds are involved, the following requirements shall apply in addition to the requirements of 00170.65(a) through 00170.65(d). The Contractor shall include these provisions in all subcontracts as well as ensure that all Subcontractors include these provisions in their lower tier subcontracts.

1. FHWA Requirements - For Federal-Aid projects, the Contractor shall comply with the provisions of FHWA Form 1273, "Required Contract Provisions Federal-Aid Construction Contracts".

2. Minimum Wage Rates - The Contractor shall pay each worker in each trade or occupation employed to perform any work under the contract not less than the existing State (BOLI) prevailing wage rate or the applicable federal prevailing wage rate required under the Davis-Bacon Act (40 U.S.C. 3141 et seq.), whichever is higher. The Contractor shall include this provision in all subcontracts.

   - See the Project Wage Rates page included with the Contract Booklet for additional information about which wage rates apply to the Project and how to access the applicable wage rates.

   - The applicable Davis-Bacon and BOLI wage rates will be included in the Contract.

3. Payroll and Certified Statements - In addition to providing the payroll information and certified statements required under ORS 279C.845 (see 00170.65(b-2)), the Contractor and every subcontractor shall submit written certified statements that also meet the requirements in Section IV of FHWA Form 1273 except the Contractor and every subcontractor shall preserve the certified statements for a period of six years from the date of completion of the Contract.

4. Overtime - With regard to overtime pay, the Contractor shall comply with the overtime provision affording the greatest compensation required under FHWA Form 1273 and ORS 279C.540.

00170.70 Insurance:

(a) Insurance Coverages - The Contractor shall obtain, at its expense, and keep in effect until Final Acceptance, the insurance coverages listed below. The Contractor may however, contractually obligate an appropriate subcontractor to obtain, at the subcontractor's expense or at the Contractor's expense, and keep in effect during the term of the Contract, pollution liability coverage, asbestos liability, lead liability, or automobile liability with pollution coverages, or such other types of insurance coverages. That, before execution of the Contract, the Agency approves as types of insurance coverage that may be obtained by appropriate subcontractors. If both the Contractor and an appropriate subcontractor will perform pollution related Work or other Work that would be covered by the other above-described types of insurance
permitted to be obtained by an appropriate subcontractor, the insurance coverages listed below that correspond to such Work shall be obtained, at the Contractor's or subcontractor's expense, and shall cover the liability of the Contractor and the subcontractor, either under the same or separate insurance policies.

**Commercial General Liability** - Commercial General Liability Insurance covering bodily injury and property damage in a form and with coverages that are satisfactory to the Agency. This insurance shall include personal and advertising injury liability and products and completed operations coverage and contractual liability coverage. Coverage may be written in combination with Commercial Automobile Liability Insurance with separate limits for Commercial General Liability and Commercial Automobile Liability. Coverage shall be written on an occurrence basis. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions. The annual aggregate limit shall not be less than the dollar amount indicated in the Special Provisions. The policy shall be endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

If the Contractor's Commercial General Liability Insurance limits are less than the required limits stated above, the Contractor shall obtain Excess or Umbrella Liability Insurance with sufficient limits that when added to the Contractor's Commercial General Liability Insurance limits the total combined limits of Commercial General Liability Insurance and Excess or Umbrella Liability Insurance equal or exceed the above-stated Commercial General Liability Insurance limits required for this Project. The above-stated combined single limit per occurrence and the above-stated annual aggregate limit must each be met. Excess or Umbrella Liability Insurance coverage shall extend to the same perils, terms, and conditions as the underlying Commercial General Liability Insurance coverage.

**Pollution Liability** - If indicated by Special Provision, Pollution Liability Insurance covering the Contractor's liability, or the liability of an appropriate subcontractor, if the coverage is obtained by the subcontractor, for bodily injury and property damage, and environmental damage resulting from sudden and accidental pollution, gradual pollution, and related clean-up costs incurred by the Contractor, or by the subcontractor if the coverage is obtained by the subcontractor, while performing Work required by the Contract. If the coverage is obtained by the Contractor, the coverage may be written in combination with the Commercial General Liability Insurance with separate limits for Pollution Liability and Commercial General Liability. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions. The annual aggregate limit shall not be less than the dollar amount indicated in the Special Provisions. The policy shall be endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

**Asbestos Liability** - If indicated by Special Provision, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide an Asbestos Liability endorsement to the pollution liability coverage. If an endorsement cannot be obtained, The Contractor or subcontractor shall provide separate Asbestos Liability Insurance at the same combined single limit per occurrence and annual aggregate limit as the Pollution Liability Insurance with the policy endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

**Lead Liability** - If indicated by Special Provision, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide a Lead Liability endorsement to the pollution liability coverage. If an endorsement cannot be obtained, the Contractor or subcontractor shall provide separate Lead Liability Insurance at the same combined single limit per occurrence and annual aggregate limit as the Pollution Liability Insurance with the separate policy endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

**Commercial Automobile Liability** - Commercial Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. This coverage may be written in combination with the Commercial General Liability Insurance with separate limits for Commercial Automobile Liability and Commercial General Liability. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions. If this coverage is written in combination with the Commercial General Liability, the
policy shall be endorsed to state that the Commercial General Liability annual aggregate limit shall apply separately to the Contract.

**Commercial Automobile Liability with Pollution Coverage** - If indicated by Special Provision, the Contractor, or the subcontractor, if the coverage is obtained by the subcontractor, shall provide Commercial Automobile Liability Insurance with Pollution coverage covering the Contractor's liability, or the liability of an appropriate subcontractor, if the coverage is obtained by the subcontractor, for bodily injury and property damage, and environmental damage arising out of the use of all owned, non-owned, or hired vehicles while performing Work under the Contract. If the coverage is obtained by the Contractor, the coverage may be written in combination with the Commercial General Liability Insurance with separate limits for Commercial Automobile Liability with Pollution Coverage and Commercial General Liability. Combined single limit per occurrence shall not be less than the dollar amount indicated in the Special Provisions or the amount required by the U.S. Department of Transportation, whichever is greater. If this coverage is written in combination with the Commercial General Liability, the policy shall be endorsed to state that the Commercial General Liability annual aggregate limit shall apply separately to the Contract.

Commercial Automobile Liability with Pollution Coverage is required for this Project because the Project includes pollution related Work. If the Contractor will be performing pollution related Work, this coverage covering the Contractor must be provided. If an appropriate subcontractor, but not the Contractor, will perform the pollution related Work, Commercial Automobile Liability with Pollution Coverage covering the subcontractor, but not the Contractor, must be provided, however, the Contractor shall provide Commercial Automobile Liability insurance coverage covering the Contractor as provided in the Commercial Automobile Liability bullet above. If both the Contractor and an appropriate subcontractor will be performing pollution related Work, Commercial Automobile Liability with Pollution Coverage covering both the Contractor and the subcontractor shall be provided, and the Contractor may provide the coverage covering both the Contractor and the subcontractor, or the Contractor and the subcontractor may provide their own, separate Commercial Automobile Liability with Pollution coverages.

**(b) Tail Coverage** - If any of the required liability insurance coverages of 00170.70(a) are on a "claims made" basis, "tail" coverage will be required at the completion of the Contract for a duration of 36 months. The Contractor shall furnish certification of "tail" coverage for 36 months following Contract completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of the Contract. If Continuous "claims made" coverage is used, the Contractor shall keep the coverage in effect for a duration of not less than 36 months from the end of the Contract. This will be a condition of Final Acceptance.

**(c) Additional Insured** – The liability insurance coverages of 00170.70(a) shall include the Agency, the Agency’s governing body, board, or Commission and its members, and the Agency's officers, agents, and employees as Additional Insureds, but only with respect to the Contractor's activities to be performed under the Contract. If indicated by Special Provisions that federal transportation funding is involved, the liability coverages of 00170.70(a) shall also include the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers, members and employees as additional insureds, but only with respect to the Contractor’s activities to be performed under the Contract. Coverage shall be primary and non-contributory with any other insurance and self-insurance. The liability coverages of 00170.70(a) that are permitted by the Agency to be obtained by an appropriate subcontractor shall include all of the foregoing as Additional Insureds and shall also include Contractor and its officers and employees as Additional Insureds.

**(d) Workers’ Compensation** - All employers, including the Contractor and its Subcontractors, if any, that employ subject workers who are performing Work or providing labor or Materials under the Contract in the State shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. The Contractor shall ensure that each of Subcontractors complies with these requirements.
The Contractor shall certify in the Contract that the Contractor is registered by the Oregon Workers' Compensation Division either as a carrier-insured employer, a self-insured employer, an exempt employer, or is an independent contractor who will perform the Work without the assistance of others.

The Contractor shall ensure that its insurance carrier files a guaranty contract with the Oregon Workers' Compensation Division before performing any Work.

(e) Notice of Cancellation or Change - The Contractor shall not cancel, change materially, or take any action showing intent not to renew the insurance coverage(s) without 30 days' advance written notice from the Contractor or its insurer(s) to the Agency. The Contractor shall be responsible for ensuring that insurance coverage(s) obtained by an appropriate subcontractor, as permitted by the Agency under 00170.70(a), are not cancelled, changed materially, or have any action taken by the subcontractor showing intent not to renew the insurance coverage(s) without 30 days' advance written notice from the Contractor or the insurer(s) to the Agency. Any failure to comply with the reporting provisions of this insurance shall not affect the coverage(s) provided to the Agency, County, City, or other applicable political jurisdiction or to the Agency's governing body, board, or Commission and its members, and the Agency's officers and employees.

(f) Certificate(s) of Insurance - As evidence of the insurance coverages required by this Contract, the Contractor shall furnish Certificate(s) of Insurance to the Agency at the time(s) provided in 00130.50(a). As evidence of insurance coverages required by this Contract but permitted by the Agency under 00170.70(a) to be obtained by an appropriate subcontractor, the Contractor shall furnish Certificate(s) of Insurance to the Agency for such coverages together with the Contractor's request under 00180.21 for approval of the subcontract with that subcontractor. The Certificate(s) will specify all of the parties who are Additional Insureds. The Contractor shall obtain, or ensure that the appropriate subcontractors obtain, insurance coverages required under this Contract from insurance companies or entities acceptable to the Agency and authorized to issue insurance in the State. The Contractor, or the appropriate subcontractor, but not the Agency, shall be responsible for paying all deductibles, self-insured retentions and/or self-insurance included under these provisions.

(g) Builders' Risk - If indicated by Special Provision, the Contractor shall obtain, at its expense, and keep in effect during the term of the Contract, Builders' Risk insurance on an all risks of direct physical loss basis, including, without limitation, earthquake and flood damage, for an amount equal to at least the value indicated in the Special Provisions. Any deductible shall not exceed $50,000 for each loss, except that the earthquake and flood deductible shall not exceed 5% of each loss or $50,000, whichever is greater. The policy shall include the Agency as loss payee.

00170.71 Independent Contractor Status - The service or services to be rendered under this Contract are those of an independent contractor. The Contractor is not an officer, employee, or agent of the Agency State as those terms are used in ORS 30.265.

00170.72 Indemnity/Hold Harmless - To the fullest extent permitted by law, and except to the extent otherwise void under ORS 30.140, the Contractor shall indemnify, defend (with counsel approved by the Agency) and hold harmless the Agency, Agency's employees and authorized representatives, Design Engineer, Design Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies, and if indicated by Special Provisions that federal transportation funding is involved the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers and members and employees (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever that arise out of, result from or are related to the following:

- Any damage, injury, loss, expense, inconvenience or delay described in this Section 00170.
• Any accident or occurrence which happens or is alleged to have happened in or about the Project Site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects.

• Any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents that is to be observed or performed by the Contractor, or any breach of any agreement, duty, obligation, responsibility, covenant, provision, requirement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract.

• The acts, errors or omissions of the Contractor, a subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder but in such case only to Contractor’s or subcontractor’s proportionate extent.

• Any lien filed upon the Project or bond claim in connection with the Work.

Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subsection.

00170.74 Employee Drug Testing Program - As required by ORS 279C.505(2), the Contractor shall have in place, and maintain during the period of the Contract, an employee drug-testing program. The Agency retains the right to audit and/or monitor the program. On request by the Engineer, the Contractor shall furnish a copy of the employee drug-testing program.

00170.75 Oregon Tax Laws – The Contractor shall comply with Oregon tax laws as required by ORS 305.385.

00170.76 Subcontractors Nondiscrimination – The Contractor shall comply with ORS 279A.110 as to nondiscrimination as to relations with Subcontractors.

00170.78 Conflict of Interest - The Contractor shall not give or offer any gift, loan, or other thing of value to any member of the Agency's governing body or employee of the Agency in connection with the award or performance of any Contract.

The Contractor shall not rent, lease, or purchase Materials, supplies, or Equipment, with or through any Agency employee or member of the Agency's governing body.

No ex-employee of the Agency who has worked for the Agency on any phase of the Project within the prior two years may be employed by the Contractor to perform Work on the Project.

00170.79 Third Party Beneficiary - There are no third-party beneficiaries of the Contract, unless federal transportation funding is involved then the State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation and their respective officers and members and employees, are third-party beneficiaries of the Contract.

00170.80 Responsibility for Damage to Work:

(a) Responsibility for Damage in General - The Contractor shall perform Work, and furnish Materials and Equipment for incorporation into the Work, at the Contractor's own risk, until the entire Project has been completed and until Final Completion as determined by the Agency. The Contractor shall repair all damages to Work performed, Materials supplied, and Equipment incorporated into the Work, except as otherwise provided in this Section.

(b) Repair of Damage to Work - Until Final Completion, the Contractor shall promptly rebuild, repair, restore, and make good damages to all portions of the permanent or temporary Work. The Contractor shall perform all repairs of damage to Work at no additional cost to the Agency, except for repairs necessitated by damage caused by:
• Acts of God or Nature, as defined in Section 00110; or
• Actions of governmental authorities.

(c) **Vandalism and Theft** — Vandalism includes damage to or destruction of Work or portions of Work that remain on the Project Site resulting from vandalism, criminal mischief, arson, or other criminal or illegal behavior.

The Contractor shall provide protection of the Work from vandalism until Final Completion.

Theft includes the loss of Work or portions of Work that are lost or stolen or otherwise unaccounted for from the Project Site or from Materials or fabrication locations. The Contractor shall remain solely responsible for all losses caused by theft, including without limitation theft that occurs in conjunction with vandalism.

**00170.82 Responsibility for Damage to Property and Facilities:**

(a) **In General** - As used in this Subsection, the term “Contractor” shall include the Contractor's agents, Subcontractors, and all workers performing Work under the Contract; and the term “damage” shall include without limitation soiling or staining surfaces by tracking or splashing mud, asphalt, and other materials, as well as damage of a more serious nature.

The Contractor shall be solely responsible for damages arising from:

• The Contractor's operations;
• The Contractor's negligence, gross negligence, or intentional wrongful acts; and
• The Contractor's failure to comply with any Contract provision.

The Agency may withhold funds due the Contractor or the Contractor's Surety until all lawsuits, actions, and claims for injuries or damages are resolved, and satisfactory evidence of resolution is furnished to the Agency.

(b) **Protection and Restoration of Agency Property and Facilities** - The following requirements apply to highways, highway Structures and other improvements that are existing, under construction, or completed. The Contractor shall:

• Provide adequate protection to avoid damaging Agency property and facilities;
• Be responsible for damage to Agency property and facilities caused by or resulting from the Contractor's operations; and
• Clean up and restore such damage by repair, rebuilding, replacement, or compensation, as determined by the Engineer.

(c) **Protection and Restoration of Non-Agency Property and Facilities** - The Contractor shall determine the location of properties and facilities that could be damaged by the Contractor's operations, and shall protect them from damage. The Contractor shall protect monuments and property marks until the Engineer has referenced their location and authorized their removal. The Contractor shall restore property or facilities damaged by its operations to the condition that existed before the damage, at no additional compensation.

The Contractor shall provide temporary facilities when needed, e.g., to maintain normal service or as directed by the Engineer, until the required repair, rebuilding, or replacement is accomplished.
The Contractor shall protect specific service signs, e.g., business logos, and tourist-oriented directional signs (TODS) from damage, whether the signs are to remain in place or be placed on temporary supports. The Contractor shall repair or replace damaged signs at no cost to the Agency. Liquidated damages will be assessed against the Contractor in the amount of $200 per day for each sign out of service for more than five Calendar Days because of the Contractor's operations.

00170.85 Responsibility for Defective Work - The Contractor shall make good any defective Work, Materials or Equipment incorporated into the Work, according to the provisions of Section 00150.

(a) Latent Defects - The Contractor shall remain liable for all latent defects resulting from causes other than fraud or gross mistakes that amount to fraud until the expiration of all applicable statutes of limitation and ultimate repose, the Performance Bond, Warranty Bond, or Correction Period, whichever expires last. The Contractor shall remain liable for all latent defects resulting from fraud or gross mistakes that amount to fraud regardless of when those latent defects may be discovered, and regardless of whether such discovery occurs outside any applicable statutes of limitation or ultimate repose or any applicable Performance Bond, Warranty Bond, or Correction Period.

(b) Correction Period Warranty for Agency Projects – The Contractor shall warrant all Work and workmanship, including Changed Work, Additional Work, On-Site Work, and Extra Work, and Materials and Equipment incorporated in the Work, for one year from the date of Third Notification, except that manufacturers’ warranties and extended warranties according to 00170.85(c) shall not be abridged. The Correction Period Warranty described herein shall include extension of the Performance Bond for a period of one year from the date of Third Notification.

The Contractor shall be responsible for meeting the technical and performance Specifications required, making good the Work, and for all repairs of damage to the Work and other improvements, natural and artificial structures, systems, equipment, and vegetation caused by, or resulting in whole or in part from occurrences beginning during the warranty period and are the result of defects in Materials, Equipment, and workmanship. The Contractor shall be responsible for all costs associated with completing the repair of the defects and for associated Work including but not limited to permitting, mobilization, traffic control, erosion control, surface restoration, site cleanup and remediation caused by, or resulting in whole or in part from, defects in Materials, Equipment, or workmanship, and other Work determined by the Engineer to be necessary to complete the repair of the defects.

Within 10 Calendar Days of the Agency's written notice of defects, the Contractor, or the Contractor's Surety, shall vigorously and continuously correct and repair the defects and all related damage. If the Contractor or the Contractor's Surety fails to correct and repair the defects, the Agency may have the correction and repair done by others. The Contractor or Contractor's Surety shall promptly reimburse the Agency for all expenses incurred to correct and repair the defects.

In the event of an emergency, where delay could result in serious loss or damage, the Agency may make emergency corrections and repairs, without written notice. The Contractor or Contractor's Surety shall promptly reimburse the Agency for all expenses incurred to correct and repair the defects.

Corrections, repairs, replacements or changes shall be warranted for an additional one year period beginning on the date of the Agency's acceptance of the corrections, repairs, replacements or changes.

Without limiting the general applicability of other survival clauses under the Contract, this warranty provision shall survive expiration or termination of the Contract.

(c) Manufacturer, Supplier or Installer Warranties and Guarantees:

(1) Manufacturer, Supplier or Installer Warranties - For those Specification Sections referencing this 00170.85(c-1) Subsection, the Contractor shall furnish Warranties from the Manufacturer, Supplier or Installer and signed by the respective authorized Representative.
The warranty period will be specified in the applicable Specification Section for which it applies.

The warranty period will begin on the date the Engineer issues Third Notification unless otherwise specified in the Contract.

Corrections, repairs, replacements or changes shall be warranted for an additional Warranty period beginning on the date of the Agency’s acceptance of the corrections, repairs, replacements or changes.

When the Agency makes written notification to the Manufacturer, Supplier or Installer of failure of an item covered by this warranty, the warranty period will stop for the effected item or the portion of the effected item that failed, as applicable, until the required repairs or replacements are made and accepted. All repaired or replaced items shall meet current specifications, unless otherwise specified in the Contract, and will be warranted for the remaining warranty period.

If, in the opinion of the Engineer, temporary repairs are necessary, the temporary repairs will be made by the Agency or an independent contractor at the Manufacturer’s, Supplier’s or Installer’s expense. The Manufacturer, Supplier or Installer shall replace all temporary repairs at no additional cost to the Agency.

The Manufacturer, Supplier or Installer shall provide all required traffic control during repair or replacement of failed items at no additional cost to the Agency.

Warranty work shall be performed when weather permits.

(2) Trade Practice Guarantees - For those Items installed on the Project that have customary trade practice guarantees, the Contractor shall furnish the guarantees to the Engineer at the completion of the Contract.

00170.89 Protection of Utility, Fire-control, and Railroad Property and Services; Repair; Roadway Restoration:

(a) Protection of Utility, Fire-Control, and Railroad Property and Services; Coordination - The Contractor shall avoid damaging the properties of Utilities, Railroads, railways, and fire-control authorities during performance of the Work. The Contractor shall cooperate with and facilitate the relocation or repair of all Utilities and Utility services, as required under 00150.50, and of Railroad and fire-control property and railways.

The Contractor shall conduct no activities of any kind around fire hydrants until the local fire-control authority has approved provisions for continued service.

The Contractor shall immediately notify any Utility, Railroad, or fire-control authority whose facilities have been damaged.

If an Entity has a valid permit from the proper authority to construct, reconstruct, or repair Utility, Railroad, or fire-control service in the Roadway, the Contractor shall allow the permit holder to perform the work.

(b) Restoration of Roadway after Repair Work - The Contractor shall restore the Roadway to a condition at least equal to that which existed before the repair work addressed under this Subsection was performed, as directed by the Engineer. All restoration work required as a result of Contractor’s failure to protect Utilities, Railroads, railways and fire-control facilities shall be at the Contractor’s expense. Restoration which constitutes Extra Work will be paid as Extra Work.

00170.92 Fencing, Protecting Stock, and Safeguarding Excavations - The Contractor shall be responsible for loss, injury, or damage that results from its failure to restrain stock and persons.
(a) **At the Contractor's Expense** - The Contractor shall restrain stock to lands on which they are confined using temporary fences or other adequate means. The Contractor shall provide adequate temporary fences or other protection around excavations to prevent animals and unauthorized persons from entering.

The Contractor shall repair, at Contractor's expense and to the Engineer's satisfaction, fences damaged by the Contractor's operations and the operations of the Contractor's agents, employees and Subcontractors.

(b) **At the Agency's Expense** - The Contractor shall construct fences, or move and reconstruct fences, as shown on the Contract Documents or as directed by the Engineer. The Contractor shall tear down and remove fencing within the Right-of-Way when no longer needed, as part of the removal Work described in and paid for according to Section 00310.

**00170.93 Trespass** - The Contractor shall be responsible for its own, its agents' and employees', and its Subcontractors' trespass or encroachment upon, or damage to, property during performance of the Contract.

**00170.94 Use of Explosives** - The Contractor shall comply with all Laws pertaining to the use of explosives. The Contractor shall notify anyone having facilities near the Contractor's operations of Contractor's intended use or storage of explosives. The Contractor shall be responsible for all damage resulting from its own, its agents' and employees', and its Subcontractors' use of explosives. (see 00330.41(e) and Section 00335)
Section 00180 - Prosecution and Progress

00180.00 Scope - This Section consists of requirements for assignment of the Contract, subcontracting, time for performance, Contract responsibility, suspensions, terminations, and related provisions.

00180.05 Assignment/Delegation of Contract - Unless the Agency gives prior written consent, the Contractor shall not assign, delegate, sell, or transfer to any Entity, or otherwise dispose of any Contract rights or obligations, including without limitation:

- The power to execute or perform the Contract; or
- Any of its right, title or interest in the Contract.

Any attempted assignment, delegation, or disposition without prior Agency consent shall be void.

Such Agency consent will not normally be given except for the assignment of funds due under the Contract, as provided in 00180.06.

If written Agency consent is given to assign, delegate, or otherwise dispose of any Contract rights or obligations, it shall not relieve the Contractor or its Surety of any part of their responsibility under the Contract.

00180.06 Assignment of Funds Due under the Contract - Assignment of funds due or to become due under the Contract to the Contractor will not be permitted unless:

- The assignment request is made on the form acceptable to the Agency;
- The Contractor secures the written consent of the Contractor's Surety to the assignment; and
- The Engineer approves the assignment.

00180.10 Responsibility for Contract - The Contractor shall direct and coordinate the operations of its employees, Subcontractors and agents performing Work, and see that the Engineer's orders are carried out promptly. The Contractor's failure to direct, supervise and control its employees, Subcontractors and agents performing Work will result in one or more of the following actions, or other actions as the Engineer deems appropriate:

- Suspension of the Work;
- Withholding of Contract payments, as necessary to protect the Agency;
- Ordering removal of individuals from the Project Site; or
- Termination of the Contract.

Action by the Agency under this provision will not prejudice any other remedy it may have.

00180.15 Agency's Right to Do Work at Contractor's Expense - Except as otherwise provided in 00150.75 and 00220.60, if the Contractor neglects to prosecute the Work properly or fails to perform any provision of the Contract, the Agency may, after two Calendar Days' written notice, correct the deficiencies at the Contractor's expense. In situations where the Engineer reasonably believes there is danger to life or property, the Agency may immediately and without notice correct the deficiencies at the Contractor's expense.

Action by the Agency under this provision will not prejudice any other remedy it may have.
00180.20 Subcontracting Limitations:

(a) **General** - The Contractor's own organization shall perform Work amounting to at least the percentage of the original Contract Amount as indicated in the Special Provisions. The value of subcontracted Work is the full compensation to be paid to the Subcontractor(s) for all pay items in the Subcontract(s).

(b) **Own Organization** - The term "own organization", as used in Section 00180, includes only employees of the Contractor, Equipment owned or rented by the Contractor, Incidental rental of operated Equipment, and Materials and Equipment to be incorporated into the Work purchased or produced by the Contractor.

(c) **Rental of Operated Equipment** - The Agency will not allow a Disadvantaged Business Enterprise (DBE) firm to provide services without a subcontract covering all Work to be performed by the DBE firm.

00180.21 Subcontracting:

(a) **General** - The Contractor shall not subcontract or perform any portion of the Contract by other than the Contractor's own organization without the Agency's prior written consent. A request for consent to subcontract, at any tier, solely for the furnishing of a labor force will not be considered.

A written request for consent to subcontract any portion of the Contract at any tier shall be submitted to the Engineer, and when required by the Engineer, shall be accompanied by background information showing that the organization proposed to perform the Work is experienced and equipped for such Work. The Agency will review the Contractor's submission to verify compliance with Contract requirements, confirm the percentage of Work subcontracted, and evaluate the proposed Subcontractor's ability to perform the Work. If the Agency approves the Contractor's request to subcontract, the Agency will provide written notice of its determination to give or withhold consent to the Contractor's request as follows:

- If the subcontractor is not providing any of the insurance coverages as permitted under 00170.70(a), the Agency will respond within seven Calendar Days after the Engineer's receipt of the request.
- If the subcontractor is providing any of the insurance coverages as permitted under 00170.70(a), the Agency will respond within 14 Calendar Days after the Engineer's receipt of the request. (Seven Calendar Days for the Agency to review and approve the Certificates of Insurance required by 00170.70(f) plus seven Calendar Days to review and approve the subcontract request.)

(b) **Submittal of Requests** - The Contractor must submit requests for consent to subcontract any portion of the Contract, at any tier, to the Engineer. The Contractor shall attach a duplicate original subcontract agreement. The Contractor must also submit in writing any amendments or modifications proposed to Agency-approved subcontract agreements, at any tier, before the affected Work begins. The Agency's written consent will be required before such amendments or modifications become effective.

(c) **Substitution of Disclosed Subcontractors** - The Contractor may only substitute a previously disclosed first-tier Subcontractor according to the provisions of ORS 279C.585. The Contractor shall provide the Engineer with a written notification that identifies the name of the proposed new Subcontractor and the reason for the substitution. Authorized reasons for substitution are limited to the following circumstances (see ORS 279C.585(1) through ORS 279C.585(10)):

- The disclosed Subcontractor fails or refuses to execute a written contract that is reasonably based either upon the Project Plans and Specifications, or the terms of the Subcontractor's written Bid, after having had a reasonable opportunity to do so;
- The disclosed Subcontractor becomes bankrupt or insolvent;
- The disclosed Subcontractor fails or refuses to perform the contract;
• The disclosed Subcontractor fails or refuses to meet the bond requirements of the prime Contractor that had been identified prior to the Bid submittal;

• The Contractor demonstrates to the Agency that the Subcontractor was disclosed as the result of an inadvertent clerical error;

• The disclosed Subcontractor does not hold a license from the Construction Contractors Board and is required to be licensed by the board;

• The Contractor determines that the Work performed by the disclosed Subcontractor is not in substantial compliance with the Plans and Specifications, or that the Subcontractor is substantially delaying or disrupting the progress of the Work;

• The disclosed Subcontractor is ineligible to work on a public improvement according to the applicable statutory provisions;

• The substitution is for “good cause” as defined by State Construction Contractors Board rule; or

• The substitution is reasonably based on the Contract alternates chosen by the Agency.

(d) Terms of Subcontracts - Subcontracts shall provide that work performed under the subcontract shall be conducted and performed according to the terms of the Contract. Compliance with 00170.07 is required. All subcontracts, including Contractor’s with the first-tier Subcontractors and those of the first-tier Subcontractors with their subcontractors, and any other lower tier subcontracts shall contain a clause or condition that if the Contractor or a subcontractor fails, neglects, or refuses to make payment to an Entity furnishing labor or Materials in connection with the Contract, the Entity may file a complaint with the Construction Contractors Board, unless payment is subject to a good-faith dispute as defined in ORS 279C.580. Additionally, according to the provisions of ORS 279C.580, subcontracts shall include:

(1) A payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under the subcontract within 10 Calendar Days out of amounts the Agency pays to the Contractor under the Contract.

(2) A clause that requires the Contractor to provide the first-tier Subcontractor with a standard form that the first-tier Subcontractor may use as an application for payment or as another method by which the Subcontractor may claim a payment due from the Contractor.

(3) A clause that requires the Contractor, except as otherwise provided in this subsection, to use the same form and regular administrative procedures for processing payments during the entire term of the subcontract. The Contractor may change the form or the regular administrative procedures the Contractor uses for processing payments if the Contractor:

• Notifies the Subcontractor in writing at least 45 Calendar days before the date on which the Contractor makes the change; and

• Includes with the written notice a copy of the new or changed form or a description of the new or changed procedure.

(4) An interest penalty clause that obligates the Contractor, if the Contractor does not pay the first-tier Subcontractor within 30 Calendar Days after receiving payment from the Agency, to pay the first-tier Subcontractor an interest penalty on amounts due in each payment the Contractor does not make in accordance with the payment clause included in the subcontract under 00180.21(d-1). The Contractor or first-tier Subcontractor is not obligated to pay an interest penalty if the only reason that the Contractor or first-tier Subcontractor did not make payment when payment was due is that the Contractor or first-tier Subcontractor did not receive payment from the Agency or the Contractor when payment was due. The interest penalty applies to the period that begins on the day after the required payment date and ends on the date on which the amount due is paid; and shall be computed at the rate specified in 00170.10(c).
(5) A clause that requires the Contractor's first-tier Subcontractor to include a payment clause and an interest penalty clause that conform to the standards of ORS 279C.580 (see 00180.21(d-1) and 00180.21(d-4)) in each of the first-tier Subcontractor's subcontracts and to require each of the first-tier Subcontractor's subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or Material supplier.

These payment clauses shall require the Contractor to return all retainage withheld from the Subcontractor, whether held by the Contractor or the Agency, as specified in 00195.50(d).

As required by ORS 279C.800 through ORS 279C.870, subcontracts shall include:

- A provision requiring the subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work on the Project, unless exempt.
- A provision requiring that the workers shall be paid not less than the specified minimum hourly rate of wage.

(e) Contractor's Responsibilities - As a condition of the Agency's grant of consent to subcontract, whether or not stated in the subcontract agreement itself, the Contractor shall remain solely responsible for administration of the subcontract, including but not limited to:

- Performance of subcontracted Work;
- Progress of subcontracted Work;
- Payments for accepted subcontracted Work; and
- Disputes and claims for additional compensation regarding subcontracted Work.

It shall be the direct responsibility of the Contractor to ensure that each and every Subcontractor will not only be issued a complete and current set of Plans and Specifications, but also that these Plans and Specifications are on the project site and in use by the Subcontractor when it is performing its portion of the project.

Subcontracted Work shall not create a contract between the Agency and the Subcontractor, will not convey to the Subcontractor any rights against the Agency, and will not relieve the Contractor or the Contractor's Surety of any of their responsibilities under the Contract.

(f) Failure to Comply - Failure to comply with 00180.21 will be cause for the Engineer to take action reasonably necessary to obtain compliance. This action may include, but is not limited to:

- Suspension of the Work;
- Withholding of Contract payments as necessary to protect the Agency; and
- Termination of the Contract.

00180.22 Payments to Subcontractors and Agents of the Contractor - To the extent practicable, the Contractor shall pay in the same units and on the same basis of measurement as listed in the Schedule of Items for subcontracted Work or other Work not done by the Contractor's own organization. The Agency will not be responsible for any overpayment or losses resulting from overpayment by the Contractor to Subcontractors and to its other agents, work providers, service providers, and trucking service providers.

If requested in writing by a first-tier Subcontractor, the Contractor shall send to the Subcontractor, within 10 Calendar Days of receiving the request, a copy of that portion of any invoice or request for payment submitted to the Agency, or pay document provided by the Agency to the Contractor, specifically related to any labor, Equipment, or Materials supplied by the first-tier Subcontractor.
00180.30 Materials, Equipment, and Work Force - The Contractor shall furnish suitable and sufficient Materials, Equipment, and personnel to properly prosecute and complete the Work. The Contractor shall use only Equipment of adequate size and condition to meet the requirements of the Work and Specifications, and to produce a satisfactory quality of Work. Upon receipt of the Engineer's written order, the Contractor shall immediately remove, and not use again on the Project without the Engineer's prior written approval, Equipment that, in the Engineer's opinion, fails to meet Specifications or produce a satisfactory product or result.

The work force shall be trained and experienced for the Work to be performed. Upon receipt of the Engineer's written order, the Contractor shall immediately remove from the Project Site, and shall not employ again on the Project without the Engineer's prior written approval, any supervisor or employee of the Contractor or any subcontractor who, in the Engineer's opinion, does not perform satisfactory Work or whose conduct interferes with the progress of the Work.

If the Contractor fails to remove Equipment or persons as ordered, or fails to furnish suitable and sufficient Materials, Equipment and personnel for the proper prosecution of the Work, the Engineer may suspend the Work by written notice until such orders are complied with and such deficiencies are corrected, or the Engineer may terminate the Contract under the provisions of 00180.90(a).

00180.31 Required Materials, Equipment, and Methods - The Engineer's decisions under this Section are final.

(a) General - When the Equipment and methods to be used are not specified in the Contract, any Equipment or methods that accomplish the Work as required by the Contract will be permitted. When the Contract specifies certain Equipment or methods, the Contractor shall use the Equipment or methods specified unless otherwise authorized by the Engineer in writing.

(b) Substitution of Materials and Equipment to be Incorporated into the Work - After execution of the Contract, the Engineer may approve substitution of Materials and Equipment to be incorporated into the Work as follows:

(1) Reasons for Substitution - The Engineer will consider substitution only if:

- In the judgement of the Engineer, the proposed Materials or Equipment are equal to or superior to the specified items in construction, efficiency and utility; or
- Due to reasons beyond the control of the Contractor, the specified Materials or Equipment cannot be delivered to the Project in sufficient time to complete the Work in proper sequence.

(2) Submittal of Request - The Contractor shall submit requests for substitution to the Engineer, including manufacturers' brochures and other information needed to verify equality of the proposed item(s).

(c) Substitution of Equipment Specified to Perform Work - The Agency encourages development of new or improved Equipment and innovative use of Equipment. When the Specifications require Equipment of a particular size or type to be used to perform certain portions of the Work, the Contractor may submit a request to the Engineer to use Equipment of a different size or type. The request will not be considered as a cost reduction proposal under 00140.70. The request shall:

- Be in writing and include a full description of the Equipment proposed and its intended use;
- Include the reasons for requesting the substitution; and
- Include evidence, obtained at the Contractor's expense and satisfactory to the Engineer, that the proposed Equipment is capable of functioning as well as or better than the specified Equipment.
The Engineer will consider the Contractor's request and will provide a written response to the Contractor, either permitting or denying use of the proposed Equipment.

Permission may be granted on a trial basis to test the quality of Work actually produced, subject to the following:

- There will be no cost to the Agency, either in Contract Amount or in Contract Time;
- The permission may be withdrawn by the Engineer at any time if, in the Engineer's opinion, the Equipment is not performing in all respects equivalent to the Equipment specified in the Contract;
- If permission is withdrawn, the Contractor shall perform the remaining Work with the originally-specified Equipment; and
- The Contractor shall remove and replace nonspecification Work resulting from the use of the Contractor's proposed Equipment, or otherwise correct it as the Engineer directs, at no additional compensation.

(d) Substitution of Methods - The Agency encourages development of new, improved, and innovative construction methods. When the Plans or Specifications require a certain construction method for a portion of the Work, the Contractor may submit a request for a change by following the provisions of 00140.70, "Cost Reduction Proposals".

00180.40 Limitation of Operations:

(a) In General - The Contractor shall comply with all Contract provisions and shall:

- Conduct the Work at all times so as to cause the least interference with traffic, and
- Not begin Work that may allow damage to Work already started.

