

**ROSEBURG URBAN SANITARY AUTHORITY  
ROSEBURG, OREGON**

**BID SCHEDULE**

For the Construction of

**BIOSOLIDS BUILDING ADDITION**

Rogers Engineering  
558 S.E. Jackson St.  
Roseburg, OR 97470  
(541) 672-0315

**TABLE OF  
CONTENTS**

<b>INVITATION TO BID.....</b>	<b>1</b>
<b>INFORMATION TO BIDDERS .....</b>	<b>2</b>
<b>BIDDER'S CHECK LIST .....</b>	<b>6</b>
<b>BID FORM.....</b>	<b>7</b>
<b>Declarations and Statements .....</b>	<b>8</b>
<b>Signatures .....</b>	<b>10</b>
<b>STANDARD BID BOND FORM.....</b>	<b>11</b>
<b>FIRST TIER SUBCONTRACTOR DISCLOSURE FORM.....</b>	<b>12</b>
<b>DRUG TESTING PROGRAM CERTIFICATION FORM.....</b>	<b>13</b>
<b>PRE-BID NOTICE AND CERTIFICATION .....</b>	<b>14</b>
<b>CONSTRUCTION CONTRACT .....</b>	<b>15</b>
<b>STANDARD PERFORMANCE BOND.....</b>	<b>17</b>
<b>STANDARD PAYMENT BOND.....</b>	<b>19</b>
<b>PUBLIC WORKS BOND FILING CERTIFICATION.....</b>	<b>21</b>
<b>PREVAILING WAGE RATES.....</b>	<b>22</b>
<b>MODIFIED GENERAL CONDITIONS.....</b>	<b>1-101</b>

## **INVITATION TO BID**

The Roseburg Urban Sanitary Authority will receive sealed bids marked "**Bid for Biosolids Building Addition**" until the hour of **2:00 p.m.** on August 8<sup>th</sup> 2019, at which time they will be publicly opened and read. When required, bidders must submit a list of their first-tier subcontractors providing labor, or labor and materials, no later than 4:00 p.m. that same day. Bids shall be addressed and delivered to Jim Baird, Manager, Roseburg Urban Sanitary Authority, 1297 NE Grandview Drive, Roseburg, Oregon 97470. Any and all bids received after the 2:00 p.m. deadline for submission will not be considered and returned unopened to the bidder. Any bid for which the list of first-tier subcontractors, when required, has not been submitted by 4:00 p.m. that same day, shall be considered nonresponsive and returned to the bidder. All bids must be identified with the bidder's "Construction Contractors Board" license number as required by Oregon Laws on the outside of the sealed bid envelope.

The proposed work generally consists of construction of an addition to the existing biosolids building. All work on this project shall be completed on or before December 6<sup>th</sup> 2019.

A copy of the Contract Documents may be obtained from Roseburg Urban Sanitary Authority, 1297 N.E. Grandview, Roseburg, OR 97470 (phone 541-672-1551). Bids must be accompanied by a certified check, cashier's check, irrevocable letter of credit or Bid Bond in an amount equal to not less than ten percent (10%) of the total amount of the bid.

Bidders shall state as part of the bid that the provisions of ORS 279C.800 to 279C.870 (Prevailing Wage Rates) shall be complied with. Bidders must also certify as part of the bid that the requirements of ORS 279C.505(2) (Employee Drug Testing Program) shall be complied with. Each bid must contain a statement as to whether the bidder is a resident bidder, as defined in ORS 279A.120. Bidders are not required to be licensed under ORS 468A.720 (Asbestos Abatement). Unless exempt under ORS 279C.800 to 279C.870, the successful bidder must file a \$30,000 Public Works Bond with the Construction Contractors Board prior to beginning work on the project, and certify that all sub-contractors have also filed such bond.

Roseburg Urban Sanitary Authority may reject any bid not in compliance with all public bidding procedures and requirements, may waive any irregularities, and may reject for good cause any or all bids upon a finding it is the public interest to do so.

Dated this 15<sup>th</sup> day of July, 2019.

**ROSEBURG URBAN SANITARY AUTHORITY**  
**Roseburg, Oregon**

## **INFORMATION TO BIDDERS**

### **1. FORM OF BID**

All bids must be made upon the blank Bid Form attached hereto with a lump sum price as required in the Bid Form.

Roseburg Urban Sanitary Authority reserves the right to reject any or all bids or to accept the bid deemed in its best interest. Without limiting the generality of the foregoing, RUSA may reject any bid which is incomplete, obscure or irregular; which omits any one or more items in the price sheet; in which unit prices are obviously unbalanced; or which is accompanied by an insufficient or irregular Bid Bond.