(b) On-Site Work - The Contractor shall not begin On-Site Work until the Contractor has:

- Received Notice to Proceed;
- Filed with the Construction Contractors Board the public works bond as required in 00170.20;
- An approved Project Work schedule;
- An approved Traffic Control Plan;
- An approved Spill Prevention Control and Countermeasure Plan, if required;
- An approved Pollution Control Plan;
- An approved Erosion and Sediment Control Plan;
- Met with the Engineer at the required preconstruction conference; and
- Assembled all Materials, Equipment, and labor on the Project Site, or has reasonably assured that they will arrive on the Project Site, so the Work can proceed according to the Project Work schedule.

00180.41 Project Work Schedules - The Contractor shall submit a Project Work schedule meeting the requirements of this Subsection to the Engineer. The Project Work schedule is intended to identify the sequencing of activities and time required for prosecution of the Work. The schedule is used to plan, coordinate, and control the progress of construction. Therefore, the Project Work schedule shall provide for orderly, timely, and efficient prosecution of the Work, and shall contain sufficient detail to enable both the Contractor and the Engineer to plan, coordinate, analyze, document, and control their respective Contract responsibilities. Sufficient detail shall also include all required double shifts, overtime work, or combination of both necessary to complete Contract Work within the Contract Time.
The Contractor shall submit a schedule or plan for each activity that is behind schedule showing, in sufficient
detail, the proposed corrective action to complete Contract Work within the Contract Time. Sufficient detail
shall include all required double shifts, overtime work, or combination of both.

Contractor’s activity related to developing, furnishing, monitoring, and updating these required schedules is
Incidental.

The Contractor shall submit a supplemental "look ahead" Project Work schedule to the Engineer prior to or
at each Project progress meeting. The "look ahead" Project Work schedule is supplemental to the Type A,
B, or C schedule specified below. The supplemental "look ahead" Project Work schedule shall:

- Identify the sequencing of activities and time required for prosecution of the Work.
- Provide for orderly, timely, and efficient prosecution of the Work.
- Contain sufficient detail to enable both the Contractor and the Engineer to plan, coordinate, analyze,
document, and control their respective Contract responsibilities.

The supplemental "look ahead" Project Work schedule shall be written in common terminology and show the
planned Work activities broken down into logical, separate activities by area, stage, and size and include the
following information:

- The resources the Contractor, subcontractors, or services will use.
- The locations of each activity that will be done including the limits of the work by mile posts, stations,
or other indicators.
- The time frames of each activity by Calendar Days, shifts, and hours.
- All anticipated shoulder, lane, and road closures.

At a minimum, the Contractor shall prepare a bar chart that:

- Shows at least three weeks of activity including the week the bar chart is issued.
- Uses a largest time scale unit of one Calendar Day. Smaller time scale units may be used if needed.
- Is appropriate to the activities.
- Identifies each Calendar Day by month and day.

Include the Contract name, Contract number, Contractor’s name, and date of issue on each page of the bar
chart.

The Contractor shall submit the supplemental "look ahead" Project Work schedule starting at First
Notification and continuing until Second Notification has been issued and all punch list items and final
trimming and clean-up has been completed. The Contractor shall meet with the Engineer to review the
supplemental "look ahead" Project Work schedule. If the Engineer or the Contractor determines that the
current supplemental "look ahead" Project Work schedule requires changes or additions, either notations
can be made on the current schedule or the Engineer may require the submittal of a revised supplemental
"look ahead" Project Work schedule. Review of the current and subsequent supplemental "look ahead"
Project Work schedules does not relieve the Contractor of responsibility for timely and efficient execution of
the Contract.

One of the following Type "A", "B", or "C" schedules will be required under the Contract. The type of
schedule will be identified in the Special Provisions.

(a) Type "A" Schedule - When a Type "A" schedule is required, the Contractor shall do the following:

(1) Schedule - Five Calendar Days prior to the preconstruction conference, the Contractor shall
provide to the Engineer four copies of a Project Work schedule, including a time-scaled bar chart and
narrative, showing:
• Expected beginning and completion dates of each activity, including all staging; and
• Elements of the Traffic Control Plan as required under 00225.05.

The schedule shall show detailed Work activities as follows:

• Construction activities;
• The time needed for completion of the utility relocation work;
• Submittal and approval of Materials samples and shop drawings;
• Fabrication, installation, and testing of special Materials and Equipment; and
• Duration of Work, including completion times of all stages and their sub phases.

For each activity, the Project Work schedule shall list the following information:

• A description in common terminology;
• The quantity of Work, where appropriate, in common units of measure;
• The activity duration in Calendar Days; and
• Scheduled start, completion, and time frame shown graphically using a time-scaled bar chart.

The schedule shall show the Work broken down into logical, separate activities by area, stage, or size. The duration of each activity shall be verifiable by manpower and Equipment allocation, in common units of measure, or by delivery dates.

The bar chart shall be prepared as follows:

• The length of bar shall represent the number of workdays scheduled.
• The time scale shall be appropriate for the duration of the Contract.
• The time scale shall be in Calendar Days.
• The smallest unit shown shall be one Calendar Day.
• The first day and midpoint of each month shall be identified by date.
• Distinct symbols shall be used to denote multiple shift, holiday, and weekend Work.

Each page of the bar chart shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the bar chart shall be drawn on a reasonable size of paper up to a maximum of 36 inch by 36 inch, using multiple sheets when needed.

Within seven Calendar Days after the preconstruction conference, the Engineer and the Contractor shall meet to review the Project Work schedule as submitted. The Engineer will review the schedule for compliance with all Contract Time limitations and other restraints. Review of this and subsequent schedules by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract. Within 10 Calendar Days of this meeting, the Contractor shall resubmit to the Engineer four copies of the Project Work schedule, including required revisions.

(2) **Review by the Engineer** - The Project Work schedule may need revision as the Work progresses. Therefore, the Contractor shall periodically review the Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the Project Work schedule.
The Contractor shall compile an updated Project Work schedule incorporating any changes to the Project completion time(s). The bar chart shall reflect the updated information. The Contractor shall submit four copies of the updated Project Work schedule to the Engineer within seven Calendar Days after the meeting. The report shall include without limitation the following:

- Sufficient narrative to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule; and
- Proposed corrective actions.

(b) Type "B" Schedule - When a Type "B" Schedule is required, the Contractor shall do the following:

1. **Initial Schedule** - Five Calendar Days prior to the preconstruction conference, the Contractor shall provide to the Engineer four copies of a time-scaled bar chart Project Work schedule showing:
   
   - Expected beginning and completion date of each activity, including all staging; and
   - Elements of the Traffic Control Plan as required under 00225.05.

   The initial schedule shall show all Work intended for the first 60 Days of the Contract to the level of detail described in (2) below, and shall show the priority and interdependence (sequencing and network logic) of all major segments of the remainder of the Work.

2. **Detailed Schedule** - In addition to the above requirements, and within 30 Calendar Days after the Notice to Proceed, the Contractor shall provide the Engineer one digital copy and four paper copies of a detailed time-scaled bar chart Project Work schedule indicating the critical course of the Work. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer.

   Detailed work schedule activities shall include the following:

   - Construction activities;
   - The time needed for completion of the utility relocation work;
   - Submittal and approval of Material samples and shop drawings;
   - Procurement of critical Materials;
   - Fabrication, installation, and testing of special Material and Equipment; and
   - Duration of Work, including completion times of all stages and their sub phases.

   For each activity, the Project Work schedule shall list the following information:

   - A description in common terminology;
   - The quantity of Work, where appropriate, in common units of measure;
   - The activity duration in normal workdays; and
   - Scheduled start, completion, and time frame shown graphically using a time-scaled bar chart.

   The schedule shall show the Work broken down into logical, separate activities by area, stage, or size. The duration of each activity shall be verifiable by manpower and Equipment allocation, in common units of measure, or by delivery dates.

   The bar chart shall be prepared as follows:

   - The length of bar shall represent the number of normal workdays scheduled.
The time scale shall be appropriate for the duration of the Contract.

The time scale shall be in normal workdays (every day except Saturday, Sunday, and legal holidays).

The smallest unit shown shall be one Calendar Day.

The first day and midpoint of each month shall be identified by date.

Distinct symbols shall be used to denote multiple shift, holiday, and weekend Work.

The bar chart drawing(s) shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the bar chart shall be drawn on a reasonable size of paper up to a maximum of 36 inch x 36 inch, using multiple sheets when needed.

Within 10 Calendar Days after submission of the Project schedule the Engineer and the Contractor shall meet to review the Project schedule as submitted. Within 10 Days of the review meeting, the Contractor shall resubmit to the Engineer one digital and four paper copies of the Project schedule, including required revisions.

The accepted Project schedule shall represent all Work, as well as the planned sequence and time for the Work. Review of this and subsequent schedules by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract.

(3) Review and Reporting

- The Project Work schedule may require revision as the Work progresses. Therefore, the Contractor shall monitor and when necessary revise the Project Work schedule as follows:

a. **Review with the Engineer** - The Contractor shall perform ongoing review of the Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the Project Work schedule. After any necessary action has been agreed upon, the Contractor shall make required changes to the Project Work schedule.

The Contractor shall collect information on all activities worked on or scheduled to be worked on during the previous report period, including shop drawings, Material procurement, and Contract Change Orders that have been issued. Information shall include commencement and completion dates on activities started or completed, or if still in progress, the remaining time duration.

The Contractor shall develop detailed sub-networks to incorporate changes, Additional Work, and Extra Work into the Project Work schedule. Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. The restraints shall include those activities from the Project Work schedule that initiated the sub-network as well as those restrained by it.

The Contractor shall evaluate this information and compare it with the Contractor's project schedule. If necessary, the Contractor shall make an updated bar chart schedule to incorporate the effect changes may have on the Project completion time(s). For any activity that has started, the Contractor shall add a symbol to show the actual date the activity started and the number of normal workdays remaining until completion. For activities that are finished, a symbol shall be added to show the actual date. The Contractor shall submit one digital and four paper copies of the updated bar chart to the Engineer within seven Days after the progress meeting, along with a progress report as required by "b." below.
b. **Progress Report** - The Contractor shall submit a progress report to the Engineer each month. The report shall include the following:

- Sufficient narrative to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule; and
- Proposed corrective actions.

(c) **Type “C” Schedule** - When a Type “C” Schedule is required, the Contractor shall do the following:

1. **Initial Schedule** - 10 Calendar Days prior to the preconstruction conference, the Contractor shall provide to the Engineer one digital copy and four paper copies of a time-scaled bar chart Project Work schedule. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer. The initial schedule shall show:

   - The expected beginning and completion date of each activity, including all stages and phases;
   - The time needed for completion of the utility relocation work; and
   - The elements of the traffic control plan as required under 00225.05.

   A logic diagram and a time-scaled bar chart will be acceptable in lieu of a time-scaled logic diagram.

   The initial schedule shall show all Work intended for the first 60 Days of the Contract to the level of detail described in (2) below, and shall show the priority and interdependence (sequencing and network logic) of all major segments of the remainder of the Work.

2. **Detailed Project Work Schedule** - In addition to the above requirements, and within 30 Calendar Days after First Notification, the Contractor shall provide the Engineer one digital copy and four paper copies of a detailed time-scaled critical path method (CPM) network Project Work schedule and computer analysis printout, both clearly indicating the critical path. The digital copy shall be compatible with MS Project 2003, Primavera P3, SureTrak Project Manager 3.0, or another scheduling program approved by the Engineer. The first submitted detailed time-scaled critical path method (CPM) network Project Work schedule shall also contain a listing of the quantity of Work for each activity, when appropriate, in common units of measure.

   Detailed work schedule activities shall include the following:

   - Construction activities;
   - Any limitations of operation specified in 00180.40;
   - The time needed for completion of the utility relocation work;
   - Implementation of TCP for each stage and phase;
   - Submittal and approval of Material samples, mix designs, and shop drawings;
   - Agency timeframes to process and return Contractor submitted plans, working drawings, equipment lists and other submittals;
   - Procurement of critical Materials;
   - Fabrication, installation, and testing of special Material and Equipment;
   - Duration of Work, including completion times of all stages and their sub-phases; and
   - Specified cure times for all concrete elements.
The activities shall be separately identifiable by coding or use of sub-networks or both. The duration of each activity shall be verifiable and consistent with the description in the Project narrative required in (3) below.

Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. In the restraints, include those activities from any Project Work schedule that initiated the sub-network as well as those restrained by it.

The time scale used on the Contractor's detailed time-scaled critical path method (CPM) network Project Work schedule shall be appropriate for the duration of the activities and the Project duration. The time scale shall be in normal workdays, defined as every day except Saturday, Sunday and legal holidays, with calendar dates identified no less than the first and midpoint of each calendar month. The smallest unit shown shall be one Day. The network shall show the length of the activity or part scaled to accurately represent the number of normal workdays scheduled. Distinct symbols or graphics shall be used to show multiple shift, holiday, or weekend work.

The schedule network drawing(s) shall include a title block showing the Contract name and number, Contractor's name, date of original schedule, and all update dates; and a legend containing the symbols used, their definitions, and the time scale, shown graphically. To ensure readability the drawings shall be on a reasonable size of paper up to a maximum of 36 inch x 36 inch, using multiple sheets when needed.

The Contractor shall include a tabulation of each activity in the computer mathematical analysis of the network diagram. The following information represents the minimum required for each activity:

- Event (node) number(s) for each activity;
- Maintain event (node) numbers throughout the Project;
- Activity description;
- Original duration of activities (in normal workdays);
- Estimated remaining duration of activities (in normal workdays);
- Earliest start date and actual start date (by calendar date);
- Earliest finish date and actual finish date (by calendar date);
- Latest start date (by calendar date);
- Latest finish date (by calendar date); and
- Slack or float time (in workdays).

Computer print-outs shall consist of at least a node sort and an "early start/total-float" sort.

Within 14 Calendar Days after submission of the detailed time-scaled critical path method (CPM) network Project Work schedule, the Engineer and the Contractor shall meet to review the detailed time-scaled critical path method (CPM) network Project Work schedule as submitted. Within seven Calendar Days of the meeting, the Contractor shall resubmit to the Engineer one digital and four paper copies of the detailed time-scaled critical path method (CPM) network Project Work schedule, including required revisions.

This first accepted detailed time-scaled critical path method (CPM) network Project Work schedule, also called the accepted Project Work schedule, shall represent all Work, as well as the planned sequence and time for the Work. Review and acceptance of any Project Work schedules and Project narratives by the Engineer shall not relieve the Contractor of responsibility for timely and efficient execution of the Contract.
(3) **Project Narrative** - In addition to the above requirements, and within 30 Calendar Days after First Notification, the Contractor shall provide to the Engineer a final written Project narrative that discusses the planning, coordinating, scheduling and resourcing of the Work. The Project narrative shall include the following written description:

- Plans for staging the project.
- All critical activities.
- All near critical activities defined as those with less than 30 Days of float.
- All subcontractor activities that are critical, near critical, and those that are greater than two weeks in duration.
- Labor resourcing, by stage and phase, to include the number of crews, average crew size and planned night/weekend shifts including that of subcontractors.
- Equipment allocation, by stage and phase to include mobilization, demobilization and planned activities including that of subcontractors.
- Notifications required under the Contract during each stage and phase which may include but is not limited to road closures, lanes closures, night work, cold plane pavement removal, and pile driving.
- Provide discussion on addressing reasonably predictable weather conditions and their impact on all weather sensitive activities. Also, provide discussion on other weather limitations that may affect the project schedule.
- Submittal and approval of material samples, mix designs, and shop drawings.
- Procurement of critical materials.
- Plans for dealing with "unique" construction items.
- Coordination of utilities and any immediate concerns for impacts/delays.
- Constructability issues.
- Cost Reduction Proposals and/or immediate requests for changes to the specifications.
- Concerns/issues that need to be addressed within the first 90 Days following First Notification.

The accepted Project narrative shall represent all critical and near critical Work, as well as the planned sequence and time for the Work.

(4) **Review and Reporting** - The Project Work schedule may require revision as the Work progresses. Therefore, the Contractor shall monitor and when necessary revise the Project Work schedule as follows:

a. **Review with the Engineer** - The Contractor shall perform ongoing review of the accepted Project Work schedule and progress of the Work with the Engineer. If the Engineer or the Contractor determines that the accepted Project Work schedule no longer represents the Contractor's own plans or expected time for the Work, a meeting shall be held between the Engineer and the Contractor. At this meeting, the Contractor and the Engineer shall review Project events and any changes for their effect on the accepted Project Work schedule. After any necessary action has been agreed upon, the Contractor shall make required changes to the accepted Project Work schedule and associated Project narrative. Upon acceptance by the Engineer, this will become the new accepted Project Work schedule and associated Project narrative.

The Contractor shall collect information on all activities worked on or scheduled to be worked on during the previous report period, including shop drawings, Material procurement, and Contract Change Orders that have been issued. Information shall include actual start and completion dates on activities started or completed, or if still in progress, the remaining time duration.
The Contractor shall develop detailed sub-networks to incorporate changes, Additional Work, and Extra Work into the Project Work schedule. Detailed sub-networks shall include all necessary activities and logic connectors to describe the Work and all restrictions on it. The restraints shall include those activities from the Project Work schedule that initiated the sub-network as well as those restrained by it. The procedure for acceptance of the revised or updated Project Work schedule as the new accepted Project Work schedule will be as provided above.

The Contractor shall evaluate this information each month and compare it with the accepted Project Work schedule. The Contractor shall make an updated bar chart schedule to incorporate the effect changes may have on the Project completion time(s). For any activity that has started, the Contractor shall add a symbol to show the actual date the activity started and the number of normal workdays remaining until completion. For activities that are finished, a symbol shall be added to show the actual date. The Contractor shall submit, digitally and in paper, copies of the updated bar chart to the Engineer within seven Days after the progress meeting, along with a progress report as required by "b." below.

b. Progress Report - Each month the Contractor shall submit a progress report and an update of the Project Work schedule to the Engineer. The report and updated schedule shall be submitted both digitally and in paper copy and shall include the following:

- A sufficient description, in narrative form, to describe the past progress, anticipated activities, and stage Work;
- A description of any current and expected changes or delaying factors and their effect on the construction schedule;
- Proposed corrective actions;
- Proposals to keep the Project on schedule in the event of a delay; and
- Any changes to the logic as compared to the accepted Project Work schedule.

(d) Substitution of Schedules - When a Type "A" schedule is required, a Type "B" or Type "C" schedule may be substituted for the Type "A" schedule.

When a Type "B" schedule is required, a Type "C" schedule may be substituted for the Type "B" schedule.

(e) Specified Contract Time Not Superseded by Schedule Revisions - The completion dates in any Project Work schedule and any revised or updated Project Work schedules shall be within the Contract Time(s) specified for the Project, or within adjusted Contract Times approved according to 00180.80(c). Acceptance of any Project Work schedule or any revised or updated Project Work schedules shall not constitute approval of any completion dates that exceed such Contract Time(s). If the Contractor believes that additional Contract Time is due, the Contractor shall submit, with a revised Project Work schedule, a request for adjustment of Contract Time according to 00180.80(c). A request for an adjustment of Contract Time will be evaluated using the most recently accepted Project Work schedule.

(f) Float Time - Float time shown on the Project Work schedule, including any time between a Contractor's scheduled completion date and the specified Contract Time(s), does not exist for the exclusive use of either party to the Contract and belongs to the Project.

(g) Schedules Do Not Consti tute Notice - Submittal of a Project Work schedule, with supporting Project narrative, does not constitute or substitute for any notice the Contractor is required under the terms of the Contract to give the Agency.

(h) Failure to Provide Schedule - The Project Work schedule is essential to the Agency. The Contractor's failure to provide the schedule, schedule information, progress reports, Project narratives, or
schedule updates when required will be cause to suspend the Work, or to withhold Contract payments as necessary to protect the Agency, until the Contractor provides the required information to the Engineer.

00180.42 Preconstruction Conference - Unless otherwise approved in writing by the Engineer, before any Work is performed and within seven Calendar Days of the Notice to Proceed, the Contractor shall meet with the Engineer for a preconstruction conference at a time mutually agreed upon.

00180.43 Commencement and Performance of Work - From the time of commencement of the Work to the time of Final Acceptance the Contractor shall:

- Provide adequate Materials, Equipment, labor, and supervision to perform and complete the Work;
- Perform the Work as vigorously and as continuously as conditions permit, and according to a Project Work schedule that ensures completion within the Contract Time or the adjusted Contract Time;
- Not voluntarily suspend or slow down operations without prior written approval from the Engineer; and
- Not resume suspended Work without the Engineer's written authorization.

00180.44 Project Meetings – The Contractor shall participate in conferences and meetings for the purposes of addressing issues related to the Work, reviewing and coordinating progress of the Work and other matters of common interest to the Contractor, Engineer and Agency.

(a) Meeting Participants – Representative of entities participating in meetings shall be qualified and authorized to act on behalf of entity each represents.

(b) Meet in Agency’s meeting room facility, or in a location otherwise agreed to by Engineer and Contractor.

(c) Engineer will distribute to each anticipated participant written notice and agenda of each meeting at least four days before meeting.

(d) Require attendance of Contractor's superintendent and project manager, and Subcontractors who are or are proximate to be actively involved in the Work, or who are necessary to agenda.

(e) Engineer will invite agencies, utility companies or others when the Work affects their interests, and others necessary to agenda.

(f) Engineer will record minutes of meetings and distribute copies of minutes within seven days of meeting to participants and interested parties. Contractor shall advise Engineer within two days of receipt of meeting minutes if Contractor does not agree with content of minutes.

(g) Progress Meetings

(1) Purpose of Progress Meetings: To expedite Work of Subcontractors or other organizations that are not meeting scheduled progress, resolve conflicts, and coordinate and expedite execution of the Work.

(2) Attend regularly scheduled bi-weekly progress meetings conducted by Engineer.

(3) Review progress of the Work, Progress Scheduled, three-week look-ahead schedule, narrative report, Application for Payment, record documents, and additional items of current interest that are pertinent to execution of the Work.
(4) Verify:

- Actual start and finish dates of completed activities since last progress meeting.
- Durations and progress of activities not completed.
- Reason, time, and cost data for Change Order Work that will be incorporated into Progress Schedule and Application for Payment.
- Percentage completion of items on Application for Payment
- Reasons for required revisions to Progress Schedule and their effect on Contract Time and Contract Amount.

(5) Review status of Requests for Clarification/Information and Submittals review.

(6) Discuss Project safety and security.

(7) Discuss traffic control.

(8) Discuss potential problems which may impede scheduled progress and corrective measures.

(h) Coordination Meetings

(1) Purpose of Coordination Meetings: To coordinate the Work of this Contract with the Work of the Agency and with Work of other Contractors.

(i) Pre-Event Meetings

(1) Prior to start of critical activities, the Contractor shall schedule a meeting with Engineer to review applicable specifications and drawings, coordination of inspection requirements and other key activities.

(j) Pre-Survey Conference

(1) The Contractor, applicable Subcontractors, Contractor’s surveyor, and Agency’s surveyor shall meet with the Engineer two weeks prior to beginning survey work. The purpose of the meeting is to discuss methods and practices of accomplishing the survey work.

(k) Other Meetings

(1) The Contractor shall prepare for and attend other meetings as identified elsewhere in the Contract Documents.

00180.50 Contract Time to Complete Work:

(a) General - The time allowed to complete the Work or Pay Item is stipulated in the Special Provisions, and will be known as the "Contract Time". (see 00110.20)

(b) Kinds of Contract Time - The Contract Time will be expressed in one or more of the following ways:

(1) Fixed Date Calculation - The calendar date on which the Work or Pay Item shall be completed; or

(2) Calendar Day Calculation - The number of Calendar Days from a specified beginning point in which the Work or Pay Item shall be completed.
(3) **Work Day Calculation** – The number of Work Days from a specified beginning point in which the Work or Pay item shall be completed.

(c) **Beginning of Contract Time** - When the Contract Time is stated in Calendar Days, counting of Contract Calendar Days will begin with the first Calendar Day following the date of the Notice to Proceed. When the Contract Time is stated in Work Days, counting of Contract Work Days will begin with the first Work day following the date of the Notice to Proceed.

(d) **Recording Contract Time** - All Contract Time will be recorded and charged to the nearest one-half Day.

Contract Times may be extended because of delays in the completion of the Work due to abnormal weather conditions provided that the Contractor shall, within 10 days of the beginning of such delay, notify Engineer in writing of the cause of the delay and request an extension of time. Such requests shall be accompanied with supporting documentation referenced to the NOAA INDEX weather in the Project vicinity. Engineer shall extend the Contract Times for completing the Work when, in Engineer's judgment, the findings of facts and extent of delay justify such an extension. Contractor shall not be entitled to any additional compensation of any kind arising out of or relating to abnormal weather conditions.

(e) **Exclusions from Contract Time** - Regardless of the way Contract Time is expressed in the Contract, certain Calendar Days will not be charged against Contract Time. These exclusions will be allowed when the Contractor is prevented from performing Work due to one of the following reasons, resulting in delay:

- Acts of God or Nature;
- Court orders enjoining prosecution of the Work;
- Strikes, labor disputes or freight embargoes that, despite the Contractor's reasonable efforts to avoid them, cause a shutdown of the entire Project or one or more major operations. "Strike" and "labor dispute" may include union action against the Contractor, a Subcontractor, a Materials supplier, or the Agency; or
- Suspension of the Work by written order of the Engineer for reasons other than the Contractor's failure or neglect.

(f) **Time Calculation Protest** - In the event the Contractor disputes the accuracy of the statement of Contract Time charges, it shall immediately contact the Engineer and attempt to resolve the dispute. If the dispute cannot be resolved informally, the Contractor shall submit a formal written protest to the Engineer within seven Calendar Days of the date the Engineer mailed or delivered the statement. Failure to submit a formal written protest within the seven Calendar Day period constitutes the Contractor's approval of the time charges, or adjusted time charges, itemized in the statement.

(g) **End of Contract Time** - When the Engineer determines that the On-Site Work has been completed, except for the items listed below, the Engineer will issue a Second Notification.

The Second Notification will list:

- The date the time charges stopped;
- Final trimming and cleanup tasks (see 00140.90);
- Equipment to be removed from the Project Site;
- Minor corrective work (punch list) to be completed; and
- Submittals, including without limitation all required certifications, bills, forms, warranties, certificate of insurance coverage (00170.70(b)), and other documents, required to be provided to the Engineer before Third Notification will issue.
The Contractor shall complete all tasks listed in the Second Notification in an expeditious manner within the time frame specified for Final Completion.

00180.60 Notice of Delay - The Contractor shall notify the Engineer of any delay that will likely prevent completion of the Work or a Pay Item by the date specified in the Project Work schedule. The notice shall be in writing and shall be submitted within seven Calendar Days of when the Contractor knew or should have known of the delay. The notice shall include, to the extent available, the following:

- The reasons or causes for the delay;
- The estimated duration of the delay and the estimated resulting cumulative delay in Contract completion;
- Except for 00180.50(e) and 00180.65 delays, whether or not the Contractor expects to request an adjustment of Contract Time due to the delay;
- Whether or not the Contractor expects to accelerate due to the delay; and
- Whether or not the Contractor expects to request additional compensation due to the delay. Except for 00180.50(e) and 00180.65 delays, failure to include this information will constitute waiver of the Contractor's right to later make such a request.

00180.65 Right-of-Way and Access Delays - Right-of-Way and access delays will be taken into consideration in adjusting Contract Time, and in approving additional compensation if the performance of the Work is delayed because of the Agency's failure to make available to the Contractor:

- Necessary Rights-of-Way;
- Agency-owned or Agency-controlled Materials sources that are offered in the Contract for the Contractor’s use; or
- Access to, or rights of occupancy of, buildings and other properties the Contractor is required to enter or to disturb according to Contract requirements.

If the duration and time period of an anticipated delay is stated in the Special Provisions, only the delay occurring beyond that duration and time period will be considered for adjusting Contract Time or providing additional compensation.

00180.70 Suspension of Work:

(a) General - The Engineer has authority to suspend the Work, or part of the Work, for any of the following causes:

- Failure of the Contractor to correct unsafe conditions;
- Failure of the Contractor to carry out any provision of the Contract;
- Failure of the Contractor to carry out orders issued by the Engineer, the Agency, or any regulatory authority;
- Existence of conditions unsuitable to proper or safe performance of the Work; or
- Any reason considered by the Agency to be in the public interest.

When Work has been suspended for any reason, the Contractor shall not resume Work without the Engineer’s written authorization.

(b) Contractor’s Responsibilities during and after Suspension - During periods of suspension of the Work, the Contractor shall continue to be responsible for protecting and repairing the Work according to 00170.80, and for ensuring that a single designated representative responsible for the Project remains available according to 00150.40(b).
When Work is resumed after suspension, unless otherwise specified in the Contract, the Contractor shall perform the following at no additional compensation:

- Replace or repair any Work, Materials, and Equipment to be incorporated into the Work that was lost or damaged because of the temporary use of the Project Site by the public; and
- Remove Materials, Equipment, and temporary construction necessitated by temporary maintenance during the suspension, as directed by the Engineer.

(c) Compensation and Allowances for Suspension - Compensation and allowance of additional Contract Time due to suspension of any portion of the Work will be authorized only for Agency-initiated suspensions for reasons other than the Contractor's failure or neglect. (refer to 00180.50(e), 00180.65, and 00195.40)

00180.80 Adjustment of Contract Time:

(a) General - Contract Time established for the Work will be subject to adjustment, either by increase or decrease, for causes beyond the control of the Contractor, according to the terms of this Subsection. After adjustment, the Contract Time will become, and be designated as, the "Adjusted Contract Time". Except as provided in 00180.65 and 00195.40, an adjustment of Contract Time shall be the Contractor's only remedy for any delay arising from causes beyond the control of the Contractor.

(b) Contractor's Request Not Required - The Engineer may increase or decrease the Contract Time or the Adjusted Contract Time if Change Orders or Extra Work orders issued actually increase or decrease the amount of time required to perform the Work. The Engineer may also increase Contract Time in the event of Right-of-Way and Access delays (see 00180.65), and those delays due to causes beyond the Contractor's control specified in 00180.50(e). The Engineer will promptly inform the Contractor of adjustments made to Contract Time according to this Subsection, and will include the reasons for adjustment.

If the Agency anticipates delay during performance of the Contract, and specifies its expected duration and time period in the Special Provisions, the Engineer will only consider additional delay beyond the stipulated duration and time period in determining whether to adjust Contract Time.

(c) Contractor's Request Required - In the event the Contractor believes that additional Contract Time is due, the Contractor shall submit to the Engineer a timely request for adjustment of Contract Time. The Engineer will not consider untimely requests. The Agency regards as timely only those requests for adjustment of Contract Time that:

- Accompany a proposed revised Project Work schedule submitted according to 00180.41, for comparison with the last revision of the Project Work schedule; or
- Are not otherwise deemed waived and are submitted within 15 Days after the date of Second Notification, if Second Notification has been issued.

The Engineer will not grant an adjustment of Contract Time for events that occurred prior to the date of the last revision of the Project Work schedule. The Engineer will not authorize, nor the Agency pay, acceleration costs incurred by the Contractor prior to its submittal of a request for adjustment of Contract Time to which the acceleration costs relate.

The Contractor's request for adjustment of Contract Time shall be submitted to the Engineer on a form provided by, or in a format acceptable to, the Engineer, and shall include a copy of the written notice required under 00180.60. The request shall include without limitation:

- Consent of the Contractor's Surety if the request totals more than 30 Calendar Days of additional Contract Time;
Sufficient detail for the Engineer to evaluate the asserted justification for the amount of additional Contract Time requested;

The cause of each delay for which additional Contract Time is requested, together with supporting analysis and data;

Reference to the Contract provision allowing Contract Time adjustment for each cause of delay;

The actual or expected duration of delay resulting from each cause of delay, expressed in Calendar Days; and

A schedule analysis based on the current approved Project Work schedule for each cause of delay, indicating which activities are involved and their impact on Contract completion.

(d) Basis for Adjustment of Contract Time - In the adjustment of Contract Time, the Engineer will consider causes that include, but are not limited to:

- Failure of the Agency to submit the Contract and bond forms to the Contractor for execution within the time stated in 00130.50, or to submit the Notice to Proceed within the time stated in 00130.90;
- Errors, changes, or omissions in the Supplemental Drawings, quantities, or Specifications;
- Performance of Extra Work;
- Failure of the Agency or Entities acting for the Agency to act promptly in carrying out Contract duties and obligations;
- Acts or omissions of the Agency or Entities acting for the Agency that result in unreasonable delay referenced in 00195.40;
- Causes cited in 00180.50(e); and
- Right-of-way and access delays referenced in 00180.65.

The Engineer will not consider requests for adjustment of Contract Time based on any of the following:

- Contentions that insufficient Contract Time was originally specified in the Contract;
- Delays that do not affect the specified or Adjusted Contract Time;
- Delays that affect the Contractor's planned early completion, but that do not affect the specified or adjusted Contract Time;
- Shortage or inadequacy of Materials, Equipment or labor;
- Work stoppage required by the Engineer to determine the extent of Work defects
- Time for the Contractor to correct the Work defects from date of notification of the defects until the correction work is completed and has been approved by the Engineer.
- Late delivery of Materials and Equipment to be incorporated into the Work, except under those conditions referenced in 00180.50(e);
- Different area of Material source in 00160.40(a);
- Substitution of Equipment in 00180.31(c);
- Reasonably predictable weather conditions; or
- Other matters within the Contractor's control or Contract responsibility.

(e) Consideration and Response by Agency - The Engineer will only consider a Contractor's request for Contract Time adjustment submitted according to the requirements of 00180.80(c). The Engineer may elect not to consider claimed delays that do not affect the specified or adjusted Contract Time required to complete the Work.
The Engineer may adjust Contract Time for causes not specifically identified by the Contractor in its request.

The Engineer will review a properly submitted request for Contract Time adjustment, and within a reasonable time will advise the Contractor of the Engineer's findings. If the Contractor disagrees with the Engineer's findings, the Contractor may request review according to the procedure specified in 00199.

00180.85 Failure to Complete on Time; Liquidated Damages:

(a) Time is of the Essence - Time is of the essence in the Contractor's performance of the Contract. Delays in the Contractor's performance of the Work may inconvenience the traveling public, interfere with business and commerce, and increase cost to the Agency. It is essential and in the public interest that the Contractor prosecute the Work vigorously to Contract completion.

The Agency does not waive any rights under the Contract by permitting the Contractor to continue to perform the Contract, or any part of it, after the Contract Time or adjusted Contract Time has expired.

(b) Liquidated Damages - The Agency will sustain damage if the Work is not completed within the specified Contract Time. However, in certain Agency projects it may be unduly burdensome and difficult to demonstrate the exact dollar value of such damages. The Agency will identify such projects in the Special Provisions related to them. In these projects, the Contractor agrees to pay to the Agency, not as a penalty but as liquidated damages, the amount specified in the Special Provisions for each Calendar Day that expires after the Substantial Completion date, and after Substantial Completion, if Contractor neglects, refuses or fails to complete the remaining work within the Contract Time or adjusted Contract Time.

Payment by the Contractor of liquidated damages does not release the Contractor from its obligation to fully and timely perform the Contract according to its terms. Nor does acceptance of liquidated damages by the Agency constitute a waiver of the Agency's right to collect any additional damages it may sustain by reason of the Contractor's failure to fully perform the Contract according to its terms. The liquidated damages shall constitute payment in full only of damages incurred by the Agency due to the Contractor's failure to complete the Work on time.

If the Contract is terminated according to 00180.90(a), and if the Work has not been completed by other means on or before the expiration of Contract Time or adjusted Contract Time, liquidated damages will be assessed against the Contractor for the duration of time reasonably required to complete the Work.

00180.90 Termination of Contract and Substituted Performance:

(a) Termination for Default - Termination of the Contract for default may result if the Contractor:

- Fails to comply with the requirements for records;
- Violates any material provision of the Contract;
- Disregards applicable laws and regulations or the Engineer's instructions;
- Refuses or fails to supply enough Materials, Equipment or skilled workers for prosecution of the Work in compliance with the Contract;
- Fails to make prompt payment to Subcontractors;
- Makes an unauthorized general assignment for the benefit of the Contractor's creditors;
- Has a receiver appointed because of the Contractor's insolvency;
- Is adjudged bankrupt and the court consents to the Contract termination; or
- Otherwise fails or refuses to faithfully perform the Contract according to its terms and conditions.
If the Contract is terminated by the Agency, upon demand the Contractor and, if applicable, the Contractor's Surety shall provide the Engineer with immediate and peaceful possession of the Project Site, and of all Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50.

If the Contract is terminated for default, neither the Contractor nor its Surety shall be:

- Relieved of liability for damages or losses suffered by the Agency because of the Contractor's breach of Contract; or
- Entitled to receive any further progress payments until the Work is completed. However, progress payments for completed Work that remain due and owing at the time of Contract termination may be made according to the terms of 00195.50, except that the Engineer will be entitled to withhold sufficient funds to cover costs incurred by the Agency as a result of the termination. Final payment to the Contractor will be made according to the provisions of Subsection 00195.70.

If a termination under this provision is determined to be unjustified, the termination shall be deemed a termination for public convenience.

(b) Substituted Performance - According to the Agency's procedures, and upon the Engineer's recommendation that sufficient cause exists, the Agency, without prejudice to any of its other rights or remedies and after giving the Contractor and the Contractor's Surety 10 Calendar Days' written notice, may:

- Terminate the Contract;
- Substitute the Contractor with another Entity to complete the Contract;
- Take possession of the Project Site;
- Take possession of Materials on the Project Site;
- Take possession of Materials not on the Project Site, for which the Contractor received progress payments under 00195.50;
- Take possession of Equipment on the Project Site that is to be incorporated into the Work;
- Take possession of Equipment not on the Project Site that is to be incorporated into the Work, and for which the Contractor received progress payments under 00195.50; and
- Finish the Work by whatever method the Agency deems expedient.

If, within the 10 Calendar Day notice period provided above, the Contractor and/or its Surety corrects the basis for declaration of default to the satisfaction of the Engineer, or if the Contractor's Surety submits a proposal for correction that is acceptable to the Engineer, the Contract will not be terminated.

(c) Termination for Public Convenience - The Engineer may terminate the Contract for convenience in whole or in part whenever the Engineer determines that termination of the Contract is in the best interest of the public and for, but not limited to, the following reasons:

- If work under the Contract is suspended by an order of a public agency for any reason considered to be in the public interest other than by a labor dispute or by reason of any third party judicial proceeding relating to the Work other than a suit or action filed in regard to a labor dispute; or
- If the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the Contract; or;
- If Agency funding from federal, state, local, or other sources is not obtained and continued at levels sufficient to allow for the purchase of the indicated quantity of services. This Contract may be modified to accommodate a reduction in funds; or
If Federal or State regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this Contract,

The Engineer will provide the Contractor and the Contractor’s Surety seven Calendar Days' written notice of termination for public convenience. After such notice, the Contractor and, if applicable, the Contractor's Surety shall provide the Agency with immediate and peaceful possession of the Project Site, and of Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50.

Termination under any provision of this paragraph shall not affect any right, obligation, or liability of Contractor or Agency that accrued prior to such termination.

If the Contract is terminated for public convenience, neither the Contractor nor its Surety shall be relieved of liability for damages or losses suffered by the Agency as a result of defective, unacceptable or unauthorized Work completed or performed.

Compensation for Work terminated by the Engineer under this provision will be determined according to the provisions of 00195.70(b).
Section 00190 - Measurement of Pay Quantities

00190.00 Scope - The Engineer will measure pay quantities for accepted Work according to the United States standard measure unless otherwise provided in the Contract. Unless otherwise specified in the Contract, the Engineer will round off all quantity computations using the following convention:

- The final significant digit will not be changed when the succeeding digit is less than 5.
- The final significant digit will be increased by one when the succeeding digit is 5 or greater.

The measurement provisions contained in the Specifications for each Pay Item will supplement or modify the above convention by:

- Imposing measurement limitations
- Describing measurement or computation procedures
- Giving conversion factors or adjustment conditions
- Providing for determination of reasonably accurate and representative Pay Item quantities

Measurements required or allowed to be made by the Contractor will be subject to the Engineer's verification. The Engineer's decision about measurement is final.

00190.10 Measurement Guidelines - Measurement of quantities will be made on the following bases, unless otherwise specified in the Contract:

(a) Unit Basis - Unit will be each, unless otherwise specified in the Contract and will be determined by actual count of units in place.

(b) Length Basis - Length will be feet or mile, unless otherwise specified in the Contract and will be determined by measuring the length at least to the nearest 0.1 foot or at least to the nearest 0.1 mile, as applicable, unless otherwise specified in the Contract. Measurements will be limited to the dimensions shown or specified, or as directed by the Engineer.

(c) Area Basis - Area will be square foot, square yard, or acre, unless otherwise specified in the Contract and will be determined by measuring the width and the length (or height) at least to the nearest 0.1 foot and computed at least to the nearest 0.1 square foot, nearest 0.1 square yard, or nearest 0.1 acre, as applicable, unless otherwise specified in the Contract.

(d) Weight Basis - Weight will be pound or ton, unless otherwise specified in the Contract and will be determined as follows:

(1) Pound - Pound weight will be determined by the net weight identified on the manufacturer's packaged labels, subject to periodic check weighing. Weight by pound will be measured at least to the nearest 1.0 pound unless otherwise specified in the Contract.

Provide a certificate with each shipment together with a certified copy of the weight of each delivery. If the check weight is less than the manufacturer weight by more than 0.4%, the discrepancy will be resolved by the Engineer.

(2) Ton - Ton weight will be determined on Contractor-provided scales as required under 00190.20 unless otherwise allowed by the Specifications. Weight by ton will be measured at least to the nearest 0.01 ton unless otherwise specified in the Contract.

If bituminous materials, Portland cement, lime, and similar bulk Materials are shipped by truck or rail, the supplier's shipping invoice with net scale weights, or volumes converted to weights, may be used
for Pay Item quantity determination in place of weights determined on the Contractor-provided vehicle scales.

Shipping invoice weights of the supplier's truck or transport shall be subject to periodic check weighing on the Contractor's vehicle scales, or other scales designated, according to 00190.20. If the check weight is less than the supplier weight by more than 0.4%, the discrepancy will be resolved by the Engineer.

No payment will be made:

- For quantities in excess of the supplier weight
- When Materials have been lost, wasted, or otherwise not incorporated into the Work
- For additional hauling costs resulting from the check weighing

(e) Volume Basis - Volume will be cubic yard truck measure or in-place measure, gallons, foot board measure (FBM), or thousand foot board measure (MFBM), unless otherwise specified in the Contract and will be measured at least to the nearest 0.1 cubic yard, nearest 1.0 gallon, nearest 0.1 FBM, or nearest 0.1 MFBM, as applicable, unless otherwise specified in the Contract.

Truck measure will be the measured and calculated maximum "water level" capacity of the vehicle. Quantities will be determined at the point of delivery, with no allowance for settlement of Material during transit. When required to facilitate measurement, the vehicle load shall be leveled at the point of delivery. Payment will not be made for Material in excess of the maximum "water level" capacity. Deductions will be made for loads below the maximum "water level" capacity.

When bituminous materials are measured by volume, the volume will be measured at 60 °F or will be corrected to the volume at 60 °F using the correction factors found in the MFTP (ODOT TM 321).

(f) Time Basis - Time will be hour, Day, or year, unless otherwise specified in the Contract, and will be measured to at least the nearest 0.5 hour, nearest 1.0 Day, or nearest 1.0 year, as applicable, unless otherwise specified in the Contract.

(g) Standard Manufactured Items - If standard manufactured items, such as fence, wire, plates, rolled shapes, pipe, conduit and other similar items are specified in the Contract by properties such as gauge, unit weight, or section dimensions, the manufacturing tolerances established by the industry involved will be accepted unless more stringent tolerances are cited in the Contract.

(h) Lump Sum Basis – Lump sum, when used, means the Work described shall be completed and accepted without measurement unless changes are ordered in writing by the Engineer.

00190.20 Contractor to Provide Vehicle Weigh Scales:

(a) General - If the Specifications require measurement by weighing on vehicle weigh scales, the Contractor shall provide vehicle weigh scales and shall transport Materials to the scales. Subject to the Engineer's approval, weights may be determined by plant or hopper scales according to 00190.30.

Contractor-provided scales shall be furnished, installed and maintained by the Contractor or its supplier, or, subject to the Engineer's approval, may be commercial scales located in the vicinity of the Project.

Unless otherwise provided in the Contract, Pay Items to be measured by weight shall include all Contractor costs for providing, maintaining, inspecting, and testing scales; for furnishing appropriate weigh tickets; for self-printing scales; and for transporting Materials to the scales or to check weighing.
(b) **Requirements** - The scales shall conform to ORS 618, or the laws of the state in which they are located, and NIST Handbook 44, and shall be:

- Licensed by the Oregon Department of Agriculture, or by the analogous regulatory body for scales located outside the State;
- Technically suitable for weighing the Materials;
- Properly installed and maintained; and
- Accurate to the required tolerances.

The weight of any Materials weighed by anyone other than the Engineer will be subject to check weighing as the Engineer directs.

(c) **Approaches** - Vehicle scale approaches shall be:

- At each end of the scale platform;
- Straight and in line with the platform; and
- Long enough to accommodate combination vehicles longer than the scale platform so that they are level and allow release of brakes before weighing.

(d) **Inspections** - Contractor shall have all scales certified, that is inspected and their accuracy tested, by the Oregon Department of Agriculture, an analogous regulatory body for scales located outside the State, or a scale service company as follows:

- Before use if installed at a new site;
- 60 Calendar Days after initial inspection;
- Every six months thereafter; and
- When the Engineer directs additional inspections.

No Materials weighed on scales without current certifications according to this Subsection will be accepted. The Contractor shall provide a copy of all required certifications to the Engineer.

Testing by a scale service company within the State of Oregon shall comply with ORS 618.

If additional inspections directed by the Engineer confirm that the scale accuracy is within the required tolerances, the Agency will pay the cost for inspecting and testing the scales. If the scale accuracy is not within these tolerances, the Contractor shall pay the cost for inspecting and testing the scales.

(e) **Inspection Results** - If an inspection indicates the scales have been under-weighing (indicating less than the true weight), the Agency will make no additional payment to the Contractor for Materials previously weighed.

If an inspection indicates the scales have been over-weighing (indicating more than the true weight), the weights will be reduced for Materials received after the time the Engineer determines the overweighing began or, if that is not possible, after the last acceptable certification of the scales. The reduction will be the amount of error in excess of the 0.2% maintenance tolerance allowed in the Contract.

(f) **Contractor-Provided Weigh Technician** - The Contractor shall provide a technician to operate Contractor-provided vehicle weigh scales. The Agency may observe procedures and require check weighing according to the following:

(1) **Scale with Automatic Printer** - If the scales have an automatic weigh memo printer that does not require manual entry of gross weight information, the Agency may periodically have a representative at
the scales to observe the weighing procedures. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

If a different scale is not available within a 30 mile round trip from the regular haul route the Agency will allow check weighing on an approved alternate basis. Check weights within 0.4% of the Contractor-provided weight are acceptable.

The Engineer will resolve discrepancies found by check weighing. Agency employee costs will be paid by the Agency. The Contractor shall pay all other costs resulting from the check weighings, including without limitation the use of other scales.

If more than 50 tons per Day of all types of Materials are received from a scale, the Contractor shall make random check weighings at least every tenth Day on which more than 50 tons is received or at each interval that 10,000 tons has been weighed, whichever occurs first, or as directed by the Engineer. The Contractor shall make at least one check weighing on projects where more than 2,000 tons of all types of Materials are received from a scale. The Contractor shall provide the Engineer with the results of the check weighing.

(2) Scale Without Automatic Printer –

If the scales require manual entry of gross weight information, the Agency may periodically have a representative weigh witness at the scales to observe the weighing procedures. The Contractor shall inform the Engineer of his intent to use a scale without an automatic printer at least three working Days before weighing begins or before the Contractor changes to a scale that does not have an automatic printer. The Contractor shall pay costs for the weigh witness. The hourly cost of the weigh witness will be as stated in the Special Provisions. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

If a different scale is not available within a 30 mile round trip from the regular haul route the Agency will allow check weighing on an approved alternate basis. Check weights within 0.4% of the Contractor-provided weight are acceptable.

The Engineer will resolve discrepancies found by check weighing. Agency employee costs for check weighings will be paid by the Agency. The Contractor shall pay all other costs resulting from the check weighings, including without limitation the use of other scales.

If more than 50 tons per Day of all types of Materials are received from a scale, the Contractor shall make random check weighings at least every tenth day on which more than 50 tons is received or at each interval that 10,000 tons has been weighed, whichever occurs first, or as directed by the Engineer. The Contractor shall make at least one check weighing on all projects where materials are received from a scale without an automatic printer. The Contractor shall provide the Engineer with the results of the check weighing.

(3) Duties of Weigh Technician - The Contractor’s weigh technician shall:

- Determine twice a Day, or as otherwise directed by the Engineer, the empty haul weights (tare weights) of hauling vehicles, unless vehicles are tared before each load;
- Furnish daily a listing of the tare weights if 10 or more loads are hauled during that Day;
- Furnish a note listing the net weight for each consecutive ten loads with the following load;
- Furnish a daily listing of the net weights and total weight for each type of Material hauled during that Day; and
Furnish a legible, serially numbered weigh memo for each load of Materials to the Agency's Materials receiver at the point of delivery, or as directed by the Engineer. The memo shall identify the Project, the Materials, the date, net weight (gross and tare as appropriate), and identification of vehicle, driver and weigh technician.

(g) **Agency-Provided Weigh Technician** – If the Contractor provides vehicle weigh scales without a weigh technician meeting the requirements of this Subsection, the Agency will provide a weigh technician at the Contractor's expense. The hourly cost for the weigh technician will be as stated in the Special Provisions. The Contractor shall provide a weighhouse for the weigh technician according to Section 00205. The Agency's weigh technician will:

- Determine tare weights;
- Prepare weigh memos for each load;
- Compile the weigh records; and
- Not participate in the production of Materials or the loading of haul vehicles.

**00190.30 Plant Scales** - The Contractor, with the Engineer's written approval, may weigh plant-mixed Materials on scales that have either:

- An automatic weight batching and mixing control printer system; or
- A weigh hopper printer system.

Any additional costs resulting from the use of these scales shall be borne by the Contractor. Check weighing will be done according to 00190.20(f).

Except for 00190.20(c) regarding approaches, the Contractor's use of plant scales shall comply with all provisions of 00190.20.

The Engineer's approval for the Contractor's use of plant scales to determine pay weights will be rescinded if check weighing or scale inspections indicate the scales do not consistently determine weights within the tolerances allowed by state law.
Section 00195 - Payment

00195.00 Scope and Limit:

(a) General - The Agency will pay only for measured Pay Item quantities incorporated into the Work or performed according to the terms of the Contract. The Contractor understands and agrees that Pay Item quantities listed in the Schedule of Items do not govern payment.

Payment constitutes full compensation to the Contractor for furnishing all Materials, Equipment, labor, and Incidents necessary to complete the Work; and for risk, loss, damage, and expense arising from the nature or prosecution of the Work or from the action of the elements, subject to the provisions of 00170.80. The Contractor shall include the costs of bonds and insurance for the Project in the unit price for each Pay Item of Work to be performed.

(b) Essential or Incidental Materials or Work - When the Specifications state that the unit price for a Pay Item is compensation for certain Materials or Work essential or Incidental to the Pay Item, the same Materials or Work will not be measured or paid under any other Pay Item.

00195.10 Payment For Changes in Materials Costs - On certain projects, as identified in the Special Provisions, an escalation/de-escalation clause with respect to asphalt cement will be in effect during the life of the Contract.

00195.13 Asphalt Cement Material Price Escalation/De-Escalation Clause - Subsections 00195.13, 00195.13(a), 00195.13(b), 00195.13(c), and 00195.13(d) contain the price escalation/de-escalation clause relating to asphalt cement materials (as defined in 00195.13(d)).

(a) Monthly Asphalt Cement Material Price (MACMP) – The Monthly Asphalt Cement Material Price (MACMP) will be established by the Agency each month and will be based on the published prices of PG 64 22 asphalt cement furnished by Poten & Partners, Inc. The MACMP will be based on the average prices for the Pacific Northwest, Portland Oregon area. Each MACMP for a given month will be the average of the published prices for that MACMP for each Friday in that month. For information regarding the calculation of the MACMP, and for the actual MACMP, go to the ODOT website at: http://www.oregon.gov/ODOT/HWY/ESTIMATING/asphalt_fuel.shtm

If the ODOT selected index ceases to be available for any reason, the Agency in its discretion will select and begin using a substitute price source or index to establish the MACMP each month. The MACMP will apply to all asphalt cement including but not limited to paving grade, polymer modified, and emulsified asphalts, and recycling agents. The Agency does not guarantee that asphalt cement will be available at the MACMP.

(b) Base Asphalt Cement Material Price (Base) - The Base price for this Project is the MACMP published on the ODOT website for the month immediately preceding the bid opening date.

(c) Monthly Asphalt Cement Adjustment Factor - The Monthly Asphalt Cement Adjustment Factor will be determined each month as follows:

- If the MACMP is within ± 5% of the Base, there will be no adjustment.
- If the MACMP is more than 105% of the Base, then:
  
  \[ \text{Adjustment Factor} = (\text{MACMP}) - (1.05 \times \text{Base}) \]

- If the MACMP is less than 95% of the Base, then:
  
  \[ \text{Adjustment Factor} = (\text{MACMP}) - (0.95 \times \text{Base}) \]
(d) **Asphalt Cement Price Adjustment** – If specified in the Special Provisions, an asphalt cement escalation/de-escalation clause will be in effect during the life of the Contract. A price adjustment will be made for each pay item in the bid schedule containing asphalt cement. The price adjustment as calculated in 00195.13(c) above will use the MACMP for the month the asphalt is incorporated into the Project. The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision shall not limit those rights.

**00195.20 Changes to Plans or Character of Work:**

(a) **Insignificant Changed Work** - If the changes made under 00140.30 do not significantly change the character, quantity or unit cost of the Work to be performed under the Contract, the Agency will pay for such work at the Pay Item price.

(b) **Significant Changed Work** - If the changes made under 00140.30 significantly alter the character, unit cost, or lump sum cost of the Work, the Agency will adjust the Contract. The Contractor shall not be entitled to compensation for any loss in profits resulting from elimination of, reduction of, or other change to, a part of the Work.

Any such adjustments may be less than, but will not be more than the amount justified by the Engineer on the basis of the established procedures set out in Section 00197 for determining rates for Extra Work, but those procedures shall account for the decrease or elimination of Work as well as for increases in the Work. This does not limit the application of Section 00199.

The term “Significant Changed Work” shall apply only to that circumstance in which the character of the Work, as changed, differs materially in kind, nature, or unit cost from that involved or included in the originally proposed construction.

For purposes of this Section, “Significant” is defined as:

a) An increase or decrease of more than 25 percent of the total cost of the Work calculated from the original proposal quantities and the unit contract prices; or,

b) An increase or decrease of more than 25 percent in the quantity of any one major contract item.

For condition b) above, a major item is defined as any item that amounts to 10 percent or more of the original total contract price.

**00195.30 Differing Site Conditions** - Upon written notification, as required in 00140.40, the Engineer will investigate the identified conditions. If the Engineer determines that the conditions are differing Project site conditions under 00140.40 and cause an increase or decrease in the cost or time required to perform any Work under the Contract, an adjustment in the Contract Amount or Contract Time, excluding loss of anticipated profits, will be made, and the Contract modified accordingly, in writing. The Engineer will notify the Contractor as to whether or not an adjustment of the Contract is warranted.

No Contract adjustment which benefits the Contractor will be allowed unless the Contractor has provided the required written notice. Any such adjustments will be made according to 00195.20.

**00195.40 Unreasonable Delay by the Agency** - If the Contractor believes that performance of all or any portion of the Work is suspended, delayed, or interrupted for an unreasonable period of time in excess of that originally anticipated or customary in the construction industry, due to acts or omissions of the Agency, or persons acting for the Agency, and that additional compensation, Contract Time, or both, are due the Contractor because of the suspension, delay or interruption, the Contractor shall immediately file a written notice of delay according to 00180.60. The Contractor shall then promptly submit a properly supported request for any additional compensation, Contract Time, or both, according to the applicable provisions in 00180.60 through 00180.80 and Section 00199.
The Engineer will promptly evaluate a properly submitted request for additional compensation. If the Engineer determines that the delay was unreasonable, and that the cost required for the Contractor to perform the Contract has increased as a result of the unreasonable suspension, delay or interruption, the Engineer will make an equitable adjustment, excluding profit, and modify the Contract in writing accordingly. The Engineer will notify the Contractor of the determination and whether an adjustment to the Contract is warranted.

Under this provision, no Contract adjustment will be allowed:

- Unless the Contractor has provided the written notice required by 00180.60;
- For costs incurred more than 10 Calendar Days before the Engineer receives the Contractor's properly submitted written request;
- For any portion of a delay that the Engineer deems to be a reasonable delay, or for which an adjustment is provided for or excluded under other terms of the Contract; or
- To the extent that performance would nevertheless have been suspended, delayed or interrupted by causes other than those described in this Subsection.

**00195.50 Progress Payments and Retained Amounts:**

(a) **Progress Payments** - The Agency’s payment of progress payments, or determination of satisfactory completion of Pay Items or Work or release of retainage under 00195.50(d), shall not be construed as Final Acceptance or approval of any part of the Work, and shall not relieve the Contractor of responsibility for defective Materials or workmanship or for latent defects and warranty obligations.

The estimates upon which progress payments are based are not represented to be accurate estimates. All estimated quantities are subject to correction in the final estimate. If the Contractor uses these estimates as a basis for making payments to Subcontractors, the Contractor assumes all risk and bears any losses that result.

Progress payments shall be determined through the use of forms developed by the Engineer.

(1) **Progress Estimates** - At the same time each month, the Engineer will make an estimate of the amount and value of Pay Item Work completed. The amount of Work completed will be the sum of the estimated number of units completed for unit price Pay Items plus the estimated percentage completed of lump sum Pay Items.

The estimated value of the Work completed will be determined by using the Contract unit price for unit price Pay Items, and by using one of the following methods to determine the value of the lump sum Pay Items:

- A Contractor-submitted, Engineer-approved Schedule of Values; or
- Engineer’s determination, when there is no approved, Contractor-submitted Schedule of Values.

The amounts to be allowed for lump sum Pay Items in progress payments will not exceed the reasonable value of the Work performed, as determined by the Engineer.

Incidentals such as formwork, falsework, shoring, and cribbing shall be included in the unit prices for the various Pay Items requiring their use, unless specified as a separate Pay Item. No payment will be made for Pay Items that include Incidentals until units or portions of such Pay Item Work are in place and completed. The costs of Incidentals will be paid in proportion to the percentage of Pay Item Work completed.

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(2) Limitations on Value of Work Completed - In determining the "value of Work completed", the Engineer's estimate will be based on the unit prices for the various Pay Items. Any amounts not included in progress payments due to substantial mathematical unbalancing of Pay Item prices will be included in the final payment issued according to 00195.90(b).

(3) Reductions to Progress Payments - With each progress payment, the Contractor will receive a Contract payment voucher and summary setting forth the value of Work accomplished reduced by the following:

- Amounts previously paid;
- Amounts deductible or owed to the Agency for any cause specified in the Contract;
- Additional amounts retained to protect the Agency's interests according to Subsection (e) below.

(b) Retainage - The amount to be retained from progress payments will be 5% of the value of Work accomplished, and will be retained in one of the forms specified in Subsection (c) below.

As provided in 00170.65(a) additional retainage of 25% of amounts earned will be withheld and released according to ORS 279C.845 when the Contractor fails to file the certified statements required in ORS 279C.845, FHWA Form 1273, and 00170.65.

(c) Forms of Retainage - Moneys retained by the Agency under ORS 279C.570(7) shall be retained in a fund by the Agency and paid to the Contractor in accordance with ORS 279C.570. Upon written request from the Contractor, other forms of acceptable retainage are specified below in Subsections (1) through (3). "Cash, Alternate A" is the Agency-preferred form of retainage. If the Agency incurs additional costs as a result of the Contractor's election to use a form of retainage other than Cash, Alternate A, the Agency may recover such costs from the Contractor by a reduction of the final payment.

(1) Cash, Alternate A - Retainage will be deducted from progress payments and held by the Agency until final payment is made according to 00195.90, unless otherwise specified in the Contract.

The Agency will deposit the cash retainage withheld in an interest-bearing account in a bank, trust company, or savings association for the benefit of the Agency, as provided by ORS 279C.560(5). Interest earned on the account shall accrue to the Contractor. Amounts retained and interest earned will be included in the final payment made according to 00195.90.

Any retainage withheld on Work performed by a Subcontractor will be released to the Contractor according to 00195.50(d).

(2) Cash, Alternate B (Retainage Surety Bond) - Upon receipt of an approved retainage surety bond, the Agency will limit the amount of cash retainage withheld to $10,000. The surety bond must be in the bond form provided by the Agency. The bond must be provided by the same Surety that provides the Performance and Payment Bonds.

If the Contractor elects this form of retainage, the Agency will withhold from progress payments up to 5% of the value of the Work accomplished as cash retainage until the retained amount equals $10,000. After that amount is retained, no further cash retainage will be withheld until the additional required retainage that would have been withheld exceeds the face amount of the retainage surety bond provided. Thereafter, retainage will be withheld from progress payments according to these Specifications. According to 00195.50(b), if at any time the Agency determines that satisfactory progress is not being made on the Work, the Agency may withhold up to 5% of the value of the Work accomplished from subsequent progress payments.

If an acceptable retainage surety bond is provided, the Contractor shall notify all Subcontractors of the existence of the retainage surety bond and shall advise them of their rights under ORS 279C.560(7) and ORS 701.435.
Amounts of retainage withheld under the provision will be included in the final payment according to 00195.90.

Any retainage withheld on Work performed by a Subcontractor shall be released to the Contractor according to 00195.50(d).

(3) Bonds, Securities, and Other Instruments - In accordance with ORS 279C.560, unless the Agency finds in writing that accepting a bond, security or other instrument poses an extraordinary risk that is not typically associated with the bond, security or other instrument, the Agency will approve the Contractor's written request to deposit bonds, securities or other instruments with the Agency or in a custodial account or other account satisfactory to the Agency with an approved bank or trust company, to be held instead of cash retainage for the benefit of the Agency. In such event, the Agency will reduce the cash retainage by an amount equal to the value of the bonds, securities and other instruments. Interest or earnings on the bonds, securities and other instruments shall accrue to the Contractor.

Bonds, securities and other instruments deposited instead of cash retainage shall be assigned to or made payable to the Agency and shall be of a kind approved by the Director of the Oregon Department of Administrative Services, including but not limited to:

- Bills, certificates, notes or bonds of the United States;
- Other obligations of the United States or agencies of the United States;
- Obligations of a corporation wholly owned by the federal government;
- Indebtedness of the Federal National Mortgage Association;
- General obligation bonds of the State of Oregon or a political subdivision of the State of Oregon;
- Irrevocable letters of credit issued by an insured institution, as defined in ORS 706.008.

The Contractor shall execute and provide such documentation and instructions respecting the bonds, securities and other instruments as the Agency may require to protect its interests. When the Engineer determines that all requirements for the protection of the Agency’s interest have been fulfilled, the bonds and securities deposited instead of cash retainage will be released to the Contractor.

(d) Reduction of Retainage - As the Work progresses, the amounts to be retained under (b) of this Subsection are subject to reduction in the Engineer's sole discretion. Retainage reductions will be considered only as follows:

- When the Work is 97.5% or more completed, the Engineer may, without application by the Contractor, reduce the retained amount to 100% of the value of the Work remaining.
- For a project funded by the FHWA, when a subcontractor has satisfactorily completed all of its Work, it may request release of retainage for that Work from the Contractor. The Contractor shall request reduction of retainage in the amount withheld for the subcontractor's Work after certifying to the Agency that the subcontractor's Work is complete, and that all contractual requirements pertaining to the subcontractor's Work have been satisfied. Within 60 Calendar Days of the end of the month in which the Agency receives the Contractor's certification regarding the subcontractor's Work, the Agency will either notify the Contractor of any deficiencies which require completion before release of retainage, or verify that the subcontractor's Work complies with the Contract and release all retainage for that Work with the next scheduled progress payment. Within 10 Calendar Days of receipt of retainage, the Contractor shall pay to the subcontractor all such retainage released except for latent defects or warranty.
- The Agency will only release retainage for satisfactorily completed portions of the Work represented by Pay Items in the Schedule of Items, or by Pay Items added by Change Order.
Work not represented by a Pay Item, but which constitutes part of an uncompleted Pay Item, will not be regarded as satisfactorily completed Work for the purposes of this Subsection.

If retainage has been reduced or eliminated, the Agency reserves the right to protect its interests by retaining amounts from further progress payments at the rates provided in 00195.50(b).

(e) Withholding Payments – In addition to any other rights the Agency may have to withhold payments under other provisions of the Contract, the Engineer may withhold such amounts from progress payments or final payment as may reasonably protect the Agency's interests until the Contractor has:

- Completed all Final Trimming and Cleanup according to 00140.90 and Punch List work according to 00150.90(a). An amount of up to twice the Engineer’s estimated value of Final Trimming and Cleaning and Punch List work may be withheld.
- Complied with all orders issued by the Engineer according to the Specifications; and
- Satisfied all legal actions filed against the Agency, the Agency's governing body and its members, and Agency employees that the Contractor is obliged to defend. (see 00170.72)

Notwithstanding ORS 279C.555 or ORS 279C.570 or 00195.50(d), if a Contractor is required to file statements on the prevailing rate of wages, but fails to do so, the Agency will retain 25% of any amount earned as required in 00170.65.

(f) Prompt Payment Policy - Payments shall be made promptly according to ORS 279C.570.

00195.70 Payment under Terminated Contract - Payment for Work performed under a Contract that is terminated according to the provisions of 00180.90 will be determined under (a) or (b) of this Subsection.

(a) Termination for Default - Upon termination of the Contract for the Contractor's default, the Agency will make no further payment until the Project has been completed. The Agency will make progress payments to the party to whom the Contract is assigned, but may withhold an amount sufficient to cover anticipated Agency costs, as determined by the Engineer, to complete the Project.

Upon completion of the Project, the Engineer will determine the total amount that the defaulting Contractor would have been entitled to receive for the Work, under the terms of the Contract, had the Contractor completed the Work (the "cost of the completed Work").

If the cost of the completed Work, less the sum of all amounts previously paid to the Contractor, exceeds the expense incurred by the Agency in completing the Work, including without limitation expense for additional managerial and administrative services, the Agency will pay the excess to the Contractor, subject to the consent of the Contractor's Surety.

If the expense incurred by the Agency in completing the Work exceeds the Contract Amount, the Contractor or the Contractor's Surety shall pay to the Agency the amount of the excess expense.

The Engineer will determine the expense incurred by the Agency and the total amount of Agency damage resulting from the Contractor’s default. That determination will be final as provided in 00150.00.

If a termination for default is determined by a court of competent jurisdiction to be unjustified, it shall be deemed a termination for public convenience, and payment to the Contractor will be made as provided in Subsection (b) below.

(b) Termination for Public Convenience:

(1) General - Full or partial termination of the Contract shall not relieve the Contractor of responsibility for completed or performed Work, or relieve the Contractor's Surety of the obligation for any just claims arising from the completed or performed Work.
(2) **Mobilization** - If mobilization is not a separate Pay Item, and payment is not otherwise provided for under the Contract, the Agency may pay the Contractor for mobilization expenses, including moving Equipment to and from the Project Site. If allowed, payment of mobilization expenses will be based on cost documentation submitted by the Contractor to the Engineer.

(3) **All Other Work** - The Agency shall pay the Contractor at the unit price for the number of Pay Item units of completed, accepted Work. For units of Pay Items partially completed, payment will be as mutually agreed, or, if not agreed, as the Engineer determines to be fair and equitable. No claim for loss of anticipated profits will be allowed. The Agency will purchase Materials left on hand according to 00195.80.

**00195.80 Allowance for Materials Left on Hand:**

(a) **Purchase of Unused Materials** - If Materials are delivered to the Project Site, or otherwise acceptably stored at the order of the Engineer, but not incorporated into the Work due to complete or partial elimination of Pay Items, changes in Plans, or termination of the Contract for public convenience according to 00180.90, and it is not commercially feasible for the Contractor to return them for credit or otherwise dispose of them on the open market; the Agency will purchase them according to the formula and conditions specified in Subsection (b) below.

(b) **Purchase Formula and Conditions:**

(1) **Formula** - The Agency will apply the following formula in determining the Contractor's allowance for Materials left on hand:

Contractor's Actual Cost, plus 5% Overhead Allowance, minus Advance Allowances under 00195.60, but no markup or profit.

(2) **Conditions** - The Agency will not purchase the Contractor's Materials left on hand unless the Contractor satisfies the following conditions:

- Requests the Agency's purchase of unused Materials;
- Shows acquisition of the Materials according to 00160.10;
- Shows that the Materials meet Specifications;
- Provides receipts, bills and other records of actual cost of Materials delivered to the designated delivery points; and
- Demonstrates to the satisfaction of the Engineer that the materials cannot be returned for credit or otherwise disposed of on the open market.

**00195.90 Final Payment:**

(a) **Final Estimate** - As soon as practicable after Final Inspection of the Project, as provided in 00150.90, the Engineer will prepare a final estimate of the quantities of the Pay Items completed. With this estimate of quantities as a base, the total amount due the Contractor will be determined according to the terms of the Contract including without limitation any amounts due for Extra Work performed.

(b) **Final Payment** - The amount of final payment will be the difference between the total amount due the Contractor and the sum of all payments previously made. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If Contractor is a Foreign Contractor, the Contractor shall promptly report to the Oregon Department of Revenue on forms provided by the Department of Revenue, the Contract Price, terms of payment, Contract duration and such other information as the Department of Revenue may require before final...
payment can be made on the Contract. A copy of the report shall be forwarded to the Engineer. [OAR 137-049-0490].

After computation of the final amount due, and after Engineer's issuance of the Third Notification, final payment will be mailed to the Contractor's last known address as shown in the records of the Agency.

Beginning 30 Calendar Days after the date of Third Notification, interest will begin to accrue at the rate established by ORS 279C.570 on any money due and payable to the Contractor as final payment, determined as described above. No interest will be paid on money withheld due to outstanding amounts owed by the Contractor under the provisions of 00170.10.

(c) No Waiver of Right to Make Adjustment - The fact that the Agency has made any measurement, estimate, determination or certification either before or after completion of the Project, Final Acceptance, Agency assumption of possession of the Project Site, determination of satisfactory completion of Pay Items or Work or release of retainage under 00195.50(d) or payment for any part of the Work, shall not prevent either party from:

- Showing the true amount and character of the Work;
- Showing that any measurement, estimate, determination or certification is incorrect;
- Recovering from the other party damages that may have been suffered because the other party failed to comply with the Contract.

(d) Evidence of Contractor Payments – As a condition of final payment, the Engineer may require the Contractor to submit evidence, satisfactory to the Engineer, that all payrolls, material bills, and other indebtedness connected with the project have been paid, except that in case of any disputed indebtedness or liens, the Contractor may submit in lieu of evidence of payment, a surety bond satisfactory to the Agency guaranteeing payment of all such disputed amounts when adjudicated in cases where such payment has not already been guaranteed by surety bond.

00195.95 Error in Final Quantities and Amounts:

(a) Request for Correction of Compensation - If the Contractor believes the quantities and amounts detailed in the final Contract payment voucher, prepared by the Engineer according to 00195.90, to be incorrect, the Contractor shall submit an itemized statement to the Engineer detailing all proposed corrections.

This statement must be submitted to the Engineer within 90 Calendar Days from the date the voucher was mailed to the Contractor, according to 00195.90(b). Any request for compensation not submitted and supported by an itemized statement within the 90 Calendar Day period will not be paid by the Agency. This does not limit the application of Section 00199.

(b) Acceptance or Rejection of Request:

(1) Consideration of Request - The Engineer will consider and investigate the Contractor's request for correction of compensation submitted according to 00195.95(a), and will promptly advise the Contractor of acceptance or rejection of the request in full or in part.

(2) Acceptance of Request - If the Engineer accepts the Contractor's request(s) in full or in part, the Engineer will prepare a post-final Contract payment voucher, including all accepted corrections, and will forward it to the Contractor.

(3) Rejection of Request - If the Engineer rejects the request(s) in full, the Engineer will issue a written notice of rejection and mail it to the Contractor.
(4) Contractor Objection to Revised Voucher or Notice of Rejection - If the Contractor disagrees with the revised voucher or notice of rejection, the Contractor may seek review and resolution according to the procedure specified in 00199. If the Contractor fails to submit a request for 00199 review within 30 Calendar Days after the Engineer mails a post-final Contract payment voucher or notice of rejection, the Contractor waives all rights to a claim based on errors in quantities and amounts.

00195.96 Waiver of Claims

(a) The making and acceptance of final payment will constitute:

(1) A waiver of all Claims by Agency against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to 00150.90, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor’s continuing obligations under the Contract Documents; and

(2) A waiver of all Claims by Contractor against Agency other than those previously make in accordance with the requirements herein and expressly acknowledged by Agency in writing as still unsettled.
Section 00196 - Payment for Extra Work

00196.00 General - Only work not included in the Contract as awarded but deemed by the Engineer to be necessary to complete the Project (see 00140.60) will be paid as Extra Work. Regardless of alterations and changes, any item of Work provided for in the Contract will not constitute Extra Work. Payment for alterations and changes to Work will be made according to 00195.20.

Compensation for Extra Work will be paid only for Work authorized in writing by the Engineer and performed as specified. Work performed before issuance of the Engineer's written authorization shall be at the Contractor's risk. Extra Work will be paid as determined by the Engineer, according to 00196.10 and 00196.20.