The bidder shall sign the Bid Form in the blank space provided therefore. All bids must contain the bidder's tax identification number. Bids made by a corporation, general or limited partnership, or L.L.C., shall contain the name and address of such organization, together with names and addresses of officers, partners or managing members. If the bid is made by a corporation, it must be signed by one of the corporate officers with the authority to sign for the corporation; if made by a partnership, by one of the partners.

All bids must be submitted at the time and place, and in the manner prescribed in the Invitation to Bid.

### **2. CHANGES TO PLANS, SPECIFICATIONS, OR QUANTITIES BEFORE BID OPENING**

The Agency reserves the right to issue Addenda making changes or corrections to the Plans, Specifications, or quantities. The Agency will provide Addenda by mail, fax, email or other electronic method only to those on the list of Holders of Bidding Plans. Bids shall incorporate all Addenda. Bids may be rejected if opened and found by the Agency to not be based on all Addenda issued.

### **3. BID DOCUMENTS**

The Contract Bid Documents for this Project consist of, but are not necessarily limited to, the Invitation to Bid, Information to Bidders, Bidder's Checklist, Bid Form including Certificate of Residency, Drug Testing Program Certification Form, Bid Bond Form, Construction plans and other Supplemental Agreements. Any person contemplating the submission of a bid and being in doubt as to the meaning or intent of said Documents should request of the Agency in writing, an interpretation thereof. Any interpretation of said Contract Documents shall be made only in writing by RUSA.

### **4. CONSTRUCTION CONTRACTORS' BOARD**

All contractors bidding on public contracts must be licensed with the Construction Contractors' Board as required by ORS 671.530. Bids must be identified with the Contractors' Board license number on the outside of the bid envelope and as required within. No bids will be considered without this information.

**5. DISCLOSURE OF FIRST-TIER SUBCONTRACTORS**

When a public improvement contract value is greater than \$100,000, all bidders are required to disclose information about first-tier subcontractors, providing labor or labor and materials, when the contract amount of such first-tier subcontractor is equal to or greater than:

- 1) 5% of the project bid, or \$15,000.00, whichever is greater; or
- 2) \$350,000 regardless of the percentage of the total bid.

Bidders must disclose the following information about such subcontracts, on the First-Tier Subcontractor Disclosure Form provided and included herein, within two hours of the bid submission deadline:

- 1) The subcontractor's name;
- 2) The subcontract dollar value; and
- 3) The category of work to be performed by the subcontractor.

Any bidder not using subcontractors subject to the above disclosure form, must write "NONE" on the Disclosure Form and sign and submit the form. Roseburg Urban Sanitary Authority will reject a bid if the bidder fails to submit the Disclosure Form before the deadline.

**5. DRUG TESTING PROGRAM**

ORS 279C.505(2) requires public improvement contracts to include a provision requiring contractors to demonstrate that they have an employee drug and alcohol testing program in place. All bidders are required to certify, on the Drug Testing Program Certification Form provided by the RUSA and included herein, that they have such program in place. This certification will become part of the Contract if awarded and contractor will be required to maintain such program throughout the performance of the Contract. Failure to maintain a program shall constitute a material breach of the Contract.

**6. PROMPT PAY POLICY - TIMELY PROGRESS PAYMENTS**

ORS 279C.570 and 279C.580 require prompt payment to contractors and subcontractors and provides for settlement of compensation disputes between the parties. Roseburg Urban Sanitary Authority is required to automatically calculate and pay interest on invoices from the contractor when payments become overdue. The interest commences 30 days after receipt of the invoice from the contractor, or 15 days after the payment is approved by RUSA, whichever is earlier. The rate of interest charged to RUSA on the amount due shall equal three times the discount rate on 90-day commercial paper, but shall not exceed 30 percent.

RUSA is also required to ensure that the contractor includes a clause in each subcontract that obligates the contractor to pay first-tier subcontractors for satisfactory performance under its contract. Contractors must pay subcontractors within 10 days of receiving

payment from the Agency. Contracts between primary contractors and subcontractors must also contain an interest penalty clause that obligates the contractor, if payment is not made to the subcontractor within 30 days after receipt of payment from the Agency, to pay the first-tier subcontractor an interest penalty on amounts due in the case of each payment not made in accordance with the subcontract payment clause. The contractor is also required to ensure that first-tier subcontractors include these requirements in each of its subcontracts with lower-tier subcontractors or suppliers.

If requested in writing by a first-tier subcontractor, within ten calendar days after receiving the request, the contractor must provide the first-tier subcontractor, 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 or materials supplied by the first-tier subcontractor.

**7. BID BOND**

All Bids shall be accompanied by a Bid guaranty in the amount of 10% of the total amount of the Bid.

**8. CONDITIONS OF WORK**

Bidders must make their own determination of the nature of the work proposed under this Contract, the local conditions which can be encountered in this area, and all other matters which can in any way affect the work proposed under this Contract. It shall also be the bidder's responsibility to be thoroughly familiar with the Contract Documents. Failure to make the examination necessary for this determination or to examine any form, instrument or document of the Contract shall not release the bidder from the obligations of this Contract.