00196.10 Negotiated Price - If the Engineer can reasonably determine a price estimate for Extra Work, the Engineer may then give written authorization to the Contractor to begin the Extra Work. As soon as practicable, but within 10 Calendar Days after that authorization, the Contractor shall respond in writing to the Engineer's Extra Work price estimate by submitting to the Engineer an Extra Work price quote. The price quote shall detail the following items related to the Extra Work:

- Types and amounts of Materials
- Hours of Equipment use and hours of labor
- Travel
- Overhead and profit
- Other costs associated with the proposed Extra Work

Pending approval of the price quote, the Engineer will maintain force account records of the Extra Work. As soon as practicable, but within 10 Calendar Days of receipt of a properly supported price quote, the Engineer will review the price quote and advise the Contractor if it is accepted or rejected. The Engineer will not accept a price quote that cannot be justified on a Force Account basis. If the Contractor's price is accepted, the Engineer will issue a Change Order, and the Extra Work will be paid at the accepted price.

00196.20 Force Account - If the Engineer and the Contractor cannot agree on a price for the Extra Work, the Engineer may issue a Force Account Work order requiring the Extra Work to be paid as Force Account Work. Force Account Work records and payment will be made according to Section 00197.
Section 00197 - Payment for Force Account Work

00197.00 Scope - The Materials, Equipment and Labor rates and procedures established in this Section apply only to Extra Work ordered by the Engineer to be performed as Force Account Work.

00197.01 Extra Work on a Force Account Basis - Before ordering Force Account Work, the Engineer will discuss the proposed work with the Contractor, and will seek the Contractor's comments and advice concerning the formulation of Force Account Work specifications. The Engineer is not bound by the Contractor's comments and advice, and has final authority to:

- Determine and direct the Materials, Equipment and Labor to be used on the approved Force Account Work; and
- Determine the time of the Contractor's performance of the ordered Force Account Work.

Force account work performed by subcontractors will be measured and paid for on the same basis and in the same manner as force account work performed directly by the Contractor.

If the Engineer orders the performance of Extra Work as Force Account Work, the Engineer will record, on a daily basis, the Materials, Equipment, and Labor used for the Force Account Work during that day. The Engineer and the Contractor shall sign the record daily to indicate agreement on the Materials, Equipment, and Labor used for the Force Account Work performed on that day.

The following shall be reflected on the daily record:

- Materials used in the Force Account Work as directed by the Engineer, except those furnished and paid under rental rates for use of Equipment;
- Equipment that the Engineer considers necessary to perform the Force Account Work. Equipment hours will be recorded to the nearest quarter hour;
- Labor costs, including that of Equipment operators and supervisors in direct charge of the specific operations while engaged in the Force Account Work; and
- The Engineer's and Contractor's signatures confirming its accuracy.

00197.10 Materials:

(a) General - The Contractor will be paid for Materials actually used in the Force Account Work as directed by the Engineer, except for those furnished and paid for under rental rates included with the use of Equipment. Payments will be at actual cost, including transportation costs to the specified location, from the supplier to the purchaser, whether the purchaser is the Contractor, a Subcontractor, or other forces. All costs are subject to the provisions of this Subsection.

(b) Trade Discount - If a commercial trade discount is offered or available to the purchaser, it shall be credited to the Agency, even though the discount may not have actually been taken. The Agency will not take any discounts for prompt or early payment, whether or not offered or taken.

(c) Not Directly Purchased From Supplier - If Materials cannot be obtained by direct purchase from and direct billing by the supplier, the cost shall be considered to be the price billed to the purchaser less commercial trade discounts, as determined by the Engineer, but not more than the purchaser paid for the Materials. No markup other than actual handling costs will be permitted.

(d) Purchaser-Owned Source - If Materials are obtained from a supply or source wholly or partly owned by the purchaser, the cost shall not exceed the price paid by the purchaser for similar Materials furnished from that source on Pay Items, or the current wholesale price for the Materials delivered to the Project Site, whichever is lower.
00197.20 Equipment:

(a) **General** - Equipment approved by the Engineer to perform the Force Account Work will be eligible for payment at the established rates only during the hours it is operated or on standby if so ordered by the Engineer. Equipment hours will be recorded on the daily record to the nearest quarter hour.

Except as modified by these provisions, Equipment use approved by the Engineer will be paid at the rental rates given in the most current edition of the Rental Rate Blue Books for Construction Equipment ("Blue Book"), Volumes 1, 2, and 3, published by Penton Media, Inc., and available from EquipmentWatch (phone 1-800-669-3282).

(b) **Equipment Description** - On the billing form for Equipment costs, the Contractor shall submit to the Engineer sufficient information for each piece of Equipment and its attachments to enable the Engineer to determine the proper rental rate from the Blue Book.

(c) **Rental Rates (without Operator):**

1. **Rental Rate Formula** - Rental rates for Equipment will be paid on an hourly basis for Equipment and for attachments according to the following formula:

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

   Some attachments are considered "standard Equipment" and are already included in the monthly base rate for the Equipment. That information can be obtained from EquipmentWatch.

2. **Monthly Base Rate** - The monthly base rate used above for the machinery and for attachments represents the major costs of Equipment ownership, such as depreciation, interest, taxes, insurance, storage, and major repairs.

3. **Rate Adjustment Factor** – The rate adjustment factor used above will be determined by applying only the Model Year Adjustment to the Blue Book Rates. The Regional and User Defined Ownership/Operating Adjustments shall not apply.

4. **Hourly Operating Rate** - The hourly operating rate used above for the machinery and for attachments represents the major costs of Equipment operations, such as fuel and oil, lubrications, field repairs, tires or ground engaging components, and expendable parts.

5. **Limitations**

   If multiple attachments are included with the rental Equipment, and are not considered "standard Equipment", only the attachment having the higher rental rate will be eligible for payment, provided the attachment has been approved by the Engineer as necessary to the Force Account Work.

   Rental will not be allowed for small tools that have a daily rental rate of less than $5, or for unlisted Equipment that has a fair market value of $400 or less.

   The above rates apply to approved Equipment in good working condition. Equipment not in good working condition, or larger than required to efficiently perform the work, may be rejected by the Engineer or accepted and paid for at reduced rates.

(d) **Moving Equipment** - If it is necessary to transport Equipment located beyond the Project Site exclusively for Force Account Work, the actual cost to transport the Equipment to, and return it from, its On-Site Work location will be allowed as an additional item of expense. However, the return cost will not exceed the original delivery cost. These costs will not be allowed for Equipment that is brought to the Project Site for Force Account Work if the Equipment is also used on Pay Item or related Work.
If transportation of such Equipment is by common carrier, payment will be made in the amount paid for the freight. No markups will be allowed on common carrier transportation costs. If the Equipment is hauled with the Contractor’s own forces, transportation costs will include the rental rate of the hauling unit and the hauling unit operator’s wage. If Equipment is transferred under its own power, the rental rate allowed for transportation time will be 75% of the appropriate hourly rate for the Equipment, without attachments, plus the Equipment operator’s wage.

(e) Standby Time - If ordered by the Engineer, standby time will be paid at 40% of the hourly rental rate calculated according to this Subsection, excluding the hourly operating rate. Rates for standby time that are calculated at less than $1 per hour will not be paid. Payment will be limited to not more than 8 hours in a 24-hour period or 40 hours in a one week period. Standby Time provisions shall also apply to Section 00195 – Payment.

(f) Blue Book Omissions - If a rental rate has not been established in the Blue Book, the Contractor may:

- If approved by the Engineer, use the rate of the most similar model found in the Blue Book, considering such characteristics as manufacturer, capacity, horsepower, age and fuel type;
- Request EquipmentWatch to furnish a written response for a rental rate on the Equipment, which shall be presented to the Engineer for approval; or
- Request that the Engineer establish a rental rate.

(g) Outside Rental Equipment - If Contractor-owned or Subcontractor-owned Equipment is not available, and Equipment is rented from outside sources, payment will be based on the actual paid invoice. Approval of the Engineer to rent from outside sources must be obtained prior to renting the equipment.

If the invoice specifies that rental rate does not include fuel, lubricants, field repairs, and servicing, an amount equal to the Blue Book hourly operating cost may be added for those items that were excluded.

The Agency may reduce the payment when the invoice amount plus allowance is higher than the amount authorized under (c) through (f) of this Subsection.

The provisions of 00180.20(c) apply to owner-operated Equipment.

00197.30 Labor - The Contractor will be paid for all labor engaged directly on Force Account Work, including Equipment operators and supervisors in direct charge of the specific force account operations, as follows:

(a) Wages - The actual wages paid to laborers and supervisors, if those wages are paid at rates not more than those for comparable labor currently employed on the Project, or at the recognized, current, prevailing rates in the locality of the Project.

(b) Required Contributions - The actual cost of industrial accident insurance, unemployment compensation contributions, payroll transit district taxes, and social security for old age assistance contributions incurred or required under statutory law and these Specifications. The actual cost of industrial accident insurance is the National Council on Compensation Insurance (NCCI) rate for the assigned risk pool for the appropriate work class multiplied by the experience modification factor for the Contractor.

(c) Required Benefits - The actual amount paid to, or on behalf of, workers as per diem and travel allowances, health and welfare benefits, pension fund benefits, or other benefits when such other benefits are required by a collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the Project.
No overtime will be compensated unless authorized in advance of performing the Work by the Engineer.

00197.80 Percentage Allowances - To the Contractor's actual costs incurred, as limited in this Section 00197, amounts equal to a percentage markup of such costs will be allowed and paid to the Contractor as follows:

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<td>00197.10 Materials</td>
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<tr>
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<td>00197.30 Labor</td>
<td>22</td>
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When a Subcontractor performs ordered Force Account Work, the Contractor will be allowed a supplemental markup of 8% on each Force Account Work order.

These allowances made to the Contractor will constitute complete compensation for bonds, insurance, overhead, general and administrative expense, profit, and all other Force Account Work costs that were incurred by the Contractor, or by other forces that the Contractor furnished. No other reimbursement, compensation, or payment will be made.

00197.90 Billings - Billings for Force Account Work by the Contractor shall be submitted for the Engineer's approval on forms provided by the Agency or approved by the Engineer. Billings for Materials (other than Incidental items out of the inventory of the Contractor or Subcontractors), rental Equipment from sources other than the Contractor or Subcontractors, and Special Services, shall be accompanied by copies of invoices for the goods and services. The invoices shall be fully itemized showing dates, quantities, unit prices, and complete descriptions of goods and services provided. Invoices for amounts of $10 or less per invoice are not required, unless requested by the Engineer.

Costs included on the billings shall comply with 00197.01(a) and 00197.10 through 00197.40.

When a billing for Force Account Work has been paid at the Project level, no further corrections will be made because of further review if those corrections amount to less than $10.
Section 00199 - Disagreements, Protests, and Claims

00199.00 General - This Section details the process through which the parties agree to resolve any claims (including disagreements and protests). The Agency will not consider direct disagreements, protests, or claims from subcontractors, suppliers, or any other Entity not a party to the Contract.

00199.10 Engineer's Decision Required - All Claims, except those waived pursuant to 00195.96, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Agency or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

00199.20 Notices - Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer (Contractor Claim) or by the Agency to the Contractor (Agency Claim), and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of 00195 and 00197. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of 00180 and 00195. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this 00199.

00199.30 Engineer's Action: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

(a) deny the Claim in whole or in part,

(b) approve the Claim, or

(c) notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer’s sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

00199.40 Engineer's Inaction - In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

00199.50 Engineer's Decision - Engineer's written action under 00199.30 or denial pursuant to 00199.40 will be final and binding upon Agency and Contractor, unless Agency or Contractor invoke the dispute resolution procedure set forth herein within 30 days of such action or denial.

00199.60 Dispute Resolution -

(a) Meet to Confer and Negotiate –

(1) Engineer’s action under 00199.30 or a denial pursuant to 00199.40 shall become final and binding 30 days after receipt of written notice of Engineer’s action or decision unless, within that time period, Agency or Contractor gives to the other party written notice of intent to submit the Claim to a process of bilateral negotiations as set forth below.
(2) Within 30 days of the delivery of such notice, Agency and Contractor shall meet and confer regarding the Claim. A good-faith effort to negotiate resolution shall be made by both parties.

(3) If the negotiations contemplated by 00199.60(a)(2) are unsuccessful, management representatives of Agency and Contractor at least one tier above the individuals who met under 00199.60(a)(2) shall meet, confer, and negotiate within 30 days of the closure of the unsuccessful negotiations.

(4) If the Claim is not resolved by negotiation, Engineer’s action under 00199.30 or a denial pursuant to 00199.40 shall become final and binding 30 days after termination of the negotiations unless, within that time period, Agency or Contractor:

- Elects in writing to demand arbitration of the Claim, pursuant to 00199.60(b), or
- Agrees with the other party to submit the Claim to another dispute resolution process.

(b) Arbitration –

(1) All Claims or counterclaims, disputes, or other matters in question between Agency and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for Claims which have been waived by the making or acceptance of final payment as provided by 00195.96) including but not limited to those not resolved under the provisions of 00199.60(a) will be decided by arbitration in accordance with the rules and procedures of the arbitrator or arbitration provider, subject to the conditions and limitations of this subsection. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.

(2) The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider (unless the parties agree otherwise, the arbitrator provider shall be the Arbitration Service of Portland), and a copy will be sent to Engineer for information. The demand for arbitration will be made within the 30 day period specified in 00199.60(a)(4), and in all other cases within a reasonable time after the Claim or counterclaim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or other dispute or matter in question would be barred by the applicable statute of limitations.

(3) No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer’s consultants and the officers, directors, partners, agent, employees or consultants of any of them) who is not a party to this Contract unless:

- the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
- such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.

(4) The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include: (i) a concise breakdown of the award; (ii) a written explanation of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.
(5) The award will be final. Judgement may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Controlling Law relating to vacating or modifying an arbitral award.

(6) The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Agency and Contractor.

c) **Mediation –**

(1) Notwithstanding the formal claims procedure specified above, the parties may enter into nonbinding mediation by mutual agreement at any time, in which case the parties may also agree to suspend the time requirements in Section 00199 pending the outcome of the mediation process. The rules, time and place for mediation, as well as selection of the mediator, shall be established by mutual agreement. Costs shall be divided equally between the Contractor and the Agency. Either party may terminate mediation at any time upon five Calendar Day’s notice to the other, after which the time requirements of Section 00199 shall be automatically reinstated and shall resume from the point at which the time requirements were suspended.
SPECIAL PROVISIONS
CITY OF LAKE OSWEGO

PART 00100 – GENERAL CONDITIONS

Section 00100 – Organization, Conventions, Abbreviations, and Definitions

00110.00 Abbreviations - Add the following abbreviations:

CIPP – Cured In Place Pipe

00110.20 Definitions, Design Engineer – The Design Engineer is Brown and Caldwell.

Section 00120 – Bidding Requirements and Procedures

00120.01 Receipt of Bids; Opening - Add the following:

Sealed Bids for Work Order #243 Wastewater Collection System Rehabilitation for the City of Lake Oswego will be received by Pat McDougal, Senior Associate Engineer, at the City of Lake Oswego, City Hall, 380 A Avenue, Lake Oswego, OR 97034 until 2:00 p.m., local time, Bid Closing Time on January 24, 2018, and then will be publicly opened and read. Bids will not be accepted after the Bid Closing.

The Bid shall be enclosed in an opaque sealed envelope plainly marked with the Project title, the name and address of Bidder and shall be accompanied by the Bid Security and other required documents. If the Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation “BID ENCLOSED”.

00120.03 Request for Solicitation Documents - Add the following:

The Contract Documents may be reviewed, examined, and copies obtained at the City Engineering Dept., 3rd Floor, Lake Oswego City Hall, 380 A Avenue, Lake Oswego, Oregon between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, except legal holidays. Copies may be obtained upon payment of a non-refundable fee of $25. Copies of the Contract Documents may also be obtained by mail upon request (phone: 503.635.0270) and upon the receipt of an additional $5.00 per Contract Document to cover postage and handling. Requests sent through the mail shall be addressed to the Engineering Department, City of Lake Oswego, P. O. Box 369, Lake Oswego, Oregon 97034.

To download the Contract Documents, and to receive all notifications, addenda, and view the Planholder’s list, a person or company must create an account and add its individual name or company to the Planholder’s list at http://www.co.oswego.or.us/publicworkds/bid-rfp-information. If you have website questions concerning this invitation, please call Donna Broadhurst at 503.635.0266.


00120.04 Pre-Bid Meeting - Add the following:

A Mandatory Pre-Bid Conference will be held at 2:00 pm, local time on Wednesday January 10, 2018 beginning at City Hall City Engineering Dept., 3rd Floor, Lake Oswego City Hall, 380 A Avenue, Lake Oswego, Oregon. A project site tour will be conducted after the Conference. A project site tour will be conducted after the Conference which will be the only time bidders are allowed onto private property within the project areas. Bids will be accepted only from Bidders attending the Mandatory Pre-Bid Conference. If a Bid is submitted by a Bidder having not attended the Mandatory Pre-bid Conference, it will not be accepted and will be returned unopened.
00120.15 Examination of Work Site and Solicitation Documents - Add the following:

The only time that bidders shall enter private property is during the project site tour that will be conducted after the Mandatory Pre-Bid Conference.

00120.25 Subsurface Investigations - Add the following to the first paragraph:

The data of geologic investigations is included in Appendix A – Geotechnical Data Report, prepared by GeoDesign, Inc., December 2017.

Section 00130 – Award and Execution of Contract

00130.85 Lake Oswego Business License – Replace this section with the following:

All contractors shall obtain a business license with Metro (Portland, Oregon, area regional government), or the City of Lake Oswego, Oregon. See ORS 701.015. The licenses shall be maintained continuously through the duration of the project including warranty period.

Section 00150 – Control of Work

00150.15 Construction Stakes, Lines, and Grades - Add the following:

Contractor will provide construction staking using the services of a professional surveyor registered in the State of Oregon. All survey work shall be completed using the survey control points, vertical and horizontal datums, and benchmarks noted on the project plans.

00150.30 Delivery Notices - Add the following:

Lake Oswego City Engineer
Attn: Erica Rooney
Lake Oswego City Hall
380 A Avenue, 3rd Floor
Lake Oswego, Oregon 97034

00150.35 Submittals, (c) (6) - Add the following:

Engineer’s cost for submittal review beyond the first resubmittal shall be as follow:

- Design Engineer - $195 per hour

Contractor shall reimburse the Agency for such Engineer’s costs.

00150.55 Cooperation with Other Contractors - Add the following:

The Contractor shall coordinate underground utility connections, access and final surface restoration with private building contractors and site developers with projects adjacent to the project work area. This includes but is not limited to the work area noted on plan sheet C-002.

00150.60 Construction Equipment Restrictions, (a) Load and Speed Restrictions for Construction Vehicle and Equipment - Add the following:

Use of heavy equipment and/or stockpiling of materials and spoils shall not be allowed at the top of or on slopes where the loads could present a hazard to excavations and slope stability. This includes but is not limited to the work areas noted on plan sheets C-005, C-006 and C-012.
Section 00160 – Source of Materials

00160.20 Preference for Materials, (a) Buy America - Federal highway or other federal funds are not involved on the project.

Section 00165 – Quality of Materials

00165.03 Testing by Agency - Add the following:

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

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

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

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

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

00165.04 Costs of Testing - Add the following:

The Contractor shall conduct source-review tests of aggregates, asphaltic concrete and concrete for submittal to and approval by the Agency.

Section 00170 – Legal Relations and Responsibilities

00170.02 Permits, Licenses, and Taxes - Add the following:

All contractors shall obtain a business license with Metro (Portland, Oregon, area regional government), or the City of Lake Oswego, Oregon. See ORS 701.015. The licenses shall be maintained continuously through the duration of the project including warranty period.

00170.03 Furnishing Rights of Way and Permits - Add the following:

Appendix A – Rights of Entry, includes copies of rights of entry for work associated with this project.

00170.65 Minimum Wage and Overtime Rates for Public Works Projects, (e) Additional Requirements When Federal Funds are Involved - Add the following:

Federal funds are not involved in the Project.

00170.70 Insurance, (a) Insurance Coverages, (c) Additional Insured, (g) Builders Risk – Amend to include the following information, coverages and requirements:

<table>
<thead>
<tr>
<th>Required?</th>
<th>Type of Insurance</th>
<th>Minimum Coverage</th>
<th>City named as Additional Insured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Comprehensive general or commercial general liability</td>
<td>$2,000,000 per occurrence and $3,000,000 in the aggregate</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Property Damage (XCU coverage) (incl. in liability insurance)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Products – Completed Operations (inc. in liability insurance)</td>
<td>Yes</td>
<td>Pollution</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>-----</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Pollution endorsement for Lead</td>
<td>No</td>
<td>$2,000,000 single or aggregate</td>
<td></td>
</tr>
<tr>
<td>Pollution endorsement for asbestos</td>
<td>No</td>
<td>$2 million per accident</td>
<td></td>
</tr>
<tr>
<td>Protection and Indemnity US L&amp;H</td>
<td>No</td>
<td>$1 million per person per accident</td>
<td></td>
</tr>
<tr>
<td>Builders All Risk</td>
<td>No</td>
<td>Value of materials in Builder's custody</td>
<td></td>
</tr>
<tr>
<td>Limit per Person Medical Expense</td>
<td>Yes</td>
<td>$5,000 minimum</td>
<td></td>
</tr>
<tr>
<td>Fire Legal Liability</td>
<td>No</td>
<td>$500,000</td>
<td></td>
</tr>
<tr>
<td>Automobile liability (owned, hired, &amp; non-owned)</td>
<td>Yes</td>
<td>$2,000,000 per accident-combined single limit or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2,000,000 bodily injury and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1,000,000 property damage</td>
<td></td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>Yes</td>
<td>Statutory Coverage</td>
<td></td>
</tr>
<tr>
<td>Employer’s Liability (incl. in Worker Comp. insurance)</td>
<td>Yes</td>
<td>$1,000,000</td>
<td></td>
</tr>
</tbody>
</table>

00170.85 Responsibility for Defective Work, (c) Manufacturer, Supplier or Installer Warranties and Guarantees - Add the following:

In addition to the manufacturer, supplier and installer warranties noted in the General Conditions, some materials and installations have additional requirements noted in the Special Technical Specifications, including but not limited to:

- 02 71 00 Pipe Bursting
- 02 73 00 Rehabilitation of Existing Sewer Manholes
- 02 76 70 Cured-in-Place Pipe

If a conflict occurs between the OSSC and Special Technical Specifications, the higher quality of materials and workmanship, and longer duration of the warranty period shall apply in favor of the City.

Section 00180 – Prosecution and Progress

00180.20 Subcontracting Limitations, (a) General - Add the following:

The Contractor’s own organization shall perform Work amounting to at least 10% of the original Contract Amount.

00180.40 Limitations of Operations, (a) In General - Add the following:

Work hours shall be as noted below:

<table>
<thead>
<tr>
<th>Monday – Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Zones</td>
<td>7:00 am – 6:00 pm</td>
</tr>
<tr>
<td>Non- Residential Zone</td>
<td>7:00 am – 6:00 pm</td>
</tr>
</tbody>
</table>

All times noted are local time. Any variations in allowed work hours shall be approved in writing by the Project Manager.
Work is prohibited on the holidays listed below, unless approved in writing by the Project Manager:

- New Year’s Day (January 1),
- Memorial Day (Last Monday in May)
- July 4th
- Labor Day (First Monday in September)
- Thanksgiving Day and the following Friday and Saturday
- Christmas Day (December 25)
- Monday when New Year’s or Christmas fall on the preceding Sunday
- Friday when New Year’s or Christmas falls on the succeeding Saturday.

An exception to the above-described work hour limitations is the replacement of manhole E10C-124S shown on drawing sheet C-011. That demolition and construction is to be performed between 11:00 PM and 6:00 AM, during a lower wastewater flow time.

00180.41 Project Work Schedules - Add the following:

A Type “A” Schedule shall be required for the Project.

00180.42 Preconstruction Conference - Add the following:

A. A Pre-Construction Conference shall be held within 7 days of receiving Notice to Proceed, and before beginning construction or ordering materials. Submit the following at the pre-construction conference:
   1. The names and telephone numbers of Contractor’s Project Manager, Superintendent and Office Manager and a list of personnel authorized to sign change orders and receive progress payments;
   2. The name, address and telephone numbers of two or more persons employed by the Contractor who can be reached at any time of the day or night to handle emergency matters;
   3. A list of all subcontractors that will work on the project, a description of work they will perform, and a contact list for each subcontractor with phone numbers and addresses;
   4. A list of materials suppliers and products;
   5. A preliminary Construction Schedule;
   6. Material Safety Data Sheets for all hazardous chemical products to be used by the Contractor on this project. Submit MSDS for approval before bringing any chemical on site;
   7. Site Specific Safety and Health Plan
   8. Contractor’s Erosion, Sediment and Pollution Control Plan (ESPCP), and the City of Lake Oswego Erosion Prevention and Sediment Control Permit Application;
   9. Contractor’s Tree Protection Plan
   10. Utility Protection Plan; and

B. The Contractor shall invite a representative from each subcontractor to attend the pre-construction conference.

00180.50 Contract Time to Complete Work, (a) General - Add the following:

Project Substantial Completion shall be 120 days from Notice to Proceed. Project Final Completion shall be 28 days from Engineer’s notification to Contractor of Substantial Completion.

00180.85 Failure to Complete on Time; Liquidated Damages, (b) Liquidated Damages - Add the following:

The amount of liquidated damages shall be as indicated below for not meeting the following Contract Times:

- Substantial Completion - $500 per Calendar Day that expires after the time specified for Substantial Completion plus any extension thereof until the Work is determined to be substantially complete (Second Notification) by the Agency.
- Final Completion – After Substantial Completion, $500 per Calendar Day that expires after the time specified for Final Completion plus any extension thereof until the Work is determined to be finally complete (Third Notification) by the Agency.
Section 00190 – Measurement of Pay Quantities

00190.00 Scope – Add the following:

This Subsection is supplemented with the Bid Schedule and Measurement and Payment Provisions in the Bid Booklet section of the Contract Documents. Unless otherwise specified in these Special Provisions, the Bid Schedule and Measurement and Payment Provisions replace the “Measurement” and “Payment” provisions of Parts 00200 through 01100 of the 2018 Oregon Standard Specifications for Construction.

00195.00 Scope and Limit – Add the following:

(c) Work not listed, but necessary to complete the work, shall be considered as incidental. Each bid item has incidental work associated with it with some of the incidentals specifically identified. However, the list is not complete. This does not relieve the Contractor from the responsibility for completing the incidental work.

(d) Incidental work includes, but is not limited to all work as specified or necessary to complete the work in accordance with the project plans, specifications, applicable permits, laws and codes. Also, incidental is installation and removal of all temporary access roads, parking and staging areas, temporary utility service, phasing, relocation of temporary facilities, coordination with other contractors and construction, coordination with City of Lake Oswego and private utilities, and periodic shifting of temporary facilities including alignments of construction access roads and access points to accommodate other construction activities and the safety of tenants and the public.

(e) All potholing shall be considered incidental work to work elements including but not limited to mainline replacement, service lateral connections, cleanout and manhole connections, and other utility subsurface exploration and verification and with no separate or additional compensation provided. Potholing shall include but not be limited to surface demolition and restoration, excavation and backfilling, shoring and dewatering.

PART 00200 – TEMPORARY FEATURES AND APPURTENANCES

Section 00205 – Field Laboratory, Weighhouse, Etc.

Delete Section in its entirety.

Section 00210 – Mobilization

00210.00 Scope – Add the following to the subsection:

• Obtaining required bonds, insurance, permits and licenses.
• Preparing and submitting shop drawings, “as-built” drawings and other submittals.
• Removing equipment and extra materials from site upon completion of Work.
• All other work not identified in a separate bid items.

Section 00220 – Accommodation for Public Traffic

00220.02 Public Safety and Mobility – In the eighth “bulletized” item, add the following between the words “TCD” and “as shown”:

“as required in this subsection, and”

00220.40 General Requirements, (d) Adjacent to Excavations – In the first “bulletized” item, delete the words “as shown on the standard details”.

City of Lake Oswego
Wastewater Collection System Rehabilitation

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00220.40 General Requirements, (e) Lane Restrictions (1) Closed Lanes, add the following:
Traffic Control Plans will likely have certain restrictions that may affect the timing of work. Road classifications are determined by the City’s Transportation System Plan.

- Work on Major or Minor Arterials, may be restricted to 9 am to 3 pm, weekdays; or night work may be allowed, as approved by the Engineer.

00220.70 Opening Sections to Traffic – In the second paragraph, delete the phrase “except watering ordered to protect the work or to alleviate dust will be paid as provided in Section 00340”.

Section 00225 – Work Zone Traffic Control

00225.00 Scope - Delete the phrase “according to the standard drawings, the traffic control plan (TCP) for the Project, these Specifications, or as directed” and replace with the phrase “traffic control plan (TCP) for the Project submitted by the Contractor and accepted by the Agency, these Specifications, or as directed”.

00225.05 Contractor Traffic Control Plan - Delete the subsection in its entirety and replace with the following:
The Contractor shall submit a proposed TCP prepared by an engineer currently licensed in Oregon for the Agency’s review and acceptance at least 14 days prior to start of any construction. The proposed TCP shall address all operational aspects of the Contractor’s work, and shall include provisions for areas used by the Contractor for staging and storage of materials and equipment. The proposed TCP shall include order and duration of the TCP, all TCMs, TCDs, lane and street closures, and detours. If additional modifications are proposed by the Contractor to the Contractor’s TCP as accepted by the Agency, submit modifications prepared by an engineer currently licensed in Oregon at least 7 days before beginning the construction activities that require the TCP changes.

The following parameters shall apply to the Contractor’s Traffic Control Plan:

- Constraints, restrictions and coordination requirements as per 00220(e)(1), 00220(e)(2)(b) and 00220.40(f).
- Traffic control shall be designed to move traffic past the area smoothly, with proper and adequate advance signing.
- Wherever the existing roadway surface is disturbed by construction and except where temporary paving is required, the Contractor shall regularly grade and maintain a smooth gravel surface for vehicular traffic traveling through and within the project area until the project is complete.
- The Contractor shall retain a Traffic Control Supervisor for the project, with responsibility and authority to continuously monitor and direct traffic control operations at all times on the project. The Traffic Control Supervisor shall have specific training in temporary traffic control for construction. The Contractor shall provide the Traffic Control Supervisor’s name and phone number and training credential documentation to the Agency at the pre-construction conference. The Traffic Control Supervisor shall not be changed by the Contractor without prior notification to the Agency and providing the same information for the new Traffic Control Supervisor and receiving Agency acceptance of the change.

PART 00290 – Environmental Protection

00290.20 Waste, Hazardous Waste, and Hazardous Substances, (b) Fuel Storage – Delete the second sentence of the second paragraph.

00290.20 Waste, Hazardous Waste, and Hazardous Substances, (c) Waste Management, (3) Reuse, Recycle, and Dispose of Materials, f. Off-Site Disposal – Add the following paragraph:
When disposing of clean excess excavated material within the City of Lake Oswego, Contractor shall obtain a Fill Permit from the City of Lake Oswego Building Department.

00290.30 Pollution Control, (b) Pollution Control Plan – In the first paragraph, delete the phrase “for approval 10 calendar days before preconstruction conference”.

City of Lake Oswego
Wastewater Collection System Rehabilitation

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Delete the last paragraph which begins “A Pollution Control Plan Contractor Packet…”

00290.32 Noise Control – Delete the first “bullet” and replace with the following:
The Contractor shall comply with all requirements, regarding noise control in accordance with the City of Lake Oswego Code 34.10.539 and Clackamas County Code 6.05.

PART 00300 - ROADWORK

Section 00320 – Clearing and Grubbing

00320.40 (b) Clearing Operations, (c) Tree Trimming and Vegetation – Add the following paragraph:
Existing trees and tree limbs or significant shrubs whether on public right-of-way, public property or private property are not to be removed or trimmed without prior authorization by the Engineer pursuant to Lake Oswego Code (LOC) Chapter 55.

PART 00400 – DRAINAGE AND SEWERS

Section 00405 – Trench Excavation, Bedding, and Backfill

00405.02 Definitions: Rock Excavation – Delete the first paragraph and replace with the following:
Rock excavation shall consist of excavation of non-decomposed rock which, by actual demonstration, cannot in the Engineer’s opinion, be reasonably excavated with a Caterpillar 345 DL with a rock bucket or similar approved equipment and contains a volume of more than one cubic yard. The Engineer reserves the right to waive the demonstration of the excavation of the material if it is deemed well defined rock by the Engineer. Rock excavation shall also mean excavation of material that consists of boulders and pieces of concrete or masonry exceeding one cubic yard in dimension which, in the opinion of the Engineer, requires for its removal, drilling and blasting, wedging, sledging or barring, or breaking up a power operated hand tool, or hydraulic hammer attached to a backhoe or excavator.

00405.11 Trench Foundation - Trench Foundation material shall be imported crushed rock with a maximum size of 3 inches, free from dirt, clay balls and organic material, with less than 8 percent passing the No. 200 sieve.

00405.12 Bedding - Bedding shall be commercially available 3/4”-0 aggregate or dense-graded base aggregate, 3/4”-0, (OSSC Table 02630-1).

00405.14 Trench Backfill - Trench Backfill in unimproved areas shall be Class A Backfill and in paved or gravel-surface areas shall be Class B, C or D Backfill.

00405.41 Trench Excavation, (f) Trench Protection –
Excavations within the right-of-way shall be completely backfilled or shored and covered with steel trench plates before the Contractor leaves the site each day. Steel trench plates located within traffic areas shall be secured by means of pins or asphalt berms or as approved by the Engineer. Excavations on private property shall be covered and protected before the Contractor leaves the site each day.

00405.46 Backfilling, (a) General – Add the following at the end of the second paragraph:
Compaction shall be required to achieve at least 95% relative density per ASTM D1557 (AASHTO T-180).
00405.46 Backfilling, (b) Pipe Zone – In the first sentence, delete “6 inches thick” and replace with “12-inch uncompacted thickness”.

00405.46 Backfilling, (c) Trench Backfill, (2) Class A, B, C, or D Backfill – Add the following after the first sentence of the first paragraph:
Successive lifts of trench backfill shall not exceed 18 inches in uncompacted thickness.

Section 00410 – Common Provisions for Pipe Lining

00410.22 Pipe Cleaning Equipment – This section shall be replaced by applicable sections of Special Technical Provision 02 76 00 Sewer Cleaning.

00410.41 Pipe Cleaning – This section shall be replaced by applicable sections of Special Technical Provision 02 76 00 Sewer Cleaning.

Section 00411 – Pipe Bursting and Slip Lining

00411 – This section shall be replaced by Special Technical Provision 02 71 01 Pipe Bursting.

Section 00412 – Cured-In-Place Pipe Lining

00411 – This section shall be replaced by Special Technical Provision 02 76 70 Cured-in-Place Pipe.

Section 00415 – Video and Pipe Inspection

00415.40 General Video Inspection (c) Inspection – At the end of this section add the following:
Due the nature of the Work, portions of the pipeline may be bowed or bellied and as a result the camera may encounter a submerged condition. Where the camera encounters a submerged condition, reduce the water depth to an acceptable level using a high-velocity jet nozzle or other acceptable dewatering device.

00415.70 Post Construction Video Inspection – At the end of this section add the following:
(d) If excessive debris is observed in the service laterals during the post-rehabilitation inspection of the main lines, the Engineer may require the Contractor to TV inspect the service laterals to determine quality of connections, cleanouts, and connections to existing service lateral. These inspections will be performed at no cost to the City. If the Engineer determines from observation of the lateral inspections, that debris in the lines is due to the construction methods or defects in the Contractor’s Work, the Contractor shall repair any observed lateral defects at no cost to the City, as directed by the Engineer. Following repairs, the work will be re-inspected and reviewed.

Section 00445 – Sanitary, Storm, Culvert, Siphon, and Irrigation Pipe

00445.11 Materials, (e) Tracer Wire
Delete the first sentence of this subsection in its entirety and replace with the following:
Tracer wire shall be 12-gauge solid copper insulated with high molecular weight polyethylene (HMW-PE), or approved equal.
In the second sentence, after the word “green”, insert “for sanitary sewers and white for storm drains”.

00445.11 Materials – Add the following additional subsection:
(h) Marking Tape – Use 6-inch wide marking tape with a green background color and made of inert plastic material suitable for direct burial. The following message shall be imprinted on the tape continuously over its entire length
with permanent bold black letters approximately 2 inched high: “CAUTION BURIED SEWER LINE BELOW”. Tape shall be manufactured by W. H. Brady Co., Seton Name Plate Corp., Marking Services, Inc., or approved equal.

**Section 00445.12(e) – Tracer Wire** – Delete the reference to stranded copper wire. Tracer wire shall be solid copper wire.

**Section 00445.15.41 – Pre-Construction Video Inspection**

(a) Types of Inspection – Replace with the following:

(a) Types of Inspection – Perform the following pre-construction video inspections:

- New pipe installation, cleaning and one inspection of service line laterals with push camera or lateral launch camera for all existing lateral connections and connections from the mainline to the edge of the right-of-way.
- For existing pipe installations, cleaning and one inspection of the mainline for all mainlines scheduled for replacement, CIPP, or pipe bursting.

**00445.48 Tracer Wire** – Delete the first paragraph in its entirety and replace with the following:

Install tracer wire between manholes of all non-metallic storm drain and sanitary sewer main lines in accordance with Standard Detail S6-01. Core manholes a maximum of 6 inches beneath top of manhole cone or flattop riser for installation of tracer wire into manhole. Leave enough tracer wire to reach top of manhole. Locate tracer wires to not hinder access into manholes. Grout tracer wire cored holes. Install tracer wire for sanitary sewer service laterals and other laterals from main line to lateral cleanouts. Install tracer wire for storm drain laterals outside street areas from main line to lateral cleanouts. Extend tracer wire into lateral cleanouts to a point readily accessible from the cleanout cover.

**00445.50 Marking Tape** – Add the following additional subsection:

00445.50 Marking Tape – Install marking tape in accordance with Standard Detail S6-01. Spread marking tape flat with message side up before continuing backfilling.

**Section 00445.74 – Video Inspection of Sanitary and Storm Sewers** - Replace with the following:

For all existing pipes being lined with CIPP or pipe burst, perform preconstruction cleaning and video pipe inspection of the existing mainline pipe according to Section 00415. For all existing sanitary sewer and storm sewers being altered or repaired, perform preconstruction video pipe inspection, according to Section 00415, between the nearest upstream manhole where Work is not being performed and the nearest downstream manhole where Work is not being performed, including all lateral runs between end manholes.

When constructing a new run, an extension, or a repair of sanitary sewer or storm sewer perform post-construction video pipe inspection, according to Section 00415, of all joints, including the location where new pipe meets existing pipe, and all service lateral connections from the mainline to the point where the new service lateral pipe connects to the existing service pipe. Conduct the post-construction video pipe inspection after backfill and compaction are complete, but before any finish Surfacing or final paving is performed. For pipe sections being replaced, video pipe inspection is not required prior to replacement. Video pipe inspection is not required for pipe sections that are being abandoned.

**Section 00490 – Work On Existing Sewers and Structures**

00490.40 General: Replace the last paragraph referencing bypass pumping sanitary flows with the following:

See Special Technical Provision 02 14 50 Sewer Bypassing and Dewatering for minimum bypass pumping and dewatering requirements.
PART 00600 – BASES

Section 00641 – Aggregate Subbase, Base and Shoulder

00641.10 Materials, (a) Base and Shoulder Aggregate - Base rock aggregate shall be 1” - 0 or ¾” - 0 in accordance with Section 02630, Table 02630-1.

00641.44 Shaping and Compacting, (a) Aggregate Base Courses, (1) Dense-graded Aggregates - Delete “95 percent of the maximum density” and replace with “95% relative density per ASTM D1557 (AASHTO T-180)”.

PART 00700 – WEARING SURFACES

Section 00744 – Asphalt Concrete Pavement

00744.10 Aggregate (b) Recycling Asphalt Shingles: Delete subsection in its entirety. RAS is not allowed in the production of new ACP.

00744.11 Asphalt Cement and Additives (a) Asphalt Concrete: Use asphalt grades PG 64-22 or PG 70-22. Testing of the asphalt cement shall be at the discretion and expense of the Agency.

00744.12 Mix Type and Broadband Limits (a): Mix type shall be 1/2” ACP.

00744.13 Job Mix Formula Requirements: JMF shall be Level 2.

00744.44 Longitudinal Joints, (a) Location, (2) Wearing Course: Delete subsection in its entirety and replace with the following:

(2) Wearing Course – Longitudinal joints shall not occur within the width of a traffic lane. They shall be located at either skip lines, center lanes or fog lines unless otherwise approved by the Engineer. On median lanes and on shoulder areas the joints shall occur only at lane lines or at points of change in the traverse slopes, as shown or directed by the Engineer.

00744.44 Longitudinal Joints, (b) Dropoffs: In the third “bullet”, add “or driveway connection” after the word “joint”.

Section 00745 – Asphalt Concrete Pavement – Statistical Acceptance

Comply with the following subsection of Section 00745:

Subsection 00745.42 Preparation of Underlying Surfaces

PART 00800 – PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES

Section 00855 – Pavement Markers

00855.40 Pavement Markers, Surface Preparation (b), second paragraph: Delete this paragraph in its entirety.

Section 00865 – Longitudinal Pavement Markings – Durable

00865.45 Installation: Apply marking materials in accordance with Method AB – Non-Profiled Extruded or Sprayed Markings for thermoplastic, 120 mil thickness. Method C – Pavement Marking Tape will not be allowed.
00867.45 Installation: Delete the fourth sentence in its entirety and replace with the following:
“Apply the following marking material types only:
• Type B-HS

PART 02000 – MATERIALS

Section 02415 – Plastic Pipe

• PVC pipe ASTM D 3034, SDR 35
• ASTM D3350, DR17

Section 02450 – Manhole and Inlet Materials

02450.30 Metal Frames, Covers, Grates, and Ladders – Delete the first full paragraph beginning with “Fabricate steps . . .”.
PART IV  SPECIAL TECHNICAL PROVISIONS

DIVISION 2  SITE AND UTILITY WORK

02 14 50  Sewer Bypassing and Dewatering
02 20 50  Existing Tree Protection
02 71 00  Pipe Bursting
02 73 00  Rehabilitation of Existing Sewer Manholes
02 76 00  Sewer Cleaning
02 76 70  Cured-In-Place Pipe
02 76 90  Spot Repair of Existing Sanitary Sewer Mains
SECTION 02 14 50
SEWER BYPASSING AND DEWATERING

PART 1  GENERAL

1.01  SCOPE

A. This section specifies the requirements applicable to temporary bypassing and dewatering of sewers and associated excavations which, for the purposes of this section, shall be taken to refer to sanitary sewers, sanitary service laterals, manholes, insertion pits and other miscellaneous structures and excavations. Excavation dewatering requirements are specified in OSSC Sections 00330 Earthwork and 00400 Drainage and Sewer.

B. Provide labor, materials, equipment and supervision to temporarily bypass flow around the Contractor's work during sewer rehabilitation and construction. Contractor shall also provide temporary dewatering of low lying portions of existing sewers as necessary when television inspection and grouting is performed and where spot repairs are conducted.

1.02  SUBMITTALS

A. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (√) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. At least 48 hours prior to beginning sewer bypassing, the Contractor shall submit a Sewer Bypass Plan that includes drawings and complete design data showing methods and equipment he proposes to utilize in sewer bypassing and dewatering. The submittal shall include the following information:

1. Drawings indicating the location of temporary sewer plugs and bypass discharge lines. The drawings shall also show the method and location for discharging the bypass lines.

2. Capacities of pumps, prime movers, and standby equipment.

3. Design calculations proving adequacy of the system and selected equipment.

4. Show inlet (for gravity systems) and suction (for pumped systems), and discharge points with elevations & stationing on the design plans.

5. Provide pump performance curves.

6. Submit calculations to verify suction lift of pumps has not been exceeded.

7. Submit a proposed plan for disruption of sewer service laterals.
1.03 JOB CONDITIONS

A. AVAILABLE DATA:
   1. Wet weather flow data for the mainline sewers is not available. Flow data for the service laterals is not available. Any additional testing or gathering of flow data shall be the responsibility of the Contractor and shall be conducted at no additional cost to the Owner. Given the high groundwater and high I/I rates in the Owner’s collection system, the minimum capacity of bypass systems shall be required to handle full-pipe flows under gravity conditions.

B. PROTECTION:
   1. Where bypassing of sanitary sewers is required, ensure that service for connecting laterals is not disrupted and that no backups into buildings occur. All bypassed sanitary sewage flow shall be discharged into the nearest downstream manhole. No bypassing of sanitary sewers to the ground surface, receiving streams, storm drains, or bypassing which results in groundwater contamination or potential health hazards shall be permitted. It is the Contractor’s responsibility to arrange all necessary access and temporary construction agreements with all affected parties for the location of the bypass pumping system. Coordinate any agreements with the Engineer prior to setting up the bypass pumping system. The Contractor shall have the complete bypassing system in place and successfully tested, including pressure tested at 1.5 times the maximum operating pressure of the system, before bypassing any sewage. Contractor is responsible for immediate and proper cleanup should any spill occur, regardless of amount.

C. SCHEDULING:
   1. The bypassing and dewatering systems shall not be shut down between shifts, on holidays or weekends, or during work stoppages without written permission from the Engineer.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 SEWER DEWATERING

A. Dewater all sagged submerged portions of the sewer during television inspection and grouting. Sewer flow shall be reduced so that no portion of the television camera’s lens is submerged during inspection. The Contractor may temporarily force the flow away from the area under inspection by water jetting or pigging the line.

3.02 SEWER BYPASSING

A. Bypass pump sanitary sewer and stormwater flows around the pipe section or manhole being repaired, lined or replaced by plugging an existing upstream manhole and pumping the flow around the Work to a downstream manhole.

B. Sewer bypassing shall be accomplished by pumping or diverting the upstream flow around the Contractor’s work or as directed by the Engineer.
C. Provide temporary pumps, conduits, structures and other equipment to bypass the sewer flow. Furnish the necessary labor and supervision to set up and operate the pumping and bypass system. Engines shall be equipped with mufflers and/or enclosed to keep the noise level within local ordinance requirements but under no circumstances shall the equipment noise exceed a noise level of 86 dB at a distance of 50 feet. Do not operate bypass pumps at night except in an emergency.

D. Pumps and bypass lines shall be of adequate capacity and size to handle the flows. All bypassed flow shall be discharged to the nearest downstream manhole.

E. Unless otherwise specified, bypass flow around his work whenever the depth of flow, as measured at the inlet pipe to the upstream manhole adjacent to the Contractor’s work, exceeds the crown elevation of the pipe; or whenever the Contractor's equipment operating in the sewer provides an obstruction that restricts flow and causes the depth of flow to exceed the crown elevation.

F. If flow conditions are greater than full pipe, the Contractor may elect to wait for flow conditions to subside prior to removing the subject line from service. Calendar days will not be charged for the period of time during which the flow is greater than full pipe unless the Contractor elects to perform work in other locations. No additional payment will be made for periods of high flows during which the Contractor elects to wait for lower flows. However, once the Contractor removes a section of line from service he is responsible to bypass any and all flow in the system during construction, even in the event the system surcharges and exceeds the full pipe capacity, until the line is returned to service.

G. SPECIFIC REHABILITATION OPERATIONS:
   1. Sewer Cleaning and Testing:
      a. Installation of the Contractor’s equipment shall not cause upstream sewers to surcharge. Bypass upstream flow around his work where the upstream flow depths exceed the limits specified.
   2. Manhole Installation:
      a. Bypass flow around all manholes to be installed.
   3. Service Laterals:
      a. Maintain service usage throughout sewer installation operations. The maximum amount of time of no service shall be 8 hours for any property served by sewer. Any service out longer than 8 hours will be bypassed to a sanitary sewer at no cost to the Owner.
   4. Restoration of Service Laterals:
      a. During replacement, reconnection or re-routing of active laterals, service shall not be interrupted between the hours of 5 p.m. and 8 a.m. If the Contractor cannot complete the service lateral work between 8 a.m. and 5 p.m., bypass pumping or temporary gravity service of the service connection to the sanitary sewer system shall be required.
   5. Television Inspection:
      a. Reduce the depth of flow such that the camera lens is not submerged during inspection and such that the upstream flow depth is within the limits specified.
6. Inversion Lining (CIPP):
   a. Bypass all flow around the work during installation of the liner and until such time as the liner is fully cured and the connection at the manhole is completed, tested and approved.

7. Pipe Bursting:
   a. Bypass all flow around the work during installation of the pipe and until such time as the connection at the manhole has been completed, tested and approved.

8. Spot Repairs and Connection:
   a. Bypass all flow around this work during installation of pipe while performing the spot repair or connection until the repair and connection is complete and approved.

3.03 STANDBY EQUIPMENT

A. Maintain on site sufficient equipment and materials to ensure continuous and successful operation of the bypass and dewatering systems. Standby pumps shall be fueled and operational at all times. Maintain on site a sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping and other parts or system hardware to ensure immediate repair or modification of any part of the system as necessary.

3.04 DAMAGES

A. Repair, without cost to the Owner, any damage that may result from his negligence, inadequate or improper installation, maintenance and operation of bypassing and a dewatering system including mechanical or electrical failures. The Contractor shall be responsible for all costs for clean-up, repair, property damage, claims, suits, and fines resulting from any backup or improper bypass or spill.

END OF SECTION
PART 1  GENERAL

1.01  SCOPE

A. This Section includes the protection of existing trees including all protected trees identified on the plans that may affect the execution of the Work, whether temporary or permanent construction.

B. The Project Arborist and activities specified in this Section to be performed by the Project Arborist will be provided by the Owner. The Owner’s Project Arborist is Bruce Baldwin of AKS Engineering & Forestry, Tualatin, Oregon. The Contractor shall be responsible for coordinating with the Project Arborist, including participation in meetings as required by this Section. The Contractor shall provide at least 48 hours notice to the Owner in advance of performing work within tree protection areas, within tree drip lines, in areas where it is impractical to protect trees by means of fencing, and/or in areas where arborist observation is specified on the plans.

C. The Contractor shall be responsible for providing all labor, equipment and materials needed to implement the requirements described in this Section that are not specifically assigned to the Project Arborist.

D. A Tree Assessment of the existing trees within the Limits of Construction and select additional trees has been conducted by a Certified Arborist. The arborist has identified trees that shall be protected and documented the tree size, species and condition. The Detailed Tree Inventory, included in Appendix B, provide a summary of the Tree Assessment for each Impacted Tree. The plan shows the location of these trees and their Impacted Tree Protection Zone as well as the location of required tree protection fencing. As described in this Section, additional tree protection measures not included in the plans and Detailed Tree Inventory may be required at the direction of the Project Arborist.

1.02  DEFINITIONS

A. Diameter at breast height (DBH): Diameter of a trunk measured at 4.5 feet above mean ground level at the base of the tree or at the narrowest trunk area below stem break or as otherwise noted in the Detailed Tree Inventory (Appendix B).

B. Impacted Tree: Tree with an Impacted Tree Protection Zone.

C. Impacted Tree Protection Zone: Portion of the Tree Protection Zone crossing outside the tree protection fence.

D. Protected Tree: Any tree where no work is proposed, any tree not on the site property and any tree inside the Tree Protection Zone including both Trees to Be Saved and Impacted Trees as identified on the Detailed Tree Inventory and Notes.

E. Tree Protection Zone (TPZ): The area surrounding individual trees or groups of trees to be protected from root and tree disturbance during construction as defined by the areas isolated inside the tree protection fence.
1.03 SUBMITTALS

A. Product Data: For each type of product indicated with the exception of materials included in paragraph 2.01.C.

B. Details of tree protection fencing.

1.04 REQUIREMENTS

A. Tree protection and mitigation shall be implemented per the City of Lake Oswego ordinances for tree protection including LOC 55.08.020 and 55.08.030, Construction Standards in LOC 50.16.095, the City of Lake Oswego Tree Protection Plan and these Contract Documents. The Owner will obtain approval of the plans and Detailed Tree Inventory.

B. The Contractor and all SubContractors shall prevent damage to protected trees, including bark and root zone. The Contractor shall be subject to fines, penalties and mitigation for trees that are damaged or destroyed during construction.

C. All tree protection, maintenance, modification, and mitigation shall be in accordance with this Section and the most current industry standards.

D. The Contractor shall notify all employees and subcontractors of the required tree protection measures included in this Section.

E. Prior to initiation of the Work, the Contractor shall:
   1. Install a 4’ high metal tree protection fence as specified herein, to protect the trees and their root systems as indicated on the plans or as otherwise directed by the Project Arborist. Install tree protection sign on fence.
   2. Obtain written approval from the Project Arborist that the tree protection fencing is acceptable and installed as specified herein.

F. The following tree protection measures shall be implemented for protected trees unless the Project Arborist provides approval of modified or alternate methods that, in the Project Arborist’s opinion, achieve satisfactory tree protection. The Contractor shall utilize these measures:
   1. Minimize environmental changes such as soil compaction, changes in surface drainage patterns near trees, and excessive moisture loss.
   2. Keep equipment away from tree structure to prevent damage to trunk and limbs.
   3. Do not allow chemicals to be dumped on the ground near the tree, i.e., gasoline, diesel, paint, herbicide, cleaner, thinners, etc. within TPZ.
   4. Protect the trees from excessive heat from construction equipment and activities (i.e., equipment or vehicle exhaust, paving and/or burning).
   5. Notify the Project Arborist for inspection if roots or limbs are cut or damaged and repaired or treated. Accomplish all cutting, damage repair and treatment according to this Section and the Project Arborist’s recommendations.

G. The tree protection fence shall isolate the entire area within the tree protection zone except for the Impacted Tree Protection Zone as shown on the plans.
H. Warning signage shall be prominently displayed on the tree protection fence. Signage shall be per Figure 1 at the end of this section.

I. In situations where the Work intrudes into a TPZ but is compatible with the long term viability of the tree(s) as determined by the Project Arborist, the Project Arborist may prescribe alternative tree protection to fencing. Such protection measures may include minimum 12-inch-thick wood chip layer over a soil cloth base or steel plates placed over the ground to protect TPZ from soil compaction.

1.05 PROHIBITED ACTIVITIES

A. The following practices are prohibited within the TPZ:
   1. Storage of construction materials, refuse, debris, or excavated material.
   2. Storage or parking vehicles or equipment.
   3. Dumping of poisonous materials on or around trees and roots. Poisonous materials include, but are not limited to, paint, petroleum products, concrete, dirty water or any other material which may be deleterious to tree health.
   4. The use of tree trunks as a winch support, anchorage, as a temporary power pole, sign posts or other similar function.
   5. Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches and other miscellaneous excavation without prior approval of the Project Arborist.
   6. Soil disturbance or grade change unless observed by the Project Arborist.
   7. Drainage changes or impoundment of water.

B. Within TPZ or near organic mulch, heat sources, flames, ignition sources, and smoking is prohibited.

C. For areas inside the tree protection fence the operation of equipment or vehicles is prohibited unless authorized by the Project Arborist.

1.06 TREE PROTECTION INSPECTIONS AND ARBORIST OBSERVATION:

A. The CONTRACTOR shall coordinate the following required tree protection inspections and arborist observations:
   1. Tree Pruning Walk-Thru: Prior to beginning any construction related activities, the Contractor shall coordinate and attend a tree pruning walk-thru with the Owner, Project Arborist, and tree pruning laborers to identify any tree pruning necessary to facilitate construction activities. Tree pruning shall be implemented as determined necessary and appropriate by the Project Arborist, and shall be done under the observation of a Certified Arborist.
   2. Initial Inspection of Tree Protection Measures: Following the installation of specified tree protection fencing and other tree protection measures, and prior to commencement of construction or the installation of erosion and sediment control measures, the Contractor shall schedule and coordinate an inspection of installed tree protection measures with the Owner to be performed by the Project Arborist. Construction activities shall not begin until written verification has been provided by the Project Arborist regarding the satisfactory installation of tree protection measures.
3. Specified Arborist Observation: The plans specify specific areas within and/or near TPZs where the Work requires the direct onsite observation of the Project Arborist, which shall be scheduled and coordinated by the Contractor. Work in these areas shall be performed as recommended by the Project Arborist, unless otherwise approved by the Owner.

4. Activity within the TPZ: Work in the TPZ requires the direct onsite observation of the Project Arborist, which shall be scheduled and coordinated by the Contractor. Work in these areas shall be performed as recommended by the Project Arborist, unless otherwise approved by the Owner.

5. Inspections: The Project Arborist may perform monthly or more frequent inspections to monitor changing conditions and tree health. The Project Arborist may submit an inspection summary to the Owner during the first week of each calendar month or, immediately if there are any changes to the approved plans or protection measures.

6. Project Summary and Conclusion: The Project Arborist may prepare and submit a summary discussing the protected trees to the Owner at the conclusion of all construction activities. It may include a summary of and any concerns about trees that may have been negatively impacted as well as recommendations for care of the trees in the future.

PART 2 PRODUCTS

2.01 MATERIALS

A. Tree Protection Fencing: Fencing fixed in position and meeting the following requirements or as approved by the Project Arborist:

1. Fence material shall be metal (such as chain link). Posts shall be of heavy duty steel T-post or U-post construction.
   a. Fence Height: 4 feet minimum.
   b. Width: 10 feet maximum between fence posts.

B. Warning Sign: Weather proof sign denoting text shown as Figure 1 at the end of this Section.
   1. Size: Minimum 8.5-inch by 11 inches.
   2. Spacing and location: Firmly attach to Tree Protection Fencing between each third set of fence posts.

C. Materials that may be required for tree protection as described in this Section include:
   1. Plywood, steel plates, mulch, or gravel to be used for root zone buffer.

PART 3 EXECUTION

3.01 PREPARATION

A. Tree Protection Fencing Installation: Install fencing as shown on the plans, inventory tables, and/or as approved by the Project Arborist before materials or equipment are brought to the Work Area surrounding the protected trees and before construction operations begin. Tree protection fencing shall be installed to achieve three primary goals: (1) to keep the foliage crowns and branching structure clear from contact by equipment, materials and activities; (2) to preserve roots and soil conditions in an intact
and non-compacted state; (3) to identify the TPZ in which no soil disturbance is permitted and activities are restricted, unless otherwise approved.

1. The protection fencing and signage shall be inspected and approved by the Project Arborist prior to commencing any construction activities.

2. Maintain protection fencing and signage in good condition as acceptable to the Project Arborist and City.

3. The Contractor shall work around tree branches or limbs that are determined by the Project Arborist to be unsuitable for pruning.

4. Tree Protection Fence shall remain in place until all work is complete and the Project Arborist has approved removal of the fencing.

B. Erosion and Sedimentation Control: Examine the Work Area to verify that temporary erosion and sedimentation control measures are in place per Contract Document requirements. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross TPZs.

1. Erosion and Sedimentation Controls shall be installed outside of the TPZs wherever possible. If Erosion and Sedimentation Controls are proposed within TPZs, they shall be reviewed and approved by the Project Arborist prior to installation.

C. Alternative Temporary Trunk and Limb Protection Installation: Tree Protection Fencing is the preferred method to be used for trunk protection. However, where tree stumps are to be removed or landscaping or irrigation systems installed inside the Tree Protection Fence, or where approved by the Project Arborist and Engineer and when there is little to no horizontal clearance between the protected tree trunk or limb and the WORK, a limited portion of the tree protection fence may be opened and an alternative protection measure shall be installed and remain in place until completion of the work. The following alternative protection measures shall be used as prescribed by the Project Arborist:

1. For personnel access and limited equipment use approved and observed by the Project Arborist: No required measures.

2. For general equipment use inside the Tree Protection Fence location shown on the Drawings:
   a. Trunk wrapped with 2-inches of orange plastic fencing as padding from the ground to the first branch with 2-inch thick wooden slats bound securely on the outside. During installation of the wood slats, caution shall be used to avoid damaging any bark or branches.
   b. Limbs wrapped with plastic fencing as directed by the Project Arborist.

D. Alternative Temporary Root Buffer Installation: Tree Protection Fencing is the preferred method to be used for root zone protection. However, where stumps are to be ground, irrigation installed, or landscaping work performed inside the tree protection fence or when the areas in the TPZ cannot be fenced, a limited portion of the tree protection fence may be opened, and an alternative temporary root buffer shall be installed and shall remain in place until completion of the work. The Project Arborist may prescribe the following on the ground to protect the TPZ from soil compaction:

1. Non-road areas: installation of one of the following:
   a. Minimum of 12-inch deep mulch layer on a soil cloth base,
   b. Minimum of 6-inch deep mulch layer, with layer of ¾-inch gravel to support ¾-inch thick plywood, or
c. ¾” thick Plywood or Steel plates placed over the ground.

2. Temporary road areas: Installation of a minimum of 6-inch deep mulch layer, with layer of ¾-inch gravel to support ¾-inch thick plywood or steel plates.

3.02 EXCAVATION

A. Where excavation or trenches are required within the TPZ, the following additional requirements apply:

1. Notify Project Arborist a minimum of 48 hours in advance of the excavation activity.
2. The use of construction equipment and vehicles within the TPZ is prohibited unless a temporary protective root buffer prescribed by the Project Arborist is installed and maintained.
3. Any roots 2-inch and greater in diameter, encountered by the Contractor shall be protected from injury and remain uncut unless otherwise directed by the Project Arborist. The Contractor shall immediately notify the Project Arborist when roots 2-inches and greater in diameter are encountered and the Project Arborist shall be provided the opportunity to inspect the root and provide a recommendation regarding the action to be taken.
4. The Contractor may be directed by the Project Arborist to redirect roots in backfill areas where possible. If roots 2-inches and greater in diameter are encountered, Contractor shall expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered roots 2-inches and greater in diameter immediately adjacent to location of the Work and redirection is not practical, the Project Arborist may permit the Contractor to prune the roots.
5. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
6. If injurious activity or interference with roots 2-inches and greater in diameter occurs within the TPZ, Contractor shall minimize root loss and follow the root pruning and injury mitigation requirements included in this Section and/or as recommended by the Project Arborist.
7. The Contractor shall immediately notify the Project Arborist of any damage, no matter how slight, to above ground portions of any tree. The Contractor shall be prepared to immediately undertake mitigation as recommended by the Project Arborist.

3.03 ROOT PRUNING

A. Prune roots that are affected by construction, if directed by the Project Arborist, as follows:

1. Prune roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. All roots 2-inch in diameter and larger shall be pruned cleanly in sound tissue at right angle to the central axis of the root.
3. Pack moist soil over pruned root ends larger than 2-inch in diameter.
4. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
5. Cover exposed roots with burlap and water regularly.
6. Backfill as soon as possible.

3.04 CANOPY PRUNING

A. Prune branches that are affected by construction, if directed by the Project Arborist, as follows:

1. The Contractor shall ensure that trimming and pruning is carried out under the direct supervision of a Certified Arborist. All pruning and trimming shall be performed in accordance with the provisions of ANSI A300.

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**TREE PROTECTION ZONE**

**DO NOT REMOVE OR ADJUST THE APPROVED LOCATION OF THIS TREE PROTECTION FENCING.**

Doing so may result in a stop work order and fines issued by the City of Lake Oswego.

Please contact the Code Enforcement Specialist at (503) 635-0290 and project arborist, if alterations to the approved location of the tree protection fencing are necessary.

**FIGURE-1**
Tree Protection Warning Sign

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END OF SECTION
PART 1 GENERAL

1.01 SCOPE

A. This section specifies all pipe, fittings, and accessories for the installation of sanitary sewers using pipe bursting methods. Pipe bursting is a system by which a static pull or pneumatic bursting unit splits the existing pipe while simultaneously installing new pipe of a same or larger size along the alignment of the existing pipe. The Contractor may, at its option, choose to reconstruct certain sewers by pipe bursting rather than by CIPP lining. The option to pipe burst is allowed only at the locations listed below in Table 1.

Table 1. Sewer Reaches Where Pipe Bursting is Optional or Required

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<th>Sheet No.</th>
<th>Manhole ID</th>
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<td>E03D-144S</td>
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<td>C-010</td>
<td>New Manhole</td>
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B. The Contractor shall provide all materials, labor, equipment, and services necessary for bypass pumping of sewer flows, excavation of access pits, pipe bursting and installation of HDPE pipe, connection of HDPE pipe to existing manholes, manhole repair, testing, backfilling of access pits, restoration of pavement and all other improvements, and all other related work.

C. The Contractor shall note that no geotechnical or other investigations or analyses have been made regarding the suitability of existing conditions for pipe bursting. The Owner and Engineer make no warranty, either express or implied, regarding the suitability of pipe bursting for any sewer segments on this project. Any additional costs incurred as a result of the Contractor’s decision to use pipe bursting rather than CIPP lining shall be fully borne by the Contractor and shall be at no additional cost to the Owner.

1.02 QUALITY ASSURANCE

A. REFERENCES

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if
there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
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<tr>
<td>ASTM D1238</td>
<td>Measuring Flow Rates of Thermoplastics by Extrusion Plastometer</td>
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<tr>
<td>ASTM D1248</td>
<td>Polyethylene Plastics Molding and Extrusion Materials</td>
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<td>ASTM D1505</td>
<td>Density of Plastics by the Density-Gradient Technique</td>
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<tr>
<td>ASTM D1599</td>
<td>Test for Short Term Rupture Strength of Plastic Pipe, Tubing and Fittings</td>
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<tr>
<td>ASTM D1693</td>
<td>Environmental Stress Cracking of Ethylene Plastics</td>
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<td>ASTM D1928</td>
<td>Preparation of Compression Molded Polyethylene Test Samples</td>
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<td>ASTM D2321</td>
<td>Underground Installation of Thermoplastic Flexible Sewer Pipe</td>
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<td>ASTM D2657</td>
<td>Heat Joining of Thermoplastic Pipe and Fittings</td>
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<td>ASTM D2837</td>
<td>Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials</td>
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<td>ASTM D3035</td>
<td>Polyethylene Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter</td>
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<td>ASTM D3261</td>
<td>Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing</td>
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<td>Polyethylene Plastic Pipe and Fittings Materials</td>
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<td>Insertion of Flexible Polyethylene Pipe in Existing Sewers</td>
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<td>ASTM F714</td>
<td>Standard Specification for Polyethylene Plastic Pipe Based on Outside Diameter</td>
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</table>

1.03 QUALIFICATIONS

A. The Contractor shall be certified by the particular pipe bursting system manufacturer as a fully trained user of the pipe bursting system. The Contractor performing the pipe bursting shall have at least three successfully completed projects totaling a minimum of 50,000 linear feet (LF) of conduit 8 inches in diameter or larger in the last 5 years. The documented experience must be based on the experience of the “Company” and experience based on the individuals within the organization will not be accepted. The aforementioned pipe bursting projects shall have been in service for at least 1 year.

B. The Contractor shall possess a license to perform pipe bursting, or provide proof of payment to be made by a licensed equipment manufacturer. The Contractor shall hold the Owner and Engineer harmless in any legal action resulting from patent infringements.

C. The Contractor, the Contractor’s site superintendent and the equipment operator/technician shall demonstrate and document their qualification for this project by their experience on projects of similar type, scope and/or complexity.
   1. The Contractor, the Contractor’s site superintendent and equipment operator/technician shall have completed three pipe bursting projects involving the installation of at least 50,000 feet of conduit 8 inches in diameter or larger in the last 5 years.
   2. In lieu of full compliance with the minimum qualifications listed in 1.03 C.1. above the Contractor, the Contractor’s site superintendent and equipment operator/technician may submit other information not called for that he deems pertinent in demonstrating his qualifications for review by the Owner and Engineer. The decision by the Owner and Engineer regarding acceptance of a pipe bursting Contractor with less than the minimum qualifications shall be final.
D. The Contractor shall have personnel trained in the use of HDPE butt-fusion equipment and pipe bursting equipment. Fusion equipment shall be operated only by technicians who have each been certified by the pipe manufacturer or supplier and who each have a minimum of three projects containing at least 2,000 LF of butt-fused HDPE pipe within the past 2 years.

E. The Contractor shall be responsible for locating the existing service laterals, including potholing at property line, and shall determine the overall condition of the existing pipe prior to pipe bursting.

F. The Contractor shall perform butt-fusion, electro-fusion and pipe bursting following proper methods and manufacturer’s recommendations to avoid damage to the HDPE pipe.

G. The Contractor shall limit ground movement and vibration to prevent damage to buried utilities and existing structures.

H. The Contractor shall use rollers or other methods to protect the HDPE pipe from damage during installation. The Contractor shall not allow the pipe to bend in excess of the manufacturer’s allowable bending radius.

I. The Contractor shall immediately notify the Engineer, in writing, when any problems are encountered with equipment or materials, or if the Contractor is unable to advance the pipe bursting head for any reason, known or unknown.

J. The Contractor shall allow the Engineer access to all pits, equipment, controls, and gauges and shall furnish necessary assistance and cooperation to aid the Engineer in observations, measurements, data, and sample collections.

1.04 WARRANTY

A. Except as modified below the warranties for all pipe bursting and HDPE pipe installation work shall be fully guaranteed by the Contractor in accordance with Special Provision section 00170.85. During this period, all defects discovered by the Owner or Engineer shall be removed and replaced or repaired by the Contractor in a satisfactory manner at no cost to the Owner. Methods of repair shall be proposed by the Contractor and submitted to the Engineer for review. The Owner may conduct independent television inspections, at its own expense, of the lining Work at any time prior to the completion of the guarantee period.

1.05 SUBMITTALS

A. All materials provided shall be fully in accordance with the requirements 00150.35 in the General Conditions.
   1. Qualifications: The Contractor shall submit a copy of the license to perform pipe bursting by the manufacturer of the equipment that will be used on the project. Submit personnel qualifications.
   2. Installation Plan: The Contractor shall submit marked up Drawings detailing dimensions and locations of pits/excavation and of all equipment setup areas, pipe layout areas, silt fences, and staging areas required for the pipe bursting and installation of the HDPE. Narrative text must be included describing how utilities are
to be protected at each excavation. The Contractor shall include a settlement control plan to protect existing utilities, streets, residences, or other structures and improvements from damage or movement due to pipe bursting activities.


4. Pipe Bursting Literature: Submit the following describing the pipe bursting equipment, materials and construction methods to be employed. The Contractor shall provide shop drawings, catalog data, manufacturer’s technical data, dimensioned drawings, and installation details/sketches, and other pertinent information for the HDPE pipe bursting installation work.
   a. A detailed description of the methods, materials and equipment to be used in completing each pipe burst. The Contractor shall include a sketch of the bursting head detailing the dimensions and configuration.
   b. Manufacturer’s literature describing the pipe bursting system including specification for the machine and all ancillary equipment. Literature submittals shall include manufacturers' specifications, descriptions, operating information, calibrations, appropriate drawings, photographs, and descriptions of any modifications since manufacture. The Contractor shall provide written certification by the manufacturer that the pipe bursting equipment is suitable for the planned operation.
   c. Details of pipe lubrication injection systems and pipe lubricants to be used during pipe bursting, including manufacturer’s literature and MSDS sheets. Include a description of proposed lubrication procedures during pipe bursting, including estimated volumes of lubricant that will be pumped.
   d. The Contractor shall furnish a certified affidavit of compliance for all HDPE pipe and fittings furnished confirming that the materials fully conform to the requirements specified herein.
   e. The Contractor shall submit the de-beading process for use in removing the bead for the newly joined HDPE pipe sections.
   f. Service lateral saddle manufacturer written installation instructions.

5. Existing Sewer Connection Methods: Methods of construction and restoration of existing sewer service connections including detail drawings and written descriptions of the entire procedure to protect service connections during pipe bursting, and reconnection of sewer service connections.

6. Calculations: Calculations shall be prepared by or under direct supervision of a professional Engineer licensed in the State of Oregon, who shall stamp and sign all calculations. The Contractor shall submit calculations demonstrating that the soils behind the thrust block can transfer the maximum planned winching forces exerted by the bursting frame to the ground during pipe installation with an acceptable factor of safety of at least 1.5, without excessive deflection or displacement. Include design calculations for soil improvement, if necessary, to develop adequate passive resistance in solids behind the thrust block.

7. Project Schedule: The Contractor shall submit a schedule identifying proposed work hours and dates for each installation in accordance with General Conditions, Section 00180, Prosecution and Progress.
8. Daily Records: The Contractor shall submit two copies of the following daily records by noon on the day following the shift for which the data or records were taken, to the Engineer for review.
   a. Bursting Records: The Contractor shall provide complete pipe bursting records to the Engineer. These records shall include, at a minimum: date, time, name of operator, bursting drive identification, length of pipe installed, winching forces, any problems encountered with the pipe bursting machine or other components or equipment, and durations and reasons for delays, if any. The Contractor shall submit samples of their daily data log at least seven (7) days prior to pipe bursting.
   b. Lubrication Records: The Contractor shall provide lubrication records to the Engineer. These records shall include the injection amount, in gallons, of lubricant pumped throughout the burst, reported for each shift. The record shall also include the type of additive used and date, time, and burst distance when used.

B. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

PART 2  PRODUCTS

2.01 HDPE PIPE AND FITTINGS

A. High density polyethylene (HDPE) shall be used for pipe bursting where noted in Table 1. Materials used for the manufacture of HDPE pipe and fittings shall be extra high molecular weight, high density ethylene/hexene copolymer PE 3408 polyethylene resin meeting the specified physical property and pipe performance requirements.

B. The pipe shall be extruded from resin meeting specifications of ASTM D3350 with a cell classification of PE 445574CC and ASTM D1248 pipe grade resin Type III, Class C, Category 5, Grade P34 polyethylene compound. The HDPE pipe shall have an Environmental Stress Crack Resistance (ESCR) of greater than 1000 hours for 50 percent failure as specified in ASTM F1248.

C. The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density, and other physical properties.
D. The pipe shall have a minimum dimension ratio (DR) of 17.