**9. BID OPENING; REJECTIONS; DISQUALIFICATIONS; RECIPROCAL PREFERENCE**

Bids will be opened and the total price for each Bid will be read publicly at the time and place as indicated in the Invitation to Bid. Bidders and other interested parties are invited to be present. Bids will be compared on the basis of the total amount of each Bid.

A Bid will be considered irregular and will be rejected if the irregularity is deemed by the Agency to render the Bid non-responsive.

A Bid of a qualified Bidder will be rejected if more than one Bid is submitted for the same Work by an Entity under the same or different name(s); if there is evidence of collusion among Bidders; and any of the grounds for disqualification cited in ORS 279C.440. e disqualified if the Bidder has 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 before submitting a Bid. The Bidder's registration number and expiration date shall be shown in the Bid form; 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.

Bidders shall complete the certificate of residency included in the Bid Schedule. Failure to complete the form will be cause to reject the Bid. A 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.

**10. EXECUTION OF CONTRACT, BONDS AND DAMAGES FOR FAILURE TO EXECUTE**

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 (ORS279C.395).

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.

## **BIDDER'S CHECK LIST**

**Bidder's attention is called to the following forms and conditions, which must be executed in full as required with the bid and completed in accordance with the provisions of the Modified General Conditions:**

- A.      BID FORM(S):** Each bidder shall complete the bid form(s) in accordance with Section 00120.40, Preparation of Bids.
- B.      BID GUARANTY:** All bids shall be accompanied by a Bid guaranty and conform to Section 00120.40(e). If a Surety bond is submitted, bidder must use the standard Bid Bond form included. The amount of a certified check, cashier's check, irrevocable letter of credit or Bid Bond shall not be less than 10% of the total Bid amount.
- C.      FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM:** When required by law, this form must be submitted by the bid submission deadline, at which time bids will be opened and read, or within two working hours of such submission deadline. If no subcontractors for labor or for labor and materials will be used, the bidder must write "NONE" on the disclosure form, sign and submit the form as required. Failure to submit this form within two hours of the bid submission deadline will result in the bid becoming non-responsive and such bid will be returned to the bidder.
- D.      DRUG TESTING PROGRAM CERTIFICATION FORM:** This form must be submitted with the bid to demonstrate that bidder has an employee drug and alcohol testing program in place and will continue to keep the program in place throughout the duration of performing the Contract awarded.
- E.      PUBLIC WORKS BOND PRE-BID NOTICE & CERTIFICATION FORM:** This form must be submitted with the bid to demonstrate contractor's awareness of and intended compliance with the requirement to file a Public Works Bond with the Construction Contractors Board prior to beginning work on the project if awarded the bid.

**The following forms are to be executed after the Contract is awarded, prior to beginning work on the project:**

- A.      CONSTRUCTION CONTRACT:** This agreement is to be executed by the successful bidder.
- B.      PERFORMANCE BOND AND PAYMENT BOND:** Both a Performance Bond and a Payment Bond are to be executed by the successful bidder and bidder's Surety Company and submitted at the time the Contract is executed.
- C.      PUBLIC WORKS WAGE CERTIFICATION FORM:** This form is to be completed in accordance with state law and submitted with the first and last request for payment.
- D.      CERTIFICATE OF INSURANCE:** This certificate is to be executed by the successful bidder and bidder's insurance company and submitted at the time the Contract is executed.
- E.      PUBLIC WORKS BOND FILING CERTIFICATION:** This form is to be executed by the successful bidder and submitted at the time the Contract is executed to certify if Contractor has filed the required Public Works Bond or elected not to file the Bond due to qualifying under ORS 200.055.

**BID FORM**

**Roseburg Urban Sanitary Authority  
1297 NE Grandview Drive  
Roseburg, Oregon 97470**

The undersigned bidder has carefully examined the Contract Documents for the construction of the

**BIOSOLIDS BUILDING ADDITION**

**Project No. 1001**

referred to in the Invitation to Bid dated 15<sup>h</sup> day of July, 2019 inviting bids on such Project and also the site of the Project. Bidder will provide all necessary labor, equipment, tools, apparatus and other means of construction, do all the work and furnish all the materials called for by said Contract Documents in the manner prescribed therein to provide a complete Project.

The Bidder hereby offers to perform the Services described in the Contract Documents for the Biosolids Building Addition a base bid, stated as a Lump Sum for the project:

**TOTAL =**      \$ \_\_\_\_\_ -

## **Declarations and Statement**

**1** That the only persons or parties interested in this bid are those named herein, that the bid is in all respects fair and without fraud, and that it is made without any connection or collusion with any person making another bid on this Contract.