E. Existing sewers shall be reconstructed with HDPE pipe as indicated in Table 2 below.

<table>
<thead>
<tr>
<th>Existing Sewer Approximate Inside Diameter, Inches</th>
<th>HDPE Nominal O.D., Inches</th>
<th>HDPE Approx. I.D., Inches</th>
<th>Min. Wall Thickness, Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8.625</td>
<td>7.550</td>
<td>0.507</td>
</tr>
<tr>
<td>10</td>
<td>10.750</td>
<td>9.410</td>
<td>0.632</td>
</tr>
</tbody>
</table>

F. The pipe shall be to the dimensions and tolerances specified in ASTM F714. Additionally, the pipe shall be inspected per industry accepted manufacturer standards for:
1. Diameter
2. Wall Thickness
3. Concentricity
4. Quick Burst Pressure and Ductility
5. Joint Length
6. Straightness
7. Ovality
8. Toe-In
9. Overall Workmanship Inspection on ID and OD
10. Print Line

G. During extrusion production the HDPE pipe shall be continuously marked with durable printing following this format:
1. Nominal Size
2. Dimension Ratio
3. Pressure Rating
4. Type (Trade Name)
5. Material Classification
6. Certification Basis
7. Blank Position for NSF/FM Use
8. Pipe Test Category
9. Plant
10. Extruder Number
11. Date
12. Operator Number
13. Shift Letter
14. Resin Supplier Code

H. HDPE pipe and fittings shall be joined by butt-fusion or electro-fusion except as otherwise shown. Butt-fusion of mainline HDPE pipe shall only be performed above ground. Electro-fusion couplings may be used only where approved by the Engineer to join segments that must be installed separately. Repair couplings are not allowed.
2.02  PIPE BURSTING LUBRICANT

A. Pipe bursting lubricant shall be a mixture of bentonite and water. Provide admixtures to improve the physical qualities of the mixture. The bursting fluid including admixtures shall be inert.

2.03  PIPE BURSTING EQUIPMENT

A. The pipe bursting machine shall be manufactured by a company that specializes in the design and fabrication of pipe bursting equipment.

B. The pipe bursting tool shall be designed and manufactured to force its way through existing pipe materials by fragmenting the pipe and compressing the old pipe sections into the surrounding soil as it progresses. The bursting unit shall be static pull or pneumatic and shall generate sufficient force to burst and compact the existing sewer line, however, only static pull equipment will be allowed when bursting within 20 feet of any existing structure. Contact the manufacturer's technical representative to determine recommended bursting head dimensions and configuration for the upsize required to install the new pipe as indicated on the Drawings.

PART 3  EXECUTION

3.01  GENERAL

A. The CONTRACTOR shall not begin pipe bursting until all required submittals have been provided, reviewed, and accepted.

B. The Contractor shall be responsible for locating all side sewers, laterals, house connections, and placement of cleanouts as indicated on the Drawings. The Contractor shall also be responsible for dewatering and bypassing sewer flow around his work (if required), temporary suspension and restoration of sewer service along with Owner notification for all facilities affected, and restoration of side sewers.

C. Traffic control activities shall be performed in accordance with the Contractor’s prepared and approved Traffic Control Plans.

3.02  HANDLING OF PIPE BURSTING LUBRICANT

A. The Contractor shall provide adequate measures for handling and disposal of pipe bursting lubricant. Provide watertight piping, pumps, storage containers and other measures to guard against leakage. Pipe bursting lubricant shall not be discharged into any waterway, storm drain, sanitary sewer or other such conveyance, nor shall it be disposed of at the work site.

B. The Contractor shall regulate the pressure of pipe bursting lubricant and conduct bursting operations in such a manner that minimizes the potential for pipe bursting lubricant to migrate to the surface.

C. The Contractor shall dispose of all pipe bursting lubricant properly away from the construction site in accordance with applicable state and local regulations for disposal of these materials. Use the disposal sites identified in the Contractor’s accepted submittal for pipe bursting lubricant disposal.
3.03 PRELIMINARY TELEVISION INSPECTION OF GRAVITY SEWER

A. The Contractor shall perform a preliminary television inspection of the gravity sanitary sewers to be pipe burst. The Contractor shall assess the current condition of the existing pipes including any breaks in the line; degree of root intrusion; location of sags and swales; and possible blockages from sediment or broken pipe and make a determination of any potential problem conditions that may affect the pipe bursting operation. Television inspection shall be performed sufficiently far in advance of pipe bursting work to permit correction of such deficiencies prior to pipe bursting without affecting the schedule for pipe bursting work. All television inspection activities shall be performed in accordance with Sections 0415 Video Pipe Inspection.

B. The log and tape shall be submitted to the Engineer at least 5 working days prior to the scheduled pipe bursting installation. The Contractor shall receive the Engineer’s approval prior to proceeding with the pipe bursting installation.

C. Should the camera get stuck in the sewer, the Contractor shall be responsible for all costs in extracting it. Costs related to difficulties encountered during internal video inspection are incidental to the contract, and claims will not be considered.

D. As a result of the findings in the preliminary television inspection, cleaning of the line may be required prior to the pipe bursting operation.

3.04 INSERTION AND RECEIVING PITS

A. GENERAL
   1. The Contractor shall carry out all operations in strict accordance with all applicable OSHA, state and local safety standards. After award of the contract and prior to beginning work, the Contractor shall submit an installation plan to the Engineer indicating the location and size of all pits required for the work. Pit location and size shall be verified in the field prior to construction of the project and are subject to Engineer approval.

B. LOCATION AND NUMBER
   1. Insertion and receiving pits shall be excavated at the ends of the line to be replaced unless otherwise required. Pits shall be centered over the existing sewer line. The Contractor shall minimize the number of pits; however, sufficient number of pits shall be utilized to properly construct the project. Use existing manholes where practicable.

C. DIMENSIONS
   1. Dimensions of the pits shall be of sufficient size and length to accommodate the depth of the sewer system shown on the Drawings and to meet the requirements of manufacturer’s allowable bending radius and installation requirements for new pipe to be installed.

D. SAFETY
   1. All pits shall be prepared and backfilled in accordance with sound bedding practices and in accordance with ASTM D2774 and D2321. All pits shall be adequately braced to insure safe work areas. The pits shall be covered with steel plates when not in use to prevent unauthorized entry. Any holes that exist in the steel plates shall be sealed.
E. MAINTENANCE AND PROTECTION OF EXISTING UTILITIES
   1. The Contractor shall maintain, restore, and protect all existing utilities, pipes or structures located within the pits.

F. TRENCH BACKFILL
   1. Trench backfill for the pipe bursting pits shall be placed and compacted in accordance with OSSC Section 00330, Earthwork.

3.05 PIPE INSTALLATION

A. The Contractor is not allowed to stockpile pipe or any other material used for the contract within City right-of-way except to layout and fuse the pipe.

B. Sections of polyethylene pipe shall be joined into continuous lengths on the job site above ground. The joining method shall be the butt fusion method to provide a leak proof joint. Socket fusion, threaded, solvent-cement, or repair joints and connections are not permitted. All equipment and procedures shall be used in strict compliance with the pipe manufacturer's recommendations. Fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, fusion temperature, alignment and fusion pressure. Electrofusion couplings may be used for field closures as necessary.

C. A fire retardant bag or suitable enclosure shall be used with the heater plate to facilitate control of heating process and to protect the heater plate surfaces from dirt and other debris when not in use. The heater plate surfaces shall be cleaned regularly as needed to prevent accumulation of fusion welding residues or other substances that may result in faulty pipe joining.

D. Butt fusion shall conform to ASTM D2657 and pipe manufacturer's criteria for the type of joining. The butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the Engineer prior to installation. All defective joints shall be cut out and replaced at no cost to the City. Any section of the pipe with a gash, blister, abrasion, nick, scar, or other deleterious fault greater in depth than 10 percent of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with the procedure stated above. In addition, any section of the pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling as determined by the ENGINEER shall be discarded and not used. Butt fusion shall only be performed on pipe that is above ground. Butt fusion shall not be performed once the pipe is installed in the trench.

E. The inside and outside of pipe ends shall be cleaned with a cotton or non-synthetic cloth to remove dirt, water, grease, and other foreign materials. The pipe ends shall be cut square and carefully aligned just prior to heating.
F. After achieving the proper melt pattern, the pipe ends shall be brought together in a firm rapid motion applying sufficient pressure to form a pipe bead (1/8-inch to 3/16-inch in height) around and inside the entire circumference of the pipe.

G. The inside weld bead shall be removed by cutting the bead away without scoring the side wall of the pipe. The Contractor shall provide a submittal for review of the proposed debeading process for use in removing the bead from the newly joined HDPE pipe sections.

H. Any make-up pieces needed to connect from the HDPE installed by pipe bursting to a manhole or to another segment of sewer shall be of the same DR and of the same diameter. Make-up pieces shall be connected to the previously installed HDPE pipe by use of a heat fusion coupling. Electrofusion couplings may be used for field closures as necessary. No mechanical couplings will be allowed.

I. The butt-fusion method for pipe joining shall be carried out in the field by certified operators with prior experience in fusing HDPE pipe with similar equipment using proper jigs and tools per standard procedures outlined by the pipe manufacturer. It shall be the sole responsibility of the Contractor to provide an acceptable butt-fusion joint.

J. All joints shall be made available for inspection by the Engineer before installation.

K. Flanged joining, or other mechanical joining methods specified, may be used to make connections to differing piping materials, to equipment, valves and other appurtenances, and where specified and/or required for testing. HDPE pipe ends to be connected using flange connections shall be terminated with butt fused stub ends and connected with 316 stainless steel convoluted backup flanges as manufactured by Improved Piping Products, or equal.

L. The new sewer pipe shall be installed on the same line and grade as the existing sewer line.

M. Install pulleys, rollers, bumpers, alignment control devices and other equipment to protect pipe from damage during installation.

N. Provide bentonite slurry on the bursting head and the exterior of the replacement pipe to reduce skin friction resulting from bursting forces and the friction between the bursted pipe and the insitu soils during the pipe bursting operation.

O. Pipe insertion shall be continuous from one manhole to another.

P. The Contractor shall take extreme care to protect facilities, such as adjacent utilities and above ground terrain or improvements from damage by forces generated by the pipe bursting equipment. Should the Contractor’s equipment/operation cause such damage, the Contractor shall stop work and modify his equipment and/or methods to the satisfaction of the Engineer to prevent further damage. The Contractor shall repair or replace the damaged utility or facility, to the utility or facility Owner’s satisfaction, prior to moving on to the next pipe section and prior to any payment.

Q. Pipe bursting tool shall be pulled through the sewer by a winch located at an adjacent manhole. The bursting unit shall pull the HDPE pipe with it as it moves forward. The
bursting head shall incorporate a shield/expander to prevent collapse of the hole ahead of the HDPE pipe insertion. The pipe bursting unit shall be remote controlled.

R. For static pipe bursting the pulling frame shall have sufficient pull force to cause the bursting head to break the existing pipe and the soil outwards as required for installation of the new pipe.

S. For pneumatic bursting, the bursting unit shall have its own forward momentum while being assisted by winching.

T. The winch shall be attached to the front of the bursting unit. The winch shall provide a constant tension to the bursting unit in order that it may operate in an efficient manner. The winch shall ensure directional stability in keeping the unit on line.

U. For pneumatic bursting the constant tension winch shall supply sufficient cable in one continuous length so that the pull may be continuous between approved winching points. The winch, cable and cable drum must be provided with safety cage and supports so that it may be operated safely without injury to persons or property. Contractor shall provide system of guide pulleys and bracing at each manhole to minimize cable contact with the existing sewer between manholes.

V. The Contractor shall allow the polyethylene pipe to return to its original length and shape in the unstressed state before trimming any excess liner in the manhole before making the connection to the manhole. The liner pipe manufacturer's recommendations shall be followed regarding the relief and normalization of stress and strain due to temporary stretching or elongation after pulling operations are completed. Time allowed for stress and strain relief shall not be less than 24 hours.

3.06 CROSSING/ADJACENT UTILITIES

A. The Engineer has contacted private and public utilities and has shown on the Drawings those utilities within the project limits indicated as existing by the various utilities. It shall be the Contractor's sole responsibility to determine and verify from the utility information provided on the Drawings if the sanitary sewer can be pipe burst without damaging the adjacent and crossing utilities. If the Contractor determines it cannot successfully pipe burst in the area of the crossing or adjacent utility, the Contractor shall replace, relocate, or in the case or franchise utilities facilitate the relocation, of portions of existing utilities that are or may be damaged. such portions by open cut.

B. If the Contractor elects to burst the sanitary sewer in the area of a crossing/adjacent utility, the Contractor shall be responsible for all costs associated with repair of the utility and any resulting damage claims should it be damaged through the bursting operation. In addition, the Contractor shall excavate and expose all utility crossings that are within the potential zone of impact of the pipe bursting and could be damaged, prior to the start of the bursting operation. The potential zone of impact shall be identified by the Contractor and reported to the Engineer prior to beginning work and identifying the limits of this zone shall be the sole responsibility of the Contractor, based on method and equipment used and observed field conditions. The excavation shall remain open until the bursting head has passed the utility crossing and the excavation backfilled only after inspection and acceptance by the Engineer. When placement and compaction of crushed rock aggregate cannot be accomplished to support the space between existing
and new underground utilities, concrete caps and/or cradles shall be placed in accordance with the details on the project plans.

3.07 REMOVAL, REPLACEMENT, AND CONNECTION TO MANHOLES

A. Refer to OSSC Section 00400, Drainage and Sewers.

B. Remove manhole inverts, benches, and channels to permit access for installation equipment. Enlarge the input and output pipe openings if required to accommodate the maximum outside diameter size of the insertion equipment. Do not put undue stress on existing structures. Reinstall inverts and reconstruct benches and channels after pipe liners have been installed.

C. In areas where new manhole are not being installed or existing manholes are not available, excavate and restore pits at no additional cost to the Agency.

D. Make all connections to concrete manholes, structures and pipelines using slip-on bell end adaptors that form a water tight seal between the adaptor and the HDPE pipe.

E. Remove damaged concrete from the manhole wall centering the bell end adapter on the channel alignment and matching the original invert elevation. Fill void area between manhole wall and pipe adapter with non-shrink hydraulic grout to form a water tight seal.

3.08 MANHOLE BASE RECONSTRUCTION

A. Reconstruct manhole bases by removing the existing base and constructing a new base with a finished surface no higher than 6 inches below the outside portion of the lowest pipe outflow. Shape new smooth, depression-free channels to the elevation shown. Remove the bottom manhole step as required for the new base. Do not damage existing manhole walls or existing pipes. Repair all cracks with non-shrink grout.

3.09 AIR TEST

A. The Contractor shall perform an air test prior to reinstatement/reconnection of any service connections in accordance with OSSC 00445.72.

3.10 POST INSTALLATION TELEVISION INSPECTION

A. Upon completion of all sanitary and storm sewer construction, testing and repairs, Contractor shall conduct a color TV acceptance inspection of all installed lines 6 inches to 72 inches per 00415 Video Pipe Inspection. Unless otherwise directed, The acceptance inspection shall be conducted by an approved technical service which is equipped to make audio-visual tape recordings of the televised inspections.

3.11 QUALITY CONTROL

A. During insertion of the replacement pipe, the maximum allowable longitudinal elongation, or stretch, of the material shall be 1% after temperature adjustment. The fully installed measurement shall be taken a minimum of 24 hours or as recommended by the pipe manufacturer after installation of the pipe by pipe bursting. The longitudinal stretch of the replacement pipe shall be gauged by comparing the initial and final (fully installed)
length measurements. The Engineer shall measure the length of pipe section to be installed prior to insertion. The allowable pull stress on the HDPE pipe shall be as required by the pipe manufacturer.

B. The testing and inspection specified in OSSC 00445.72 shall be required after the replacement pipe has been installed. The replacement pipe shall be pressure tested prior to the reconnection of the side sewers. If the pipe fails any of the tests or if any adverse changes to the original pipe grade result or if the inspection indicates any other defects in any section of the line, the defective pipe will be evaluated by the Engineer and if it is determined that the pipe is unacceptable, the Contractor shall repair or replace the unacceptable pipe at the Contractor's expense.

3.12 SEWER SERVICE CONNECTIONS

A. All sewer connections shall be located prior to pipe insertion to expedite relocation.

B. The installed pipe shall be allowed the manufacturer’s recommended time, but not less than 24 hours, for cooling and relaxation due to tensile stressing prior to reconnection of existing service lines or backfilling of the insertion pit. Sufficient excess length of new pipe, but not less than four inches, shall be allowed to protrude into the manhole to provide for relaxation.

C. After the replacement pipe has been completely installed, tested and inspected, the Contractor shall reconnect all existing service laterals to the replacement pipe using HDPE electro-fusion saddles or butt-fusion branch saddles. Saddles shall be installed in accordance with manufacturer’s written instructions. Service laterals shall be replaced up to the property line, or as directed by the Engineer, in accordance with OSSC Section 00400, Drainage and Sewers.

3.13 FINAL PIPE CLEANING

A. Prior to final acceptance and final inspection of the pipe by the Engineer, the Contractor shall flush and clean all parts of the system by removing all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the pipe.

3.14 SURFACE RESTORATION

A. Upon completion of the pipe bursting operations, and installation, testing and inspection of the replacement pipes, the Contractor shall restore all areas disturbed by these operations.

END OF SECTION
PART 1 GENERAL

1.01 SCOPE

A. This specification covers the work, surface preparations, coating system materials, and equipment required for rehabilitation of existing concrete manholes. See Table 1 for the manholes requiring rehabilitation and the scope of rehabilitation required. Manholes requiring adjustment to grade are indicated in Table 1 and in the Drawings.

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Manhole No.</th>
<th>Replace Frame and Lid</th>
<th>Seal Chimney and Frame</th>
<th>Replace Bench</th>
<th>Install New Manhole Coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-001</td>
<td>E03D-012S</td>
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<td>X</td>
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</tr>
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</table>
1.02  REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. All work shall be conducted in accordance with the following references:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D638</td>
<td>Tensile Properties of Plastics</td>
</tr>
<tr>
<td>ASTM D790</td>
<td>Flexural Properties of Unreinforced and Reinforced Plastics</td>
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<tr>
<td>ASTM D695</td>
<td>Compressive Properties of Rigid Plastics</td>
</tr>
<tr>
<td>ASTM D4541</td>
<td>Pull-off Strength of Coatings Using a Portable Adhesion Tester</td>
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<tr>
<td>ASTM D4414</td>
<td>Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages</td>
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<tr>
<td>ASTM D2584</td>
<td>Volatile Matter Content</td>
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<td>ASTM D2240</td>
<td>Durometer Hardness, Type D</td>
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<td>ASTM D543</td>
<td>Resistance of Plastics to Chemical Reagents</td>
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<tr>
<td>ASTM C109</td>
<td>Compressive Strength Hydraulic Cement Mortars</td>
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<td>ASTM C348</td>
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<td>ASTM C396</td>
<td>Compressive Strength of Cement Mortars</td>
</tr>
<tr>
<td>ACI 506.2-77</td>
<td>Specifications for Materials, Proportioning, and Application of Shotcrete</td>
</tr>
<tr>
<td>ASTM C579</td>
<td>Compressive Strength of Chemically Setting Silicate and Silica Chemical Resistant Mortars</td>
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<tr>
<td>ASTM D4258</td>
<td>Standard Practice for Surface Cleaning Concrete for Coating</td>
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<tr>
<td>ASTM D4262</td>
<td>Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces</td>
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<td>ASTM</td>
<td>The published standards of the American Society for Testing and Materials, West Conshohocken, PA</td>
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<tr>
<td>NACE</td>
<td>The published standards of National Association of Corrosion Engineers (NACE International), Houston, TX</td>
</tr>
<tr>
<td>OSHA 29CFR</td>
<td>Occupational Safety and Health Administration (OSHA), 1926 /191 Safety and Health Standards</td>
</tr>
<tr>
<td>SSPC</td>
<td>The published standards of the Steel Structures Painting Council, Pittsburgh, PA</td>
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</table>

1.03  SUBMITTALS

A. PRODUCT DATA, SHOP DRAWINGS, AND SAMPLES:
   1. Technical data sheet on each product used, including ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications.
   2. Material Safety Data Sheets (MSDS) for each product used.

B. QUALITY CONTROL SUBMITTALS:
   1. Manufacturer certification that Applicator has been trained and approved in the handling, mixing and application of the products to be used.
   2. Certification that the equipment to be used for applying the products has been manufactured or approved by the protective coating Manufacturer and Applicator personnel have been trained and certified for proper use of the equipment.
   3. Five Applicator references indicating successful application of coating for manhole rehabilitation within the past 5 years. These manhole rehabilitation projects shall have in service in the Owner’s system for at least one year.
   4. Proof of any necessary federal, state or local permits or licenses necessary for the project.
   5. A training outline for the certification program.
   6. The results of third-party testing from the Manufacturer.
7. Written warranty per 02 73 00 – 1.06.
8. Written certification from the protective coating Manufacturer that joint seals, grout, and other repair materials are compatible with the protective coating.

C. CONSTRUCTION SUBMITTALS:
1. Project specific guidelines and recommendations.
2. Design details for any additional ancillary systems and equipment to be used in site and surface preparation, application and testing.

1.04 QUALITY ASSURANCE

A. QUALIFICATIONS:
1. Coating and repair mortar applicators shall be trained to properly apply the cementitious mortar and protective coatings according to Manufacturer's published recommendations.

B. CERTIFICATIONS:
1. Protective coating shall be applied by a Certified Applicator of the protective coating Manufacturer and according to Manufacturer specifications.

1.05 DELIVERY, STORAGE AND HANDLING

A. PACKING AND SHIPPING:
1. Materials shall be delivered to the job site in their original, unopened containers. Each container shall bear the Manufacturer's name, coating type, batch number, date of manufacture, storage life, and special handling directions.

B. ACCEPTANCE AT SITE:
1. The Engineer shall reject materials exceeding the storage life recommended by the Manufacturer and they shall be removed from the site, and replaced at no additional cost to the City.

C. STORAGE AND PROTECTION:
1. Materials shall be stored in enclosed structures and shall be protected from weather and excessive heat or cold. Flammable materials shall be stored in accordance with state and local codes.

1.06 WARRANTY

A. Except as modified below, the warranty and guarantee period shall be in compliance with Special Provision 00170.85.

B. The Contractor shall provide a written 5-year, non-prorated full warranty from the coating Manufacturer for the entire coating system as installed, including all surface preparation, repair material, defect fillers, primers, intermediate, and finish coats.

C. This warranty shall state that the coating system installation will not fail in any way for a minimum period of 5 years. Coating system failure is defined as blistering, cracking, embrittlement, softening, or failure to adhere to the substrate. The warranty shall also apply to any repair materials, primers, or other products used in the application and shall
cover full removal and replacement of any defective coating system elements. Should any repairs be required during the original 5-year period, a new warranty period of 5 years shall be initiated for the entire manhole. The warranty may not include any clause that shifts responsibility to the Contractor or its installation.

PART 2 PRODUCTS

2.01 REPAIR MATERIALS

A. Repair materials shall be used to fill voids, structurally reinforce and/or rebuild surfaces, etc. as determined necessary by the Engineer and protective coating applicator. Repair materials shall be compatible with the specified protective coating and shall be applied in accordance with the recommendations of the Manufacturers of both the repair material and the protective coating.

B. The following products may be accepted and approved as compatible repair basecoat materials for topcoating for use within the specifications:

1. 100 percent solids epoxy grout specifically formulated for topcoating compatibility. The epoxy grout Manufacturer shall provide instructions for trowel or spray application and for topcoating procedures.

2. Factory blended, rapid setting, high early strength, fiber reinforced, non-shrink repair mortar that can be trowelled or pneumatically spray applied may be approved if specifically formulated to be suitable for topcoating. Such repair mortars shall not be used unless their Manufacturer provides information as to its suitability for topcoating. Project specific submittals shall be provided including application, cure time and surface preparation procedures that permit optimum bond strength with the protective coating.

3. Shotcrete shall conform to all requirements of ACI-506.2-77 as published by the American Concrete Institute, Detroit, MI except as modified by these specifications. Shotcrete shall be composed of Portland Cement, aggregate and water so proportioned as to produce a concrete suitable for pneumatic application. Shotcrete ingredients shall be selected and proportioned in such a manner as will produce concrete which will be compatible for topcoating. Shotcrete shall have a minimum surface tensile strength of 300 psi. No coatings shall be applied prior to a full 28-day cure unless test patches of coatings exhibit acceptable bonding characteristics and no outgassing as prescribed herein or the repair mortar Manufacturer certifies acceptable topcoating parameters.

4. Cementitious patching and repair materials shall not be used unless the protective coating Manufacturer approves their use. Project specific submittals shall be provided including application, cure time and surface preparation procedures which permit optimum bond strength with the protective coating.

2.02 PROTECTIVE COATING MATERIAL

A. The protective coating system shall be Sauereisen Sewergard 210S, as manufactured by Sauereisen, Inc. of Pittsburgh, PA, or Engineer approved equal.

2.03 PROTECTIVE COATING APPLICATION EQUIPMENT

A. Equipment shall be specifically designed, or approved for use, by the protective coating Manufacturer, heated plural component or standard airless spray equipment for use in
the application of the specified protective coating. If recommended by Manufacturer, coating may be trowel applied.

2.04 REPAIR MORTAR SPRAY APPLICATION EQUIPMENT (IF SPRAY APPLIED)

A. Equipment shall be specifically designed, or approved for use by the repair mortar material Manufacturer, for continuous mixing and spraying of the material.

2.05 CORROSION INHIBITOR FOR REINFORCED STEEL

A. Reinforcing steel, exposed by corrosion or during surface preparation operations, shall be treated with a water-based epoxy resin, anti-corrosion coating and bonding agent such as Armatec 110 EpoCem, manufactured by the Sika Corporation, or approved equal.

2.06 JOINT-SEAL MATERIAL

A. Manhole joint seal material shall be approved for use with manhole coatings and shall be one of the following products, or Engineer approved equal.
   1. Ram-Nek, K.T. Snyder Company
   2. Kent Seal, Hamilton, Kent Manufacturing Company
   3. Quik-Seal, Quikset Utility Vaults

2.07 CHIMNEY SEALANT

A. The chimney sealant shall be Sauereisen Manhole Chimneyseal No. F-88, as manufactured by Sauereisen, Inc. of Pittsburgh, PA, or Engineer approved equal.

2.08 BONDING COMPOUNDS

A. All surfaces where new concrete will bond with existing concrete shall be coated with a bonding compound described in OSSC Section 00440, Commercial Grade Concrete or as recommended by the Manufacturer of the concrete repair material.

2.09 MANHOLE GRADE ADJUSTMENT

A. Where adjustment to grade of manhole frames and rings is indicated on the Drawings, Contractor shall use the “Whirlygig” manhole collar system, as manufactured by Whirlygig, Inc., Caldwell, ID., or Engineer approved equal.

B. In paved areas, riser and collar shall be cast-in-place, via a monolithic pour that fills the entire excavation cavity. In non-paved areas, the monolithic pour shall be to within 12 inches of existing grade. The remainder of the fill materials shall match existing adjacent to the manhole. Riser and collar excavation shall be a minimum of 48 inches in diameter and no less than 12 inches from the edge of the steel ring to the edge of the excavation. Depth of the excavation shall extend down to the concrete manhole cone plus one inch around the top of the cone. High early strength concrete shall be used in the monolithic pour per OSSC Section 00440, Commercial Grade Concrete. Thermoplastic forms shall meet the following requirements for linear low density polyethylene:
<table>
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<th>Property</th>
<th>Standard</th>
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<tr>
<td>Density</td>
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<td>Elongation at Break %</td>
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<td>Flexural Modulus, Gpa</td>
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**Thermal Properties**

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<tr>
<td>Deflection Temperature at 0.46 Mpa, °C</td>
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<tr>
<td>Deflection Temperature at 1-8 Mpa, °C</td>
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<tr>
<td>Vicat Softening Point, °C</td>
<td>ASTM D-152</td>
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C. The inside form of the cast-in-place concrete riser/collar shall be tubular in shape and sufficient in strength to withstand a minimum vertical static load of 1,000 lbs., and a minimum radial static load of 150 lbs/sf., prior to pouring concrete. The form shall be left in place to protect the riser from corrosive acids and other elements capable of degrading concrete.

### 2.10 RESET MANHOLE FRAME AND COVER

A. Where reset manhole frame and cover is indicated on the Drawings, the Contractor shall excavate a minimum of 48 inches in diameter around each cover and no less than 12 inches from the edge of the steel ring to the edge of the excavation. Depth of the excavation shall extend down to one inch below the top of the first riser section. The excavation shall be filled with a monolithic pour of high early strength concrete per OSSC Section 00440, Commercial Grade Concrete.

**PART 3 EXECUTION**

### 3.01 GENERAL

A. The manhole coating shall yield a hard, durable chemical resistant coating and shall be specifically designed to be applied on a dry surface. The finished coating shall provide a watertight seal and shall adhere to concrete, PVC and other components of the pipeline liner systems.

### 3.02 EXAMINATION

A. All structures to be coated shall be readily accessible to Applicator.

B. Appropriate actions shall be taken to comply with local, state and federal regulatory and other applicable agencies with regard to environment, health and safety.

C. Applicator shall inspect all surfaces specified to receive a protective coating prior to surface preparation. Applicator shall notify Engineer of any noticeable disparity in the surfaces which may interfere with the proper preparation or application of the repair mortar and protective coating.
D. Installation of the protective coating shall not commence until the concrete substrate has properly cured in accordance with these specifications.

E. Temperature of the surface to be coated shall be maintained between 40 degrees F and 120 degrees F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, care shall be taken to apply the coating when the temperature is falling versus rising (i.e., late afternoon into evening vs. morning into afternoon).

3.03 CLEANING AND PREPARATION

A. All active flows, including leaks, shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be coated during preparation, application and curing process. Hot air shall not be added to the manhole to accelerate set time of the coating.

B. If manhole is constructed of pre-cast sections, pipe joint seals shall be installed. No leaks may be present prior to commencing and during work.

C. Contractor shall remove all manhole steps prior to cleaning. Unless otherwise directed by the Engineer, manhole steps shall be cut using a handsaw flush with the manhole wall. Voids or holes remaining from removal of the steps shall be filled and troweled flush. After final acceptance of rehabilitation work, new steps shall be installed in the manhole per the requirements of OSSC Section 00470 Manholes, Catch Basins, and Inlets and standard details.

D. All concrete or mortar that is not sound or has been damaged by chemical exposure shall be removed to a sound concrete surface.

E. All contaminants including oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants shall be removed.

F. Surface preparation method(s) shall be based on the conditions of the substrate, service environment and the requirements of the protective coating to be applied.

G. All surfaces shall be repaired in accordance with the published recommendations and specifications of the protective coating Manufacturer.

H. Remove existing coatings prior to application of the new protective coating. Applicator shall maintain strict adherence to applicable NACE and SSPC recommendations with regard to proper surface preparation and compatibility with existing coatings.

I. Surfaces to receive protective coating shall be cleaned and abraded to produce a sound surface with adequate profile and porosity to provide a strong bond between the protective coating and the substrate. Methods such as high pressure water jetting (refer to NACE Standard No. 5/SSPC-SP12), abrasive blasting, shotblasting, grinding, scarifying or acid etching may be used. Detergent water cleaning and hot water blasting may be necessary to remove oils, grease or other hydrocarbon residues from the concrete. Whichever method(s) are used, they shall be performed in a manner that provides a uniform, sound, clean, neutralized surface that is not excessively damaged.
J. A mild chlorine solution may be used to neutralize the surface to diminish microbiological bacteria growth prior to final rinse and coating.

K. Infiltration shall be stopped by using a material that is compatible with the specified repair mortar and is suitable for topcoating with the specified protective coating.

L. Infiltration leaks that cannot be controlled and stopped by repair mortar shall be plugged by drilling through the manhole wall then injected with an approved acrylamide grout until the leak is stopped. The hole through the concrete manhole shall be patched with an approved hydraulic grout that is compatible with the specified protective coating.

M. Test prepared surfaces after cleaning but prior to application of the protective coating to determine if pH, profile and moisture content of the concrete are within Manufacturer's published recommendations and requirements. Concrete surface pH shall be greater than 7.0.

N. The area between the manhole and the manhole ring and any other area that might exhibit movement or cracking due to expansion and contraction shall be grouted with a flexible or elastomeric grout or gel as specified in 02 73 00 – 3.06. Castings shall be abrasive blasted and coated to prevent corrosion as directed by the Engineer.

O. Saw cut the perimeter of each repair area to a depth of 1/2 inch as detailed in the Drawings. DO NOT CUT REINFORCING STEEL.

P. All surfaces shall be inspected by the Engineer during and after preparation and before the repair mortar is applied.

Q. If directed by the Owner, the Contractor shall restore the manhole profile surface to the original thickness, and replace corroded or missing reinforcement in a manner to be proposed by the Contractor and reviewed and approved by the Engineer. The restored manhole profile shall have a uniform thickness.

3.04 REINFORCING STEEL TREATMENT

A. PROCEDURES:
   1. Where corrosion or surface preparation activities have exposed reinforcing steel the following procedure shall be used:
      a. If half the diameter of the reinforcing steel, or more, is exposed, chip out behind the reinforcing steel a minimum of 1/2 inch for placement of grout or polymer concrete.
      b. Determine section area loss of reinforcing steel.
      c. Where reinforcing steel cross section area loss exceeds 15 percent of the original reinforcing steel, perform structural repair as directed by the Engineer.
      d. Abrasive blast all exposed reinforcing steel surfaces to remove all contaminants and corrosion products.
      e. Apply a 20 mil (wet) coat of corrosion inhibitor to all surfaces of the clean, exposed reinforcing steel with stiff brush or spray equipment. Cure to tack-free 2 to 3 hours.
      f. Apply a second 20 mil (wet) coat of corrosion inhibitor and allow for 2-hour to 3-hour cure prior to placement of polymer mortar, cementitious mortar, or grout.
2. Abrasive Blast Cleaning
   a. Prior to abrasive blast cleaning, all salts, oil, grease, scum, or other visible contaminants shall be removed by high pressure water blasting.
   b. Blast cleaning shall be performed using dry abrasive blasting procedures in accordance with ASTM D4259. Abrasive particle size and type shall be sufficient to produce the specified surface profile. Abrasive material in the blast cleaning operation shall be free of contaminants that would interfere with adhesion of the corrosion inhibitor and shall not be reused.
   c. The Contractor shall comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.
   d. Abrasive blast cleaning hoses shall be grounded to prevent accumulation of static electricity.
   e. Compressed air for cleaning shall be supplied at adequate pressure from well maintained compressors equipped with oil/moisture separators which remove at least 95 percent of the contaminants.
   f. The Contractor shall keep the area of his work in a clean condition and shall not permit materials to accumulate as to constitute a nuisance or hazard to the performance of the work or the operation of the existing facilities. After abrasive blasting, thoroughly vacuum or wash with clean water, all surfaces as required to remove dust, salts and detergent residue.

3.05 SEWAGE FLOW AND DIVERSION
   A. Provide means, labor, and equipment to divert flow from pipelines entering the manhole as necessary to prevent sewage flow from contacting surfaces to be coated per the requirements of Section 02 14 50, Sewer Bypassing and Dewatering.
   B. Provide means, labor, and equipment to prevent solid waste generated during construction activities from entering the sewage flow.

3.06 APPLICATION OF REPAIR MATERIALS
   A. Areas where structural steel has been exposed or removed shall be repaired as directed by the Engineer.
   B. All surface defects including tie holes, any honeycombing or otherwise defective concrete or brick shall be repaired. All voids, holes, and rough or irregular surfaces shall be filled.
   C. Repair materials shall meet the specifications herein. The materials shall be trowel or spray applied using proper equipment onto specified surfaces.
   D. If using approved cementitious repair materials, such materials shall be trowelled to provide a smooth surface with an average profile equivalent to coarse sandpaper to optimally receive the protective coating. No bug holes or honeycomb surfaces shall remain after the final trowel procedure of the repair mortar.
   E. The repair materials shall be permitted to cure according to Manufacturer’s published recommendations. Curing compounds shall not be used unless approved for compatibility with the specified protective coating.
F. Application of the repair materials, if not performed by the coating certified applicator, shall be inspected by the protective coating certified applicator to ensure proper finishing for suitability to receive the specified coating.

G. After abrasive blast cleaning and leak repair is performed, all surfaces shall be inspected for remaining laitance prior to protective coating application. Any evidence of remaining contamination or laitance shall be removed by additional abrasive blast, shotblast or other approved method. If repair materials are used, refer to these specifications for surface preparation. Areas to be coated shall also be prepared in accordance with these specifications after receiving a cementitious repair mortar and prior to application of the protective coating.

H. All surfaces shall be inspected by the Engineer during and after preparation and before the protective coating is applied.

I. Extend all existing control and expansion joints through any patch or repair area.

3.07 APPLICATION OF PROTECTIVE COATINGS

A. Application procedures shall conform to the published recommendations and specifications of the protective coating Manufacturer, including material handling, mixing, environmental controls during application, safety, and spray equipment.

B. Confirm that the ambient temperature and humidity, the prepared surface temperature and moisture content, and the temperature of the coating material to be applied are within the Manufacturer’s recommended ranges. Coatings shall be applied at a time of day when the ambient temperature and humidity is expected to be steady or falling.

C. Ensure that pump, hoses, gun, tip, and pressure are properly matched for the coating to be applied. Ensure that the application equipment has been properly cleaned prior to application of coating. Test spray pattern for uniformity of distribution.

D. The protective coating material shall be applied by a Certified Applicator of the protective coating Manufacturer.

E. The prime and finish coat (as applicable) shall be a contrasting color. The color of the final coat shall be chosen by the Engineer, if different colors are available.

F. The coating shall be applied to a minimum thickness of 125 mil in a single coat when possible. If application of a single coat at the required thickness is not possible, multiple coats may be applied per the Manufacturer’s instructions and within the time period allowed for proper application.

G. Drying time between coats shall be as recommended by coating Manufacturer.

H. The Contractor shall follow coating Manufacturer’s requirements for bonding the coating systems to the installed sewer liner, if applicable.