**2** That the bidder, and any subcontractor upon which the bidder is relying, have carefully examined and had an opportunity to comment on, the Contract Documents for the construction of the proposed improvements including a full set of the plans and specifications, including all addenda thereto; that bidder has personally inspected the contemplated construction area or areas; that bidder is satisfied as to the adequacy and completeness of the plans and specifications, the feasibility of the work described therein, quantities of materials, items of equipment and conditions of work involved, including the fact that the description of work and materials as included herein are approximate only; and that this bid is made according to the provisions and under the terms of the Specifications which are hereto attached and hereby made a part of this bid.

**3** All of the Specifications and Plans which are listed herein have been examined by the undersigned bidder and the terms and conditions thereof are hereby accepted.

**4** It is understood that the Plans may be supplemented by additional Drawings and Specifications in explanation and elaboration of the Plans and it is agreed that such Supplemental Drawings, when not in conflict with those referred to in Paragraph 3 above, will have the same force and effect as if completed and attached hereto, and that when received, will be considered a part of the Contract Documents.

**5** It is understood that all work will be performed under the price schedule outlined herein and that all services, materials, labor and equipment and all work necessary to complete the Project in accordance with the Plans and Specifications shall be furnished for the prices named in the bid. If there is a change in the scope of work or work which cannot be properly classified under the price schedule then bidder agrees to do this work as "extra work". The undersigned bidder agrees to do any extra work and furnish materials, and to accept as full compensation therefore, such prices as may be agreed upon in writing by RUSA and the Contractor before extra work begins. Each party binds itself to agree to reasonable prices.

**6** The bidder agrees that if this bid is accepted, the bidder will, within the time specified execute the Construction Contract with RUSA in the form of Contract specified, and will, at the time of execution of the Contract, deliver to RUSA the Performance Bond and Payment Bond required herein, and will furnish all the materials necessary to complete the Project in the manner, in the time and according to methods as specified in the Specifications and required by Roseburg Urban Sanitary Authority

**7** The Bid Guaranty in a form shall be payable to RUSA to the extent of 10% of the amount of the bid in case this bid is accepted and the undersigned shall fail or refuse to execute the Contract and furnish a Payment Bond and a Performance Bond as required by the Specifications within the time limit named therein after notification that said bid is accepted, all in accordance with the provisions of this bid and the Plans and Specifications which are a part hereof.

**8** All items for the Contract for which forms are provided herein have been completed in full by the showing of prices for each and every item thereof, and for the showing of other information indicated by the Bid Form.

**9** Bidder agrees to begin work after the execution of the Contract proposed herein and receipt of the

Notice to Proceed. All work on this project shall be completed in its entirety on or before December 6th 2019 regardless of the start date.

**10** In the event the bidder is awarded the Contract and fails to complete the Project within the time limit or extended time agreed upon, as more specifically set forth in the Special Provisions, liquidated damages shall be paid to or withheld by RUSA pursuant to Paragraph 4 of the Construction Contract (Time of Performance - Liquidated Damages) at the rate of \$1,500.00 per day, until the Project has been completed as provided in the Specifications.

**11** The undersigned bidder hereby states, as part of this bid, that the applicable provisions of Oregon's Prevailing Wage Law (ORS 279C.800 to 279C.870) and the Federal Prevailing Wage Law (Davis-Bacon Act, 40 U.S.C. 3141-3148), shall be complied with. When the Project is subject to both the State and Federal Prevailing Wage Laws and rates, workers in each trade will be paid the higher of the two rates.

**12** The undersigned bidder and bidder's subcontractors shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers.

**13** The undersigned bidder hereby states, as part of this bid, that bidder shall comply with ORS 279C.505(2) which requires bidder to have an employee drug testing program in place.

**14** The undersigned bidder and bidders' subcontractors shall comply with ORS 279C.570 and 279C.580, which require timely progress payments for public improvement projects and provide interest penalties for late payment.

**15** The undersigned bidder hereby states, as part of this bid, which bidder and bidder's subcontractors shall comply with the provisions of the Modified General Conditions, Volume 1.

**16** If the bidder is awarded the Contract for this work, the name and address of the Surety who will provide the Payment Bond and Performance Bond will be:

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**17** The name and address of the bidder who is submitting this bid is:

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which is the address to which all communications pertinent to the bid and the Contract shall be sent.

**18** The names of the principal officers of the corporation submitting this bid or of the partnership, or of all parties interested in this bid as principals are as follows:

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**19** The undersigned bidder acknowledges that Addenda No. \_\_\_\_\_ through \_\_\_\_\_ have been delivered to bidder and have been examined as part of the Contract Documents.

**20** In the prosecution of this work, the bidder proposes to use the subcontractors listed on the First-Tier Subcontractor