3.08 REPAIR OF MANHOLE BENCH AND CHANNEL

A. The Contractor shall repair manhole bench and channel with non-shrink grout in accordance with these specifications. At a minimum, Contractor shall raise manhole
bench to the same elevation as the springline of the pipe. Manhole bench shall be sloped as shown in Standard Detail. Minimum grout thickness shall be 3/4 inch

B. If replacement of the bench is identified, the Contractor shall first remove existing bench concrete until the required base elevation is achieved and sound concrete remains, then reconstruct the bench and channel with non-shrink grout as noted above.

3.09 CHIMNEY SEAL

A. The area between the manhole and the manhole ring and any other area that might exhibit movement or cracking due to expansion and contraction shall be grouted with a watertight, expansive grout. Manhole chimney and manhole frame shall be sealed with an elastomeric lining composed of fiber-reinforced, asphalt-modified urethane.

3.10 MANHOLE STEPS

A. Manhole steps meeting the requirements of OSSC Section 00470 Manholes, Catch Basins, and Inlets and standard detail shall be installed after application of repair materials.

3.11 MANHOLE ADJUSTMENT TO GRADE

A. Where indicated on the Drawings, manholes shall be adjusted to grade using the “Whirlygig” manhole collar system, or Engineer approved equal. Where manholes are located in paved areas, existing paved surfaces shall be saw cut in a circular pattern prior to adjustment. High early-strength, 3,600 psi concrete, per OSSC Section 00440 Commercial Grade Concrete, shall be used to adjust manhole to grade and level the saw cut area around the frame in paved areas. Concrete shall be set in a monolithic pour, and reinforced with 2, #4 hoops spaced evenly, with minimum 2 inches cover. In gravel or backyard areas, the monolithic pour shall be stopped 12 inches from finished grade, and remainder of fill shall match existing to final grade elevation.

3.12 TESTS

A. During application, a wet film thickness gage, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a monolithic coating and uniform thickness during application.

1. Spark Test:
   a. All coated surfaces shall be spark tested for holes. The spark tester used shall provide 12,000 volts for 125 mil thickness coatings.
   b. If pinholes are found, the Contractor shall repair the coating as recommended by the Manufacturer and retest. All testing and repair work shall be at the Contractor’s expense.
   c. The spark testing shall be performed by the Contractor and witnessed by the Engineer, and shall be completed (and any repairs made) prior to the final acceptance inspection.

2. Adhesion Test:
   a. The Contractor shall perform an adhesion test after proper cure in accordance with ASTM D4541 on a minimum of 10 percent of the manholes coated.
b. Manholes to be tested will be chosen by the Engineer and the adhesion test will be witnessed by the Engineer.

c. Test results showing an adhesion rating of 300 psi or better for all surfaces shall be considered acceptable provided the test results in failure at or within the substrate.

d. Where unacceptable test results are obtained, the Contractor shall be responsible for removing and reapplying the specified coatings at no expense to the City.

e. Rehabilitated manholes shall be tested using vacuum tests according to OSSC Section 00470 Manholes, Catch Basins, and Inlets.

3.13 INSPECTIONS

A. At certain hold points in the coating application process, the Contractor shall request approval from the Engineer, to proceed with the next stage of the installation. The following are the designated inspection hold points for each installation:

1. Completion of new concrete surfaces.
2. Completion of surface repairs, reprofiling, and preparation.
3. Completion of primer application.
4. Completion of each application of final coating.
5. Completion of spark testing and retesting.

B. The Contractor shall provide 24-hour notice that approval of an inspection hold point is needed. The Engineer shall respond to the approval request within 12 hours.

C. Failure to receive authorization from the Engineer at one of the designated inspection hold points, may prevent the acceptance of the work by the Engineer on behalf of the City.

3.14 CLEANING

A. Upon completion of coating, the Contractor shall remove surplus materials, protective coverings, and accumulated rubbish, and thoroughly clean all surfaces and repair any overspray, splashes, splatters or other coating-related damage. Surfaces damaged from this clean up shall also be cleaned, repaired and refinished to the original or required condition.

END OF SECTION
SECTION 02 76 00
SEWER CLEANING

PART 1  GENERAL

1.01  REQUIREMENTS

A. This section specifies the requirements for internal cleaning of sewers. Work for cleaning consists of furnishing all labor and equipment to remove and dispose of accumulated sediments in the sewers slated for cleaning.

B. Cleaning of the sewer pipe with high-velocity jetting and vacuum equipment shall be required. Heavy debris accumulation is expected in influent lines to the wastewater treatment plant and rodding or bucketing is possible. Contractor may propose alternative techniques subject to approval of the Construction Manager.

1.02  SUBMITTALS

A. The following submittals shall be provided:
   1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the Specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. A letter identifying the equipment and the methods the Contractor plans to employ to remove sediment and debris from the sewer pipes and structures. The letter shall include:
   1. Detailed explanation of the entire cleaning process including removal and disposal of debris. Include specifications on the equipment to be used to collect and remove debris at the downstream manhole of each pipe segment cleaned.
   2. Schedule of activities.
   3. References where the Contractor has used the identified cleaning method successfully within the past 3 years.
   4. List of actions planned to mitigate noise and other impacts to the public during the cleaning operation, particularly during night time hours.
PART 2 PRODUCTS

2.01 EQUIPMENT

A. Equipment shall be capable of removing dirt, grease, rocks, and sand from pipelines and manholes.

B. High-Velocity, Hydro Cleaning Equipment:
   1. High-Pressure Hose: 1,000 feet, minimum, sized to produce required minimum flow and pressure
   2. Hydraulically driven hose reel
   3. High Velocity Nozzle
      a. Two, minimum
      b. Capable of producing scouring action from 10 degrees to 45 degrees in lines to be cleaned.
   4. Water Tank: 1,000-gallon storage, minimum.
   5. Auxiliary engines and pumps.
   6. Working Pressure: Minimum 2,000 pounds per square inch at 60 gallons per minute.

C. Obtain permission from the Owner for use of hydrants for water required during high-velocity hydro cleaning or flushing.

D. Mechanical cleaning equipment shall be either power buckets or power rodders by the Flexible Tool Division of Rockwell Manufacturing Co., or equal.
   1. Bucket Machines
      a. Be furnished with buckets in pairs and with sufficient dragging power to perform the work efficiently.
      b. Use V-belts for power transmission or have an overload device. No direct drive machines will be permitted.

E. Be equipped with a take up drum and a minimum of 500 feet of cable.
   1. Power rodding machine
      a. Either sectional or continuous.
      b. Hold a minimum of 750 feet of rod.
      c. The rod shall be specifically treated steel.
      d. The machine shall be fully enclosed and have an automatic safety throw out clutch.

PART 3 EXECUTION

3.01 GENERAL

A. Utilize temporary bypass pumping and flow control as specified in Section 02 14 50, Sewer Bypassing and Dewatering.

B. Conduct work to prevent any blockage and minimize surcharging in the sewer structures, connecting pipelines, and service laterals. Damage to existing facilities as a result of the
Contractor’s work shall be promptly repaired in kind at no additional cost to the Owner and any fines for spills shall be paid by the Contractor.

C. When using hydraulically propelled cleaning tools that depend on water pressure to provide cleaning force, or tools that retard flow are used, take precautions to ensure that water pressure created does not damage or cause flooding of public or private property.

D. The Contractor shall be thoroughly familiar with all phases of sewer pipe and structure cleaning to ensure the completion of this work without causing a health hazard or damage to the sewage system, public, and private properties.

E. Mitigate noise in accordance with the Contract Documents.

3.02 PIPELINE CLEANING

A. Remove sediment and debris from pipes slated for cleaning and any other sewers installed or affected by the Work. All cleaning in HDPE pipes shall be done using hydro-cleaning equipment; the use of mechanical cleaning equipment will not be allowed in HDPE pipe.

B. Cleaning shall restore pipe to a minimum of 99 percent of original carrying capacity. No more than 2 percent debris, based on visual observation documented by internal inspection, shall remain in the pipe.

C. Use specialized winching equipment so as not to damage the existing pipeline or manholes.

D. During initial cleaning of new pipe, make minimum of two passes through pipe segment. During final cleaning of new pipe, make a minimum of one pass through the pipe segment.

E. During preparatory cleaning for existing sewers inspection, three passes or less will be classified as light cleaning.

F. If debris volumes in the pipeline are too large to remove with hydraulic jet cleaning equipment, remove debris using heavy cleaning methods.

G. Begin cleaning at upstream segments and proceed to downstream segments. No sewer cleaning shall take place in a particular sewer segment until all upstream pipe segments have been cleaned. If cleaning is done in a downstream pipe segment in order to facilitate overall cleaning operations, the segment shall be re-cleaned at no additional cost, after all pipes upstream of that segment have been cleaned.

3.03 DISPOSAL OF SEDIMENTS

A. Any sediment or debris from cleaning operations larger than U.S. #8 sieve shall not be deposited downstream in the sewer main. Sedimentation deposits downstream, as determined by the Engineer, shall be removed at no additional cost to the Owner.

B. Remove sediments and material from cleaning operation at the end of each workday.
C. Remove all bricks, rocks, debris, sludge, dirt, sand, grease, roots, and other materials from the sewer and manhole and collect and remove the resulting debris from the downstream manholes of the pipeline sections being cleaned.

D. Transport and dispose of all sediments and material removed from the gravity sewer system at an off-site location. On-site stockpiling of removed material will not be permitted.

E. Hauling containers shall be watertight and shall be certified for transport of this material.

F. Coordinate with staff at the City’s Wastewater Treatment Plant for disposal of removed material at this facility.

### 3.04 VERIFICATION OF CLEANING

A. Demonstrate to Engineer results of cleaning effort. Verification shall be made by internal television inspection records, as specified in Section 02 76 10, Inspection of Sewers. Re-clean pipeline segment if Construction Manager determines that the segment has not been adequately cleaned.

END OF SECTION
PART 1 GENERAL

1.01 DESCRIPTION

A. Provide all materials, equipment, labor and incidentals for the installation and testing of cured-in-place pipe (CIPP) lining within the sanitary sewer between access structures.

B. The CIPP process shall consist of inserting a resin-impregnated flexible tube into an existing sewer, expanding the tube out against the sewer pipe, and curing the tube to form a pipe liner. Curing shall be accomplished by circulating heated water or steam to affect the desired cure throughout the tube extending full length from access point to access point.

C. The CIPP shall cure into a hard, impermeable liner pipe of the specified thickness and form a structurally sound liner pipe with a uniformly smooth interior.

D. The nominal CIPP thicknesses listed on the Drawings represent the recommended thicknesses using a virgin non-enhanced polyester resin with a non-reinforced non-woven felt tube. The thicknesses are meant to serve as a reference in coordinating installation requirements and construction sequence.

1.02 [NOT USED]

1.03 REFERENCE STANDARDS

A. Comply with applicable provisions and recommendations of the following:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D5813</td>
<td>Standard Specification for Cured-In-Place Thermosetting Resin Sewer Pipe.</td>
</tr>
<tr>
<td>ASTM F1216</td>
<td>Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.</td>
</tr>
</tbody>
</table>

1.04 QUALIFICATIONS

A. For each method of installation and curing used on this project, Contractor shall have a history of at least 50,000 linear feet (LF) of CIPP work in 8 inch and larger sewers in the last 3 years using a similar resin and felt and using the specific method of installation and curing being used. Submit specific information on projects used that meet this qualification requirement, including the client name and location, client contact
information, completion date, size and footage of installed CIPP, and method of installation and curing.

B. For each method of installation and curing used on this project, the CIPP Work shall be supervised by a foreman or superintendent (i.e., person having direct control over the quality of the CIPP installation) having previously supervised a minimum of 20,000 LF of CIPP in 8 inch and larger sewers in the last 3 years using a similar resin and felt and using the specific method of installation and curing proposed. Identify name of foreman or superintendent and submit specific information on projects used that meet this qualification requirement, including the client name and location, client contact information, completion date, size and footage of installed CIPP, and method of installation and curing. Multiple candidates who meet these requirements may be submitted.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Care shall be taken in shipping, handling and storage to avoid damaging the liner. Any liner damaged in shipment shall be replaced as directed by the Owner at no additional cost to Owner.

B. While stored, the CIPP shall be adequately supported and protected. CIPP shall be stored in a manner as recommended by the manufacturer and as approved by the Engineer.

1.06 QUALITY CONTROL

A. No change of material, design values, or procedures may be made during the course of the Work without the prior written approval of the Engineer.

B. All CIPP to be installed under this Work may be inspected at the wet-out facility for compliance with these specifications by Owner or Engineer. The Contractor shall require the wet-out facility’s cooperation in these inspections. The cost of inspection will be the responsibility of the Owner.

C. No field wet-out of CIPP is allowed.

D. At the time of manufacture at the wet-out facility, inspect each lot of liner for defects. At the time of delivery, the liner shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters, or deleterious faults.

E. Contractor shall have a Quality Control Plan or Procedure in place that will allow the Engineer to monitor the resin impregnation process.

1.07 WARRANTY

A. Except as modified below, all warranty and guarantee requirements shall be in compliance with Special Provision 00170.85. All lining work shall be fully guaranteed by the Contractor for a period of 1 year from the date of Final Completion, unless otherwise stipulated in writing by the Owner prior to the date of Substantial Completion. During this period, all defects discovered by the Owner or Engineer shall be removed and replaced or repaired by the Contractor in a satisfactory manner at no cost to the Owner. Methods of repair shall be proposed by the Contractor and submitted to the Engineer for review. The
Owner may conduct independent television inspections, at its own expense, of the lining Work at any time prior to the completion of the guarantee period.

1.08 SUBMITTALS

A. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. CURED-IN-PLACE PIPE:

1. Summary table of CIPP material properties, including short-term flexural modulus of elasticity, 50-year flexural modulus of elasticity, short-term flexural strength (bending stress), 50-year flexural strength (bending stress), chemical resistance, and hardness. Certified test reports shall be submitted verifying each value as described below.

2. Certified test reports demonstrating that the exact resin/liner combination to be used for this project meets the requirements for initial structural properties (performed in accordance with ASTM F1216, ASTM D638, and ASTM D790) and chemical resistance (performed in accordance with ASTM F1216-Appendix X2).

3. Certified test reports demonstrating that the exact resin and comparable liner to be used for this project has been tested for long-term flexural modulus of elasticity and long-term flexural strength (i.e., 10,000 hour creep testing performed in accordance with ASTM D2990 for design conditions applicable to this project). Load shall be equivalent to 0.25 percent of the initial flexural modulus of elasticity as determined by ASTM D790, minimum. If the liner used for testing is not the exact liner to be used on this project, submit a detailed description of the physical properties of both the liner used in the test and the liner to be used for this project to demonstrate that the two liners are comparable in terms of physical properties.

4. The name of the liner and resin manufacturer, the location of the facility where each was manufactured, resin manufacturer curing requirements including contingency plans if cure temperatures are not reached or are too high, and a list of appurtenant materials and accessories to be furnished.

5. The Quality Control report for the wet-out facility that ensures proper materials and amounts are used in the resin impregnation process and in liner shipping and storage. At a minimum, the Quality Control report should include, for each CIPP segment, resin lot numbers, calculations for the volume of resin to be used for each segment including the calculated amount of excess resin necessary to account for liner material properties and changes in the resin’s physical and chemical characteristics due to polymerization, date of wet-out, and storage and transportation.
controls and quality assurance procedures. Include a checklist so that each critical step in the resin impregnation process is checked off and initialed.

6. Installation and quality control plan, including bypass pumping plans, sewer cleaning plan and cleanliness requirements, liner shot plan and sequence, liner installation standard procedures, intermediate structure exposed liner restraining method, temperature monitoring plan, and plan to manage flow during lining.

7. Minimum and maximum allowable installation pressures and speeds, and minimum and maximum allowable curing temperatures, pressures, and curing durations and speeds, all certified by the resin and tube manufacturers.

8. Curing schedule for each shot, including heating, curing, and cool-down schedules.

9. Design calculations for each CIPP segment that meet the requirements of this Section. Detailed calculations shall confirm the liner thickness for the proposed resin/tube matrix. List all assumptions, design criteria, and material characteristics whether or not they are based upon the information in the Contract Documents.

C. Hydrophilic end seal material to be used and method of installation.

D. Contingency Plan, including methods and equipment to be used to repair unacceptable liner defects and for removing failed liners, and for availability and accessibility of backup equipment such as air compressors and lateral reinstatement cutters.

E. Curing logs for each installation, listing at a minimum the temperature of the hot water, steam, and/or interior of the liner, the temperature of external thermocouples, pressures, and rate of travel of the ultraviolet assembly (for UV-cured CIPP) at a minimum of every 15 minute increments or as recommended by the resin and tube manufacturers, whichever is less.

F. Wet-out logs, to be submitted and received no later than one business day prior to installation of the liner.

G. Name and location of ISO 17025 testing laboratory to perform CIPP tests, Provide certification that each test shall be performed by a laboratory with an American Association for Laboratory Accreditation (A2LA) for the specific test to be performed.

H. Documentation of Pre-Construction Inspection and Post-construction Inspection in accordance with OSSC 00415 Video Pipe Inspection.

I. Qualifications of firm and foreman/superintendent as required by Paragraph 1.04.

**PART 2 PRODUCTS**

**2.01 DESIGN REQUIREMENTS**

A. The CIPP lining shall be a resin-impregnated, flexible felt or equivalent material tube which is inserted into the sewer to be rehabilitated and cured-in-place by an acceptable curing method. The tube shall have a suitable coating for containment and protection of the resin and the coating may be removed. When installed, there shall be no film or plastic membrane between the existing inner sewer surface and the resin filled felt liner unless pre-liners are approved by the Construction Manager. The resin shall be a liquid thermosetting resin and shall be suitable for the design conditions as well as the curing process.
B. CIPP THICKNESS:

1. The required structural CIPP wall thickness shall be based, as a minimum:
   a. In accordance with ASTM F1216-07B, Appendix X1, Design Considerations for a
circular host pipe with 10 percent ovality or less, fully deteriorated condition.
   b. A minimum overall safety factor of 2.0.
   c. A minimum service life of 50 years under continuous service.
   d. A soil density of 125 lbs/ft³.
   e. A Poisson’s ratio of 0.3.
   f. An enhancement factor of 7.
   g. Modulus of soil reaction of 700 psi.
   h. A water elevation over the pipe equivalent to surface grade unless otherwise
      noted in the Table 1 at the end of this Section or as shown on the Drawings.
   i. Ovality for each segment to be lined is noted in Table 1 at the end of this Section.
   j. Live loads for each segment to be lined are noted in the Table 1 at the end of this
      Section or as shown on the Drawings.
   k. Depth to invert for each segment to be lined is noted in the Table 1 at the end of
      this Section or as shown on the Drawings.

2. The flexural modulus and flexural strength used in the design shall be the values as
   rated for the specified service life. A minimum 50-year flexural modulus of elasticity
   of 200,000 psi and a minimum 50-year flexural strength of 2,500 psi. Provide
   independent third party test data of the proposed liner performed in accordance with
   ASTM D790 and ASTM D2990 as evidence of the values used in design. The data
   points from 1000 hours to 10,000 hours of the Long-term Flexural Modulus shall be
   extrapolated using a Microsoft® Excel® log-log scale linear regression analysis to
determine the minimum service life performance of the resin-tube. If ASTM D2990
   test data was generated from laboratory-prepared samples, the long-term flexural
   modulus used in the design shall be reduced by 20 percent. If approved 10,000 hour
   tests are not available, a minimum 60 percent reduction (40 percent retention) of
   shall be used.

3. Submit, for each pipe segment, calculations on CIPP thickness. The liner thickness of
   each pipe segment shall be reviewed and approved by the Engineer based on the
   Contractor’s CIPP material properties as submitted and verified per Paragraph 1.08
   of this Section.

C. Installed thickness of the CIPP shall generally be within minus 15 percent and plus
   15 percent of the design thickness, or no greater than 3.0 mm of the design thickness,
   whichever is less as certified by an independent testing laboratory in accordance with
   paragraph 3.08. Since thickness of CIPP of directly correlated with physical properties,
tolerance to these limits will be accounted for per Paragraph 3.10.

D. When cured, the liner shall form a continuous tight-fitting liner that is chemically resistant
to chemicals found in normal sanitary sewer flows.

E. The liner shall be fabricated to a size that when cured will tightly fit the pipe being
   rehabilitated. Allowance for longitudinal and circumferential expansion and contraction
   shall be taken into account when sizing and installing the liner. Field verify all dimensions
   prior to delivery of the liner. The contact tolerance is 3.0 mm as measured at the
downstream end of the CIPP installation. Where any space or gap between the outside
surface of the liner and the inside surface of the existing pipe exceeds 3.0 mm, the liner fit will be deemed deficient and annular space grouting from either end of the CIPP will be required. Where irregularities of the existing pipe exist such as offset joints, protrusions, bumps, and deformations, and the irregularities remain after the sewer has been prepared in accordance with the Contract Documents, exception to the contact tolerance will be allowed in the irregularity zone. The exception shall not present an obstruction to sewage flow.

F. The length of the liner shall be that deemed necessary by the Contractor to effectively carry out installation and seal the liner at the inlet and outlet of each structure as specified herein. Field verify all lengths prior to construction.

G. Ensure that the correct liner is installed in each sewer being rehabilitated.

2.02 FLEXIBLE TUBE

A. The tube shall consist of one or more layers of absorbent non-woven felt fabric that meets the requirements of ASTM F1216.

B. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the CIPP. No dry or unsaturated layers shall be evident.

C. The felt content of the liner shall be determined by the Contractor, but shall not exceed 15 percent of the total impregnated liner volume.

D. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

E. Non-woven felt tubes shall have a flexible polyurethane or polypropylene membrane coating to contain the resin.

F. Seam of the flexible tube shall be fully impregnated with resin; seams that prohibit complete impregnation with resin will not be allowed.

2.03 RESIN

A. The liquid thermosetting resin shall saturate the tube and produce a properly cured liner which is resistant to abrasion due to solids, grit, and sand. No part of the tube shall be less than 100 percent saturated by resin.

B. Polyester, vinyl ester, or epoxy resin and catalyst system shall comply with the following requirements and that when properly cured meets the requirements of ASTM F1216. Resins created from recycled materials are not allowed.

   1. Polyester Resin: A resin created by reaction products between isophthalic/tetrathalic acid, maleic anhydride, and a glycol characterized by reactive unsaturation located along the molecular chain. This resin is compounded with a reactive styrene monomer and reacted together with initiators/promoters to produce cross-linked copolymer matrices. No PET/Isophthalic polyester resin is allowed. Polyester resins may be either isophthalic acid or teraphthalic acid, but not combinations of both.
2. Vinyl ester Resin: A resin created by reaction products of epoxy resins with methacrylic acid and characterized by reactive unsaturation located in terminal positions of the molecular chain. This resin is compounded with a reactive styrene monomer and reacted together with initiators/promoters to produce cross-linked copolymer matrices.

3. Epoxy Resin: A resin created by reaction products of biphenyl A and epichlorohydrin producing glycidyl ether reactive sites in the terminal position of the molecular chain. This resin is cross-linked with the reactive equivalent of a curing agent suitable for the cured-in-place process.

2.04 HYDROPHILIC SEALS

A. The hydrophilic waterstop end seals shall be bands that are 20 mm wide, 5 mm high, with a double bump on one side and flat on the other side.

B. Manufacturer: Hydrotite Style DS-0520-3.51 or equal.

PART 3 EXECUTION

3.01 GENERAL

A. All equipment (engines, pumps, boilers) shall be equipped with mufflers and/or plywood/Styrofoam noise panels enclosing equipment to keep the noise level with limits as allowed by the Owner.

B. Crews and key personnel shall not work more than a maximum of 16 hours per 24-hour day. Provide written verification that relief crews and key personnel that meet the minimum qualification requirements are available, if hours are exceeded.

C. Resin Impregnation (Wet Out): Thoroughly saturate flexible tube prior to installation. Add 5 percent excess resin to account for resin migration in pipe defects and joints and resin loss through the ends of the liner. Adjust roller gap setting so that the excess resin is uniformly distributed throughout the length of the liner. Wet-out logs should provide proper documentation that excess resin was added. A catalyst system, or additive compatible with the resin and flexible tube, may be used as recommended by the manufacturer and with approval of the Engineer. Handle the resin-impregnated flexible tube to retard or prevent resin setting until it is ready for insertion.

D. Prior to insertion, provide data on the maximum allowable stresses and elongation of the tube. Mark the exterior of the manufactured tube along its length, at regular intervals not to exceed five (5) feet. These marks shall be used as a gage to measure elongation during insertion. Elongation shall not exceed 5 percent except on pipes with slopes greater than 5 percent, in which case the Contractor shall account for elongation in the manufacture of those CIPP.

3.02 PREPARATION

A. Review Owner’s television inspection logs or conduct additional inspection of the pipes as deemed necessary by Contractor to plan rehabilitation work. Verify the active status of all service connections.
B. Inspect and confirm the inside diameter, alignment and condition of each pipe segment to be lined. Use the data and information collected from this inspection to verify the size of the liner and refine the installation techniques. If unknown physical conditions in the work area are uncovered during the investigation that materially differ from those ordinarily encountered, notify the Engineer.

C. Determine location of and inspect all inversion manholes for any obstruction that may interfere with the liner installation prior to ordering felt tube and shall make any necessary improvements to manhole to allow for insertion at no additional cost to the Owner.

D. Measure and verify in the field, the diameter and length of the pipe to be lined prior to ordering felt tubing. Make allowances in determining the felt tube length and circumference for stretch during installation and shrinkage during curing. It is Contractor's responsibility to verify diameters and notify the Engineer immediately if discrepancies are discovered. Contractor shall not “Wet Out” any CIPP liner prior to verifying diameters at the locations where it is to be installed.

E. Clean sewer lines prior to CIPP lining, such that the sewers are free of roots, protrusions, sand, rocks, sludge and other debris. The work of cleaning shall conform to the requirements of Section 02 76 00, Sewer Cleaning.

F. Clear the line of obstructions such as solids, dipped joints or broken pipe that will prevent the insertion of the liner. If inspection reveals an obstruction that cannot be removed by the conventional cleaning equipment, make an excavation and repair the obstruction. Excavation work shall be approved the Engineer prior to commencement of the work and shall be paid under a Change Order.

G. For pipe segments found to have any actively leaking defects that would be categorized as Runners or Gushers by the PACP Defect Rating Codes, grout leaking joint(s) until the pipe segment is free from the excessive infiltration.

H. Remove pockets of water from the pipe.

I. In presence of Engineer, perform Pre-Construction Inspection in accordance with OSSC 00445, no more than four hours prior to CIPP installation to demonstrate that the pipe is clean and free of roots, sand, rocks, sludge, PACP Runners or Gushers, pockets of water, or structural impediments that would affect long-term viability of the pipe liner. Obtain Engineer’s written approval of the acceptability of the existing pipe condition prior to installation of the CIPP.

J. Thermoplastic pre-liners may be installed at the Contractor’s option at no additional cost to the Owner.

K. All manhole cones, slabs, grade rings, frames, and covers that are removed shall be replaced at no additional cost. Remove existing manhole steps in manholes and repair holes resulting from removal of existing steps. Replacement of steps is not required.

L. In areas where new manholes are not being installed or existing manholes are not available, excavate and restore pits at no additional cost.
M. Notify all affected parties in writing 24-hours prior to beginning pipe liner installation. When work has been stopped for at least seven calendar days, notify all affected parties again 24-hours prior to resuming work. Make personal contact with any party that cannot be reconnected within the time stated in the written notice. Before entering private property, obtain permission from the property owner.

3.03 BYPASS PUMPING

A. Maintain commercial and residential sewer service during the installation process. If necessary to properly complete the work, the Contractor may interrupt flow from services if such interruption is first coordinated with and allowed by the property owner(s). Coordinate notification of affected property owners with the Owner. Upon completion of the work, immediately reinstate all services and notify the property owner(s) that service is again available. The Contractor assumes all responsibility for notifying property owners of service interruptions. The Contractor also assumes all responsibility for blockages, back-ups or damages caused to public or private property as a result of the interruption of service, whether caused by the Contractor’s or property owner’s actions.

B. Bypass pumping systems shall be in accordance with Section 02 14 50, Sewer Bypassing and Dewatering.

C. Bypass pump sewage from individual laterals, if needed.

D. When it is necessary to shut down a private service lateral to perform the rehabilitation work, notify all the affected parties one week prior to, 24 hours prior to, and again 1 hour prior to the shutdown. Notifying shall also include leaving door hangers that include Contractor’s name, telephone number, and the project coordinator to contact for additional information and inquiries. Include the time proposed to begin any Work that will interfere with their normal passage or service and the anticipated time of return of normal access or service. Gravity pipe service shall not be out of service for more than ten hours. Immediately after return of normal service or access, in writing and by knocking on doors.

3.04 CIPP INSTALLATION PROCEDURES

A. Maintain two working lateral reinstatement cutters at the job site when installing CIPP in sewer mains with active laterals. Lining work shall not commence if the Contractor does not have the required number of working cutters on site. No additional time or compensation shall be awarded to the Contractor in the event that work is stopped due to the Contractor’s failure to comply with this requirement.

B. For pipe diameter equal to or less than 18 inches, water inversion/water cure or air inversion/steam cure will be allowed.

C. Insertion: Insert continuous or properly trimmed hydrophilic waterstops at each structure opening approximately three inches from structure wall. Trimmed waterstop edges shall be butted up against each other at the crown of the pipe using a 45° miter cut or butted up horizontally against each other for a distance of 3 inches. Vertical overlap (e.g., stacking) of the hydrophilic waterstops will not be allowed. Waterstops with any gap between the ends will not be accepted.
D. Insert flexible tube through an existing structure by means of the inversion. The use of a lubricant may be indicated and, if used, such lubricant shall be as approved by the manufacturer’s standards. Follow the manufacturer’s standards during the installation so as not to over stress the felt fiber and cause damage or failure of the liner prior to cure. Make allowance for circumferential stretching during installation. Do not utilize overlapped layers of felt in longitudinal seams that cause lumps in the final product. Extend tail end of the liner for taking samples as required in Paragraph 3.08.A. If recirculation hoses are used during the curing process, extend the end of such hoses and liner beyond the end of the host pipe and into the downstream structure.

E. The pressure head used during the installation process shall be sufficient to hold the liner tight to the pipe wall, produce dimples at all service connections and the two access structures, and prevent wrinkles in the cured liner. The same head shall be great enough to prevent infiltration from entering the pipeline during the curing process. Pressure head shall be maintained sufficiently long enough to allow pockets of water to exfiltrate through the host pipe and prevent lifts in the liner and resin washout.

F. CURING:
   1. Follow submitted cure schedule in curing of liner.
   2. After insertion is completed, apply a suitable recirculation system capable of delivering air, steam, water, or ultraviolet light, as required by the liner system manufacturer, uniformly throughout the section to achieve a consistent cure of the resin. Maintain the curing temperature or exposure times as recommended by the liner system manufacturer. Prevent excessive temperatures that could scald or bubble the liner. The rate of temperature rise during heating shall not exceed resin manufacturer’s recommendations.
   3. Fit suitable monitors to any heat source to gauge the temperature of incoming and outgoing water or steam supply. Place a minimum of two additional thermocouples at each structure between impregnated tube and invert of the original pipe and between impregnated tube and crown of the original pipe to monitor outside liner temperatures during resin curing.
   4. Continue uninterrupted curing until the desired product is achieved.
   5. Provide for vapor tight connections in the downstream structure such that minimal vapors enter downstream pipes. Alternatively and at no additional cost to the Owner, provide styrene reducing agents, venting, and downstream plugs sufficient to prevent steam, styrene, or other odors from entering downstream buildings.

G. Cool Down: Initiate a controlled cool-down to cool the hardened liner to a temperature below 110°F or otherwise approved by the Engineer, in accordance with the cure schedule. Take care in release of the pressure column so that a vacuum will not develop that could damage the newly installed liner. The rate of temperature fall during cooling shall not exceed resin manufacturer’s recommendations.

H. Finished Pipe: Provide a finished CIPP that is continuous and free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes, delamination, and wrinkles. Wrinkles in the finished liner pipe which cause a backwater of one (1) inch or more or reduce the hydraulic capacity of the pipe (wrinkles which exceed 5 percent of the pipe diameter) are unacceptable and shall be removed or repaired by the Contractor at no additional cost to the Owner. Additionally, wrinkles or other discontinuities in the finished liner pipe which have a height greater than 5 percent
of the host pipe inside diameter and any other defects which affect the integrity or strength of the CIPP are unacceptable. Wrinkles that may develop in bends that are greater than 5 percent of the original host pipe inside diameter are also unacceptable.

I. If a point repair is required after the liner has cured, use a tube segment with compatible (preferably identical) properties as the liner to splice across the point repair. Point repair shall extend a minimum of 2-feet on each side of the defect.

J. Internal reinstatement is not allowed for laterals slated for reconstruction that are connected to sewer mains rehabilitated by CIPP. Re-establish each service lateral connection to the rehabilitated main by open cut excavation, unless otherwise noted on the Drawings or directed by the Construction Manager.
   1. Tap holes shall be cut in the CIPP liner using sharp, Manufacturer recommended, coring equipment. Non-circular cutting devices are not allowed.
   2. Saddles shall be installed in accordance with the Drawings and per the Manufacturer's recommendations.
   3. Complete service lateral reconstruction to the property line or building as shown on the Drawings or as directed by the Construction Manager.
   4. The Contractor shall be responsible for restoring or correcting, without any delay, all missed or faulty reconnections, as well as any resulting damage to property owners.

K. If internal reinstatement of laterals is allowed, reopen all of the existing active service connections in each length of sewer immediately following installation of the liner. Reopen the active service connections from inside the sewer by means of a television camera controlled cutting device appropriate for the liner material and the rehabilitated sewer pipe. All of the liner penetrations or openings shall be watertight. Each active service connection shall be cut completely open and shall have smooth edges with no protruding material capable of hindering flow or catching and holding solids contained in the flow stream. If the service connection cannot be fully reopened due to time constraints, open each service connection to a minimum of 75 percent before the end of each working day. Partially opened service connections must be entirely opened by no later than the next working day.

L. Do not reopen capped or inactive lateral connections. Confirm the locations of all capped or inactive laterals during pre-construction CCTV inspections.

M. Restore or correct, without any delay, all missed or faulty reconnections, as well as any damage to property owners caused by failure to reconnect the services.

3.05 SEALING AT STRUCTURES

A. No less than 48 hours after the cool-down period, perform final trimming and sealing of the liner at access structures to provide watertight pipe and structure seals.

B. Neatly and smoothly trim the finished ends of the liner to within one inch of access structure wall.

C. Form a tight seal between the CIPP and the access structure wall at the pipe penetration. Do not leave any annular gaps.
D. Provide a smooth transition between the existing structure channel invert and the liner using cementitious or other approved material to prevent settling of sediments or debris from catching on the liner or ponding of any standing water in the access structure.

3.06 POST-CONSTRUCTION INSPECTION OF COMPLETED WORK

A. Provide Post-construction Inspection video documentation showing completed work in accordance with Section 02 76 10, Inspection of Sewers, after all mainline lining work for a given pipe segment has been completed.

B. Correct all defects discovered during the television inspection before Substantial Completion. After the defects are corrected, repeat the Post-construction Inspection for that sewer line.

C. Submit the Post-construction Inspection video to the Engineer in sufficient time to allow the Engineer to review the video prior to Substantial Completion.

3.07 FINAL CLEANUP

A. Upon completion of rehabilitation work and testing, clean and restore project area affected by the Work.

3.08 QUALITY CONTROL TESTS

A. In the case where a single installation lines multiple consecutive pipe segments, only a single sampling location is required. For installations where the liner is installed through an intermediate manhole, the sample shall be taken from the restrained CIPP in the intermediate manhole.

B. For each installation of CIPP less than 21 inches diameter or equivalent, collect a restrained pipe sample by placing a section of PVC pipe of the same diameter as the existing host sewer pipe at intermediate manholes or on the tail end of the liner in the access structure. For installations where the liner is installed through an intermediate manhole, the sample shall be taken from the restrained CIPP in the intermediate manhole. The length of PVC pipe and sample shall be as required per Table 1. Run the impregnated tube through the pipe and cure the CIPP under restrained conditions. Label sample with the contract number, date of installation, street location, segment number(s), and specified thickness. Send the sample to independent third-party laboratory for testing.

C. When sampling is not possible at all, the sample test results from the most comparable installation will be used (e.g., similar weather, diameter, date of liner manufacture, etc.).
D. The following tests at the following minimum frequencies will be performed by the Contractor on CIPP liners installed. The Owner may elect to perform additional testing. The Contractor may, at his discretion and cost, conduct additional testing to improve the resolution of performance test characterization. All testing shall be performed by an independent, certified ISO 17025 testing facility. Each test shall be performed by a laboratory with an American Association for Laboratory Accreditation (A2LA) for the specific test to be performed.

1. Short-term Flexural (Bending) Properties – The initial tangent flexural modulus of elasticity and flexural strength measured in accordance with ASTM D790. One test per installation.

2. Thickness measured in accordance with ASTM D5813/D3567. One test per installation. If restrained samples are not available (e.g., plate samples are used), thickness shall be measured by taking a minimum of three evenly spaced 1-inch cores a minimum of 12 inches up the CIPP from the existing manhole wall. Cores shall be repaired by using patches created from the same felt tube material used in the original installation with an epoxy resin approved for use in CIPP. Repair patches must fill the cores completely and a second oversized patch of 1.5 mm thickness must be placed over the repaired hole to ensure a watertight seal. Proper surface roughening of the original CIPP surface must be performed prior to placement of the oversized patch. An alternate method of measuring thickness may be performed within the installed CIPP by ultrasonic pulse echo method per ASTM E797. No less than 16 measurements equally spaced circumferentially must be taken up in the CIPP a minimum of 12 inches from the existing manhole wall. Pulse-echo instruments must be calibrated above-grade daily using a calibration block comprised of the same existing pipe material and CIPP materials installed.

3. Chemical Resistance – The chemical resistivity of the CIPP measured in accordance with ASTM F1216, Appendix X2. The Engineer will require this testing on a single installation for the project. The Engineer will determine which installation field sample shall be used for testing. If analytical results show that the finished CIPP does not meet the requirements of ASTM F1216, additional testing will be required at no additional cost to the Owner.

3.09 CIPP ACCEPTANCE

A. Acceptance of the CIPP shall be based on the Engineer’s evaluation of the resin impregnation quality control reports, CIPP temperature curing logs, Post-construction Inspection video, laboratory test results for the installed pipe samples, which shall demonstrate:

1. Compliance with the required CIPP physical properties and thickness.
2. Observed groundwater infiltration of the liner is zero.
3. There is no evidence of splits, cracks, breaks, lifts, kinks, scalds, blisters, delamination, excessive wrinkles, or other defects in the liner.
4. Achieving the safety factor of 2.0, as determined by using the actual thickness and short-term flexural modulus of elasticity as measured at each liner installation and modified by the creep retainage measured by the ASTM D2990 extrapolation performed in accordance with Paragraph 2.01.B.2.

B. If any defective CIPP is discovered after it has been installed, it shall be removed and replaced or repaired at no additional cost to the Owner. Contractor shall be responsible for costs of additional testing required to confirm compliance with these requirements.

City of Lake Oswego
Wastewater Collection System Rehabilitation

Cured-In-Place Pipe
02 76 70 - 13
Obtain approval of the Engineer for method of repair, which may require field or workshop demonstration.

### 3.10 PAYMENT DEDUCTION

A. The Contract unit price may be reduced based upon sample test results in accordance with this Section. Should results of the testing confirm deficiencies in physical properties, a payment deduction will be made based upon the criteria below:

1. **Liner Thickness** - Acceptable liner thickness is as specified in Paragraph 2.01.C. Liner thickness is directly correlated with long-term design life, so the combination of thickness coupled with physical properties shall be grounds for reduced payment.

2. **Calculated Long-Term Flexural Modulus** – The Owner will calculate long-term flexural modulus for each liner installed by using the actual short-term flexural modulus as tested in accordance with Paragraph 3.08.D.1 multiplied by the submitted long-term flexural modulus as submitted in Paragraph 1.08.B.3 and divided by the short-term flexural modulus as submitted in Paragraph 1.08.B.2. If plate samples were used to determine the actual installed short-term flexural modulus as required in Paragraph 3.08.D.1, a 0.80 reduction factor will be used in determining long-term flexural modulus. The following two paragraphs are used for illustrating this calculation:

\[
E_t (\text{field}) = E_s (\text{per Paragraph 3.08.E.1}) \times \frac{E_t (\text{per Paragraph 1.08.B.3})}{E_s (\text{per Paragraph 1.08.B.2})}
\]

\[
E_t (\text{field}) = 0.80 \times E_s (\text{per Paragraph 3.08.E.1}) \times \frac{E_t (\text{per Paragraph 1.08.B.3})}{E_s (\text{per Paragraph 1.08.B.2})}
\]

B. Reduction in payment will be based on calculated actual safety factor of installed CIPP using the governing thickness equation from ASTM F1216-Appendix X1 and inserting the actual installed and measured thickness per Paragraph 3.10.A.1 and calculated long-term flexural modulus per Paragraph 3.10.A.2.

\[
\text{Payment} = \text{Length Installed} \times \text{Contract Unit Price} \times (\text{Actual Safety Factor}/2.0)
\]

C. No additional payment shall be made for CIPP exceeding required safety factor of 2.0. Payment will be made per the Contract Unit Price.

### 3.11 LINING SUMMARY

A. All depths indicated in the Table 1 are approximate and should be field verified.

B. Host pipe diameters listed are considered to be nominal diameter.
<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Upstream Structure</th>
<th>Downstream Structure</th>
<th>Length (ft)</th>
<th>Nominal Inside Diameter (in)</th>
<th>Design Ovality (%)</th>
<th>Depth to Invert (ft)</th>
<th>Live Loads (psi)</th>
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</thead>
<tbody>
<tr>
<td>C-001</td>
<td>E03D-144S</td>
<td>E03D-012S</td>
<td>479</td>
<td>8</td>
<td>3</td>
<td>10.4</td>
<td>H-20</td>
</tr>
<tr>
<td>C-002</td>
<td>E03D-046S</td>
<td>E03D-032S</td>
<td>460</td>
<td>8</td>
<td>3</td>
<td>9.52</td>
<td>H-20</td>
</tr>
<tr>
<td>C-005</td>
<td>E11B-058S</td>
<td>E11B-057S</td>
<td>82</td>
<td>12</td>
<td>3</td>
<td>5.03</td>
<td>None</td>
</tr>
<tr>
<td>C-005</td>
<td>E11B-057S</td>
<td>E11B-050S</td>
<td>105</td>
<td>12</td>
<td>3</td>
<td>9.44</td>
<td>None</td>
</tr>
<tr>
<td>C-006</td>
<td>E10D-030S</td>
<td>E10D-044S</td>
<td>93</td>
<td>8</td>
<td>3</td>
<td>8.61</td>
<td>H-20</td>
</tr>
<tr>
<td>C-006</td>
<td>E10D-044S</td>
<td>E10D-50S</td>
<td>82</td>
<td>8</td>
<td>3</td>
<td>8.61</td>
<td>H-20</td>
</tr>
<tr>
<td>C-008</td>
<td>E10C-125S</td>
<td>E10C-209S</td>
<td>160</td>
<td>8</td>
<td>3</td>
<td>11.0</td>
<td>None</td>
</tr>
<tr>
<td>C-010</td>
<td>E10C-126S</td>
<td>New MH</td>
<td>111</td>
<td>8</td>
<td>3</td>
<td>7.51</td>
<td>H20</td>
</tr>
<tr>
<td>C-012</td>
<td>E16C-031S</td>
<td>E16C-032S</td>
<td>143</td>
<td>8</td>
<td>3</td>
<td>9.0</td>
<td>None</td>
</tr>
</tbody>
</table>

END OF SECTION
PART 1 GENERAL

1.01 DESCRIPTION

A. SCOPE:
   1. This section specifies spot repair of existing sewers prior to rehabilitation.

B. REQUIREMENTS:
   1. The Contractor shall be responsible for repairing the sewer where spot repairs are identified on the drawings or otherwise authorized by the Engineer. The work shall include verifying the location of the spot repair through television inspection of the sewer, locating all interfering utilities, furnishing all labor and materials necessary for excavation, dewatering, pipe repair or replacement, backfill, surface restoration, temporary flow bypassing, sewer dewatering, and traffic control.

1.02 QUALITY ASSURANCE

A. REFERENCES:
   1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

   2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM C14</td>
<td>Concrete Sewer, Storm Drain and Culvert Pipe</td>
</tr>
<tr>
<td>ASTM C76</td>
<td>Reinforced Concrete Culvert, Storm Drain and Sewer Pipe</td>
</tr>
<tr>
<td>ASTM C425</td>
<td>Compression Joints for Vitrified Clay Pipe and Fittings</td>
</tr>
<tr>
<td>ASTM C443</td>
<td>Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets</td>
</tr>
<tr>
<td>ASTM C700</td>
<td>Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated</td>
</tr>
<tr>
<td>ASTM D1784</td>
<td>Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds</td>
</tr>
<tr>
<td>ASTM D3034</td>
<td>Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings</td>
</tr>
<tr>
<td>ASTM F477</td>
<td>Elastomeric Seals (Gaskets) for Joining Plastic Pipe</td>
</tr>
</tbody>
</table>
B. WORK SCHEDULE:
   1. The Contractor shall coordinate with applicable authorities, agencies, Owner and Engineer in preparing his work schedule. The work schedule, identifying the Contractor’s sequence of work, dates and locations shall be submitted to the Engineer for acceptance before the work commences.

C. INSPECTION:
   1. All spot repairs shall be inspected, measured and accepted by the Engineer prior to concrete placement and/or backfilling.

1.03 SUBMITTALS

A. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. Contractor shall provide shop drawings of pipe fittings, special joints and assembly thereof, and all joint materials and details in accordance with General Conditions Section 00150.

PART 2 PRODUCTS

2.01 PVC PIPE AND FITTINGS

A. PVC material for sewer pipe and fittings shall conform to Class 12454-B, as defined in ASTM D1784. Pipe and fittings shall meet the requirements of ASTM D3034 for SDR26. Neoprene gaskets with push-on joints shall conform to ASTM F477.

2.02 CONCRETE PIPE

A. NONREINFORCED CONCRETE PIPE: Unless otherwise specified, concrete sanitary sewer pipe 12 inches and less in diameter shall be Class 3 concrete pipe conforming to ASTM C14. Joints shall be compatible with those used in adjoining concrete pipe.

B. REINFORCED CONCRETE PIPE: Unless otherwise specified, reinforced concrete sewer pipe larger than 12 inches in diameter shall conform to ASTM C76, minimum, Class III. Joints shall be rubber gasket conforming to ASTM C443.
2.03 FLEXIBLE COUPLINGS
A. All flexible couplings shall conform to ASTM C425 and shall be Joints Incorporated, Calder Couplings, Mission Rubber Company Flex-Seal Couplings, Mission Clay Products Band Seal Couplings, or equal.

2.04 BEDDING AND BACKFILL
A. Bedding and backfill material and placement shall be in accordance with OSSC Section 00400, Drainage and Sewers.

2.05 AGGREGATE BASE AND PAVEMENT
A. Aggregate base and pavement materials and placement shall be in accordance with ODOT Standard Specifications.

PART 3 EXECUTION

3.01 SPOT REPAIR LOCATION, EXCAVATION AND PIPE REPLACEMENT
A. The location of spot repairs which are specified or otherwise authorized by the Engineer shall be determined by the Engineer through TV inspection in accordance with OSSC 00415 Video Pipe Inspection. All spot repairs shall be performed as directed by the Engineer.

B. Excavations shall be performed in accordance with Section OSSC Section 00400, Drainage and Sewers. Each spot repair excavation shall be 8 feet long as measured along the sewer axis; 4 feet in the upstream and downstream direction from the centerline of the defect. The Contractor may, for his convenience, over excavate to remove damaged pipe to the nearest joint but shall do so at no additional cost to the Owner. Trench width dimensions shall be in accordance with OSSC Section 00400, Drainage and Sewers with provisions for sheeting, shoring and bracing requirements. Service laterals shall be excavated no less than 4 feet back from the lateral-to-mainline connection.

C. After the spot repair is located and exposed, fix defective joints, wyes, tees, taps and sections of damaged pipe by removal and replacement. Replacement pipe, fittings and couplings shall be as specified or otherwise directed by the Engineer. Unless otherwise specified, remove defective pipe at exposed joints or by cutting the pipe perpendicular to the pipe axis. Prepare a replacement section of like material and dimensions. Connections to existing pipe shall be made with flexible couplings.
   1. The replacement pipe ends shall mate square with the existing pipe and provide a maximum 1/2-inch gap on either end when installed. Coupling sizes shall be as recommended by the manufacturer and shall be long enough to overlap pipe ends by a minimum of 2 inches. Flexible couplings with shear bands shall be installed on clean pipe and shall be watertight.

D. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken, or otherwise defective materials are used. Existing and replacement pipe ends shall be cleaned thoroughly and kept clean during laying and connection. Contractor shall lower pipe into the trench in such a manner as to avoid any physical damage to the pipe and shall remove all damaged pipe from the job site.
E. Notify the Engineer not less than 48 hours in advance of the time he plans to begin spot repair work at a particular location.

3.02 SEWER BYPASSING AND DEWATERING

A. Contractor shall be responsible for bypassing sewer flow around his work and dewatering of sewer lines in accordance with the requirements of Section 02 14 50, Sewer Bypassing and Dewatering. Bypass all flow around his work until such time as the sewer is reconnected.

B. Service laterals shall be plugged if required to comply with sewer bypassing and dewatering requirements. Contractor shall provide notification no less than 48 hours in advance to all residents whose service laterals will be plugged and shall be responsible for removing sewer plugs when the work is completed.

3.03 SPOT REPAIRS FOR REHABILITATION BY PIPE BURSTING

A. Spot repair work in conjunction with pipe bursting shall be performed prior to rehabilitation and may include restoration of the existing sewer to its original line and grade or pipe replacement as directed by the Engineer. For all defects authorized for spot repair that alter the alignment of the existing sewer, the Contractor may upon approval of the Engineer expose the defect and realign the existing pipe. Contractor shall open cut area that requires spot repair, restore the original line and grade and install a temporary sewer connection prior the pipe bursting. All other defects identified for spot repair shall require pipe replacement.

3.04 SPOT REPAIRS FOR REHABILITATION USING CURED-IN-PLACE PIPE

A. Spot repair work in conjunction with inversion lining shall be performed prior to rehabilitation and may include restoration of the existing sewer to its original line and grade or pipe replacement as directed by the Engineer. For all defects authorized for spot repair that alter the alignment of the existing sewer, the Contractor may upon approval of the Engineer expose the defect and realign the existing pipe. Contractor shall insure that the realignment is permanent and will not adversely affect the performance or impede the installation of the inversion liner. All other defects identified for spot repair shall require pipe replacement.

3.05 TV INSPECTION

A. The Contractor shall TV inspect the completed spot repairs and submit the TV inspection documentation in accordance with OSSC 00415 Video Pipe Inspection.

3.06 CLEANUP

A. During the progress of the work, the Contractor shall maintain all job sites in a clean and orderly condition. The Contractor shall properly attend to the concern of any persons having contact with the work and shall repair or replace any damage caused by his operation as directed by the Engineer.

END OF SECTION
APPENDICES

A – RIGHTS OF ENTRY

- ACKERMAN
- SETTER
- RITTMAN
- MYERS

B – DETAILED TREE INVENTORY
RIGHT OF ENTRY

The undersigned, being the owner or the duly authorized representative of the owner (Grantor), of the real property described below, hereby grants to the City of Lake Oswego (Grantee), its employees, agents and assigns, a temporary Right of Entry on a portion of the premises identified as:

Address: 475 Furnace Street

Tax Map, Tax Lot: 21E 118C 00800

Purpose: This Right of Entry is granted expressly for the purpose of construction related access for a portion of the City Lake Oswego's Sanitary Sewer Rehabilitation project, Work Order 243, within an easement on the subject property. Use of the access ways will be for ingress and egress.

Access Ways Description: The access ways are comprised of those portions of the real property depicted on the attached Exhibit Map.

Restoration: This Right of Entry is granted with the understanding that the Grantee will promptly restore any disturbed area on or adjacent to the subject property to a condition reasonably similar to that which existed before the Sanitary Sewer Rehabilitation project construction began. Restoration includes cleaning and surface restoration.

Indemnification: Grantee shall indemnify, save, protect, defend, and hold harmless the Grantor against and from any and all claims, demands, suits, losses, payments, costs, expenses, and damages of every kind and description, including attorney’s fees and/or litigation expenses, brought or made against or incurred by the Grantor resulting from, arising out of, or in any way connected with any act, omission, fault or negligence of Grantee, its employees, agents, representatives or contractors, their employees, agents or representatives through their use of the property under this Right of Entry except to the extent that such claim, demand, loss, cause of action, or cost arises from Grantor’s negligence or willful misconduct.

Termination: This Right of Entry shall begin January 1, 2018 and continue until the Sanitary Sewer Rehabilitation project construction work has been accepted by the City, or July 31, 2018, whichever comes first.

Consideration: The consideration for this right of entry is non-monetary, and consists of the mutual benefit derived therefrom by the parties.

Gabrielle Ackerman

Printed name of property owner or authorized representative

Signature of property owner or authorized representative

Date: 1/23/2014

Please Return To:
Pat McDoagel, P.E., Senior Associate Engineer,
City of Lake Oswego, P.O. Box 369, Lake Oswego, OR 97034

Attachment – Exhibit Map
RIGHT OF ENTRY

The undersigned, being the owner or the duly authorized representative of the owner (Grantor), of the real property described below, hereby grants to the City of Lake Oswego (Grantee), its employees, agents and assigns, a temporary Right of Entry on a portion of the premises identified as:

Address: 2390 Palisades Crest Drive

Tax Map, Tax Lot: 21E 16CB 01200

Purpose: This Right of Entry is granted expressly for the purpose of construction related access for a portion of the City Lake Oswego’s Sanitary Sewer Rehabilitation project, Work Order 243, within an easement on the subject property. Use of the access ways will be for ingress and egress.

Access Ways Description: The access ways are comprised of those portions of the real property depicted on the attached Exhibit Map.

Restoration: This Right of Entry is granted with the understanding that the Grantee will promptly restore any disturbed area on or adjacent to the subject property to a condition reasonably similar to that which existed before the Sanitary Sewer Rehabilitation project construction began. Restoration includes cleaning and surface restoration.

Indemnification: Grantee shall indemnify, save, protect, defend, and hold harmless the Grantor against and from any and all claims, demands, suits, losses, payments, costs, expenses, and damages of every kind and description, including attorney’s fees and/or litigation expenses, brought or made against or incurred by the Grantor resulting from, arising out of, or in any way connected with any act, omission, fault or negligence of Grantee, its employees, agents, representatives or contractors, their employees, agents or representatives through their use of the property under this Right of Entry except to the extent that such claim, demand, loss, cause of action, or cost arises from Grantor’s negligence or willful misconduct.

Termination: This Right of Entry shall begin January 1, 2018 and continue until the Sanitary Sewer Rehabilitation project construction work has been accepted by the City, or July 31, 2018, whichever comes first.

Consideration: The consideration for this right of entry is non-monetary, and consists of the mutual benefit derived therefrom by the parties.

Thomas Rittman
Printed name of property owner or authorized representative

Signature, property owner or authorized representative

11/27/17

Date

Please Return To:
Pat McDougal, P.E., Senior Associate Engineer,
City of Lake Oswego, P.O. Box 369, Lake Oswego, OR 97034

Attachment – Exhibit Map
RIGHT-OF-ENTRY
2390 PALISADES CREST DRIVE
EXHIBIT MAP

TAX LOT 1200
TAX MAP 2 1E 16CB
2390 PALISADES CREST DRIVE

TAX LOT 502
TAX MAP 2 1E 16C
2100 PALISADES CREST DRIVE

UNKNOWN 30’ EASEMENT SHOWN ON PLAT

PROPOSED TEMPORARY RIGHT-OF-ENTRY BOUNDARY
PLAY STRUCTURE

CONCRETE PATH WITH RAILROAD TIE STEPS

10’ UTILITY EASEMENT PER PLAT OF "PALISADES HEIGHTS ESTATES NO. 1"

ROCK STAIRS

FIREWOOD SHELTER

10’ UTILITY EASEMENT PER PLAT OF "PALISADES HEIGHTS ESTATES NO. 1"

GRATE EASEMENT

PROPOSED TEMPORARY RIGHT-OF-ENTRY BOUNDARY

DATE: 11/15/2017

SCALE: 1” = 40 FEET

2390 PALISADES CREST DRIVE
EXHIBIT MAP

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
P: 503.563.6151 F: 503.563.6152 aks-eng.com

DWG: 5756 PALISADES DH ROE | EXHIBIT

EXHIBIT B

DRW: MK
CHK: PMcD
AKS JOB: 5756
## Detailed Tree Inventory for Lake Oswego Wastewater Rehabilitation

**AKS Job No. 5756 - Evaluation Date: June 14 & 20, 2017**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
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</thead>
<tbody>
<tr>
<td>24358</td>
<td>24</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
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<td>Coniferous</td>
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<td>-</td>
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<tr>
<td>24360</td>
<td>5</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
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<td>24361</td>
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<td>24362</td>
<td>6</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
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<tr>
<td>24440</td>
<td>7,7,8</td>
<td>Fig (Ficus sp.)</td>
<td>Evaluation from street; Pruned</td>
<td>1</td>
<td>1</td>
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<tr>
<td>24561</td>
<td>13</td>
<td>Black walnut (Juglans nigra)</td>
<td>Codominant 8' from ground with included bark; One stem broken 20' from ground; Bore holes; Exposed roots; Lean (SW)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24562</td>
<td>18</td>
<td>Cherry (Prunus sp.)</td>
<td>Codominant 8' from ground with included bark (3 stems attached at one point)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24563</td>
<td>10</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Codominant 10' from ground with included bark 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>24564</td>
<td>15</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Codominant 10' from ground with included bark 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>24565</td>
<td>12</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Codominant 8' from ground; Sweep</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24566</td>
<td>8,16,20</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Codominant; Lean (S); Sweep; Very crooked</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24567</td>
<td>11,18,21</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Codominant; Lean (S); Sweep; Pruned Very crooked; Many stems attached at one point</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24569</td>
<td>7</td>
<td>Western Redcedar (Thuja plicata)</td>
<td>Pruned; Sweep</td>
<td>1</td>
<td>2</td>
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<tr>
<td>24808</td>
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<td>Deciduous</td>
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<td>24809</td>
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### Map 1 - Furnace Street

**Map 3 - D Avenue**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>23143</td>
<td>15</td>
<td>English Holly (Ilex aquifolium)</td>
<td>Codominant 6' from ground with 3 stems attached at one point</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23146</td>
<td>31</td>
<td>Douglas-fir (Pseudotsuga menziesii)</td>
<td>Epicormic branching; Pruned; Pruned for overhead wires; Codominant top</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23147</td>
<td>14,23</td>
<td>Cedar (Cedrus sp.)</td>
<td>Codominant with included bark; 10% of bole covered with Ivy; Pruned; 23&quot; stem - Sweep</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23148</td>
<td>13</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned; Codominant 15' from ground with included bark</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23149</td>
<td>22</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23150</td>
<td>11</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23151</td>
<td>25</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
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<td>1</td>
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<tr>
<td>Tree #</td>
<td>DBH (in.)</td>
<td>Tree Species</td>
<td>Comments</td>
<td>Health Rating*</td>
<td>Structure Rating**</td>
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<tr>
<td>23152</td>
<td>30</td>
<td>Cedar (Cedrus sp.)</td>
<td>Codominant 8' from ground with included bark; Pruned; Codominant top</td>
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<td>2</td>
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<tr>
<td>23155</td>
<td>25</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23156</td>
<td>34</td>
<td>Cedar (Cedrus sp.)</td>
<td>Codominant 8' from ground with included bark; Pruned</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23157</td>
<td>16</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned; Scar 2' long with good woundwood closure</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23158</td>
<td>11</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23159</td>
<td>23</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
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<tr>
<td>23160</td>
<td>37</td>
<td>Douglas-fir (Pseudotsuga menziesii)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
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<tr>
<td>23161</td>
<td>16,17</td>
<td>Cedar (Cedrus sp.)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23162</td>
<td>17</td>
<td>Cedar (Cedrus sp.)</td>
<td>Codominant 15' from ground with 3 stems attached at one point with included bark; Some bore holes</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23163</td>
<td>6,10</td>
<td>Cedar (Cedrus sp.)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23166</td>
<td>14</td>
<td>Cedar (Cedrus sp.)</td>
<td>Some broken branches</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23388</td>
<td>5,6,7,8</td>
<td>Cherry (Prunus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23389</td>
<td>7,9</td>
<td>Cherry (Prunus sp.)</td>
<td>75% of bole covered with Ivy; Some broken branches; Some scars</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23390</td>
<td>13</td>
<td>Cherry (Prunus sp.)</td>
<td>Slight lean (E); Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23391</td>
<td>18</td>
<td>Douglas-fir (Pseudotsuga menziesii)</td>
<td></td>
<td>1</td>
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</table>

**Map 3 - D Avenue (Continued)**

**Map 4 - 5th Street**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>20100</td>
<td>11</td>
<td>Japanese Maple (Acer palmatum)</td>
<td>Pruned for overhead wires; Pruned for travel lane; Crooked</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20126</td>
<td>15</td>
<td>Cherry (Prunus sp.)</td>
<td>Topped for overhead wires; Cavities with decay; Sparse foliage; Pruned; Small leaf size; Poor condition</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>20177</td>
<td>6,7,10,11</td>
<td>Magnolia (Magnolia sp.)</td>
<td>Some cavities with good woundwood closure; Codominant with many stems attached at one point</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20329</td>
<td>7,9,14</td>
<td>Cherry (Prunus sp.)</td>
<td>7” stem - Large scars with decay; Bulges on bole</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20330</td>
<td>18,20,23</td>
<td>Bigleaf Maple (Acer macrophyllum)</td>
<td>Codominant with included bark; Pruned; Some small bulges; Good woundwood closure</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20402</td>
<td>8</td>
<td>Ginkgo (Ginkgo sp.)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20404</td>
<td>6</td>
<td>Cedar (Cedrus sp.)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20421</td>
<td>9</td>
<td>Douglas-fir (Pseudotsuga menziesii)</td>
<td>Pruned; Slight lean (N)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
### Detailed Tree Inventory for Lake Oswego Wastewater Rehabilitation

**AKS Job No. 5756 - Evaluation Date: June 14 & 20, 2017**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>20422</td>
<td>7</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Very crooked; Sweep; Codominant top; Crooked; Pruned</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20440</td>
<td>24</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20441</td>
<td>26</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Some broken branches</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20703</td>
<td>10</td>
<td>Cherry (<em>Prunus sp.</em>)</td>
<td>Canopy one sided (S); some dead branches</td>
<td>1</td>
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<tr>
<td>20704</td>
<td>5,7,8</td>
<td>Cherry (<em>Prunus sp.</em>)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
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<tr>
<td>20706</td>
<td>34</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Codominant top; Canopy one sided (S)</td>
<td>1</td>
<td>1</td>
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<tr>
<td>20808</td>
<td>49</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Large bore holes at base; Some dead branches</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20809</td>
<td>13</td>
<td>Cedar (<em>Cedrus sp.</em>)</td>
<td>Some small bore holes</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20810</td>
<td>10</td>
<td>Maple (<em>Acer sp.</em>)</td>
<td></td>
<td>1</td>
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</tr>
<tr>
<td>20811</td>
<td>8</td>
<td>Paper Birch (<em>Betula papyrifera</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20812</td>
<td>26,37</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Codominant with included bark; Sap flow</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20813</td>
<td>14</td>
<td>Spruce (<em>Picea sp.</em>)</td>
<td>Many bore holes; Large branches pruned for overhead wires; Sap flow; 50% of canopy removed; Crooked</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20814</td>
<td>38</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Pruned; Some bore holes near base; Some branches with scars; Bulges on stem</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20815</td>
<td>32</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Pruned; Canopy one sided (S)</td>
<td>1</td>
<td>1</td>
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<tr>
<td>20816</td>
<td>36</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20817</td>
<td>20</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Pruned; Some sap flow near base</td>
<td>1</td>
<td>1</td>
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<tr>
<td>20818</td>
<td>32</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
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<tr>
<td>20819</td>
<td>6,7</td>
<td>Cherry (<em>Prunus sp.</em>)</td>
<td>Some dead foliage; Codominant; Some broken branches; Pruned; Scars with decay towards top</td>
<td>2</td>
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<tr>
<td>20820</td>
<td>45</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Some dead and broken branches; Pruned</td>
<td>1</td>
<td>1</td>
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<tr>
<td>21255</td>
<td>7,8</td>
<td>Cherry (<em>Prunus sp.</em>)</td>
<td>Codominant</td>
<td>1</td>
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### Map 4 - 5th Street (Continued)

### Map 5 - South Shore Boulevard

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
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<tr>
<td>11017</td>
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<tr>
<td>Tree #</td>
<td>DBH (in.)</td>
<td>Tree Species</td>
<td>Comments</td>
<td>Health Rating*</td>
<td>Structure Rating**</td>
</tr>
<tr>
<td>---------</td>
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<td>--------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>11094</td>
<td>13</td>
<td>Douglas-fir (Pseudotsuga) menziesii</td>
<td>Topped for overhead wires (20' tall)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11096</td>
<td>15</td>
<td>Douglas-fir (Pseudotsuga) menziesii</td>
<td>10% of bole covered with Ivy; Pruned for overhead wires</td>
<td>1</td>
<td>1</td>
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<tr>
<td>11097</td>
<td>34</td>
<td>Douglas-fir (Pseudotsuga) menziesii</td>
<td>10% of bole covered with Ivy; Pruned for overhead wires</td>
<td>1</td>
<td>1</td>
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<tr>
<td>11098</td>
<td>7</td>
<td>Pacific Madrone (Arbutus) menziesii</td>
<td>Topped for overhead wires</td>
<td>2</td>
<td>2</td>
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<tr>
<td>11099</td>
<td>6,6</td>
<td>Pacific Madrone (Arbutus) menziesii</td>
<td>Lean (N); Sparse foliage; Cavity at base with decay</td>
<td>2</td>
<td>2</td>
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<tr>
<td>11289</td>
<td>28</td>
<td>Pine (Pinus) sp.</td>
<td>Codominant top with included bark 40' from ground; Sweep</td>
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<td>2</td>
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<tr>
<td>11290</td>
<td>10</td>
<td>Pine (Pinus) sp.</td>
<td>Sparse foliage</td>
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<td>11343</td>
<td>36</td>
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<td>Pruned for overhead wires</td>
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<td>1</td>
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<tr>
<td>11360</td>
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<td>Laurel (Laurus) sp.</td>
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<tr>
<td>11404</td>
<td>24</td>
<td>Bigleaf Maple (Acer macrophyllum)</td>
<td>Large cracked branch with decay; Crooked; Canopy one sided (W); Some scars with woundwood closure</td>
<td>2</td>
<td>2</td>
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<tr>
<td>11407</td>
<td>11,14,18</td>
<td>Bigleaf Maple (Acer macrophyllum)</td>
<td>18&quot; stem - Lean (NE); Crooked; Bulges at base; Poor condition; 11&quot; &amp; 14&quot; stem - decay; Snags (10' tall)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11409</td>
<td>38</td>
<td>Douglas-fir (Pseudotsuga) menziesii</td>
<td>Codominant 30' from ground; Crooked</td>
<td>1</td>
<td>2</td>
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<tr>
<td>11411</td>
<td>13</td>
<td>Cherry (Prunus) sp.</td>
<td>Codominant with 5 stems attached at one point 5' from ground</td>
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<tr>
<td>11412</td>
<td>12</td>
<td>Maple (Acer) sp.</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11414</td>
<td>11</td>
<td>Douglas-fir (Pseudotsuga) menziesii</td>
<td>Topped for overhead wires (20' tall)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
## Detailed Tree Inventory for Lake Oswego Wastewater Rehabilitation

**AKS Job No. 5756 - Evaluation Date: June 14 & 20, 2017**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Common Name (Scientific name)</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>23670</td>
<td>5</td>
<td>Deciduous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23812</td>
<td>6</td>
<td>Bigleaf Maple</td>
<td><em>Acer macrophyllum</em></td>
<td>Small scar near top</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23813</td>
<td>17</td>
<td>Bigleaf Maple</td>
<td><em>Acer macrophyllum</em></td>
<td>Slight lean (W); canopy one sided (E); 50% of bole covered with Ivy; Small bulges on bole</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>23814</td>
<td>12</td>
<td>Bigleaf Maple</td>
<td><em>Acer macrophyllum</em></td>
<td>Slight lean (N); Canopy one sided (N); 75% of bole covered with Ivy</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23815</td>
<td>11</td>
<td>Bigleaf Maple</td>
<td><em>Acer macrophyllum</em></td>
<td>Lean (N); canopy one sided (N); Small bulges on bole; 75% of bole covered with Ivy</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>23816</td>
<td>35</td>
<td>Douglas-fir</td>
<td><em>Pseudotsuga menziesii</em></td>
<td>Some dead foliage; Some broken branches; 50% of bole covered with Ivy</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23912</td>
<td>19</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td>Some broken branches</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23913</td>
<td>7</td>
<td>Western Redcedar</td>
<td><em>Thuja plicata</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23915</td>
<td>17</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td>Codominant top with included bark 25' from ground</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23916</td>
<td>6</td>
<td>Pine</td>
<td><em>Pinus sp.</em></td>
<td>Topped 10' from ground (landscape tree)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23963</td>
<td>17</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td>Codominant top 20' from ground</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23964</td>
<td>16</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td>Some mechanical root damage with good woundwood closure</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23965</td>
<td>49</td>
<td>Douglas-fir</td>
<td><em>Pseudotsuga menziesii</em></td>
<td>Pruned; Good taper</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24131</td>
<td>4,5</td>
<td>Japanese Maple</td>
<td><em>Acer palmatum</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24278</td>
<td>16</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41007</td>
<td>18</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41051</td>
<td>10</td>
<td>Maple</td>
<td><em>Acer sp.</em></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Map 6 - Weidman Court

### Map 7 - Erikson Street

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Common Name (Scientific name)</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>10139</td>
<td>8</td>
<td>Cherry</td>
<td><em>Prunus sp.</em></td>
<td>Not evaluated by an Arborist</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10150</td>
<td>7</td>
<td>Deciduous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10182</td>
<td>70</td>
<td>Redwood</td>
<td><em>Sequoia sempervirens</em></td>
<td>Codominant 30' from ground</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10273</td>
<td>7</td>
<td>Cryptomeria</td>
<td><em>Cryptomeria japonica</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10315</td>
<td>19</td>
<td>Coniferous</td>
<td></td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10316</td>
<td>9</td>
<td>Coniferous</td>
<td></td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10317</td>
<td>9</td>
<td>Coniferous</td>
<td></td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
## Detailed Tree Inventory for Lake Oswego Wastewater Rehabilitation

**AKS Job No. 5756 - Evaluation Date: June 14 & 20, 2017**

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>10318</td>
<td>9</td>
<td>Coniferous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10319</td>
<td>24</td>
<td>Cedar (Cedrus sp.)</td>
<td>Canopy pruned 25% (E)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10350</td>
<td>18</td>
<td>Black Cottonwood (<em>Populus trichocarpa</em>)</td>
<td>Lean (NW 50°); Crooked; Sweep</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10353</td>
<td>8</td>
<td>Bigleaf Maple (<em>Acer macrophyllum</em>)</td>
<td>Canopy one sided (N)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10354</td>
<td>14</td>
<td>Black Cottonwood (<em>Populus trichocarpa</em>)</td>
<td>Slight lean (N); Crooked</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10355</td>
<td>29</td>
<td>Black Cottonwood (<em>Populus trichocarpa</em>)</td>
<td>Crooked</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10493</td>
<td>6</td>
<td>Coniferous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10698</td>
<td>8</td>
<td>Cedar (Cedrus sp.)</td>
<td>Slight sweep at base</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19000</td>
<td>4,5,5,6</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Map 7 - Erikson Street (Continued)

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>21516</td>
<td>5,5,5</td>
<td>Japanese Maple (<em>Acer palmatum</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21517</td>
<td>4,6</td>
<td>Japanese Maple (<em>Acer palmatum</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21518</td>
<td>4,4,5</td>
<td>Japanese Maple (<em>Acer palmatum</em>)</td>
<td>Scars; Broken branches</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21935</td>
<td>34</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21936</td>
<td>26</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21940</td>
<td>14,15,16,27</td>
<td>Bigleaf Maple (<em>Acer macrophyllum</em>)</td>
<td>Codominant; Large broken scaffolds; Cavities with decay; Pruned for overhead wires; Canopy one sided (W); Lean (W); Dead branches</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21941</td>
<td>36</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Pruned</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21942</td>
<td>18,23</td>
<td>Bigleaf Maple (<em>Acer macrophyllum</em>)</td>
<td>Canopy one sided (S); Lean (S); Pruned for overhead wires; Codominant with some included bark; Sweep</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

### Map 8 - Palisades Crest

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>11667</td>
<td>39</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Slight sweep; Pruned; Codominant top 50' from ground; Sap flow</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11668</td>
<td>9</td>
<td>Incense-Cedar (<em>Calocedrus decurrens</em>)</td>
<td>Slight lean (E)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11669</td>
<td>33</td>
<td>Douglas-fir (<em>Pseudotsuga menziesii</em>)</td>
<td>Crooked top; Codominant top 50' from ground</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11670</td>
<td>10</td>
<td>English Oak (<em>Quercus robur</em>)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Map 9 - Lake Forest

### Map 10 - South Shore & McVey Avenue
**Detailed Tree Inventory for Lake Oswego Wastewater Rehabilitation**

AKS Job No. 5756 - Evaluation Date: June 14 & 20, 2017

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH (in.)</th>
<th>Tree Species</th>
<th>Comments</th>
<th>Health Rating*</th>
<th>Structure Rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>12131</td>
<td>35</td>
<td>Coniferous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12142</td>
<td>8</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12229</td>
<td>8</td>
<td>Deciduous</td>
<td>Not evaluated by an Arborist</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Total # of Existing Trees inventoried = 141

*Health Rating:
1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality.
2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment.
3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

**Structure Rating:
1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system.
2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.
3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

** Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.

At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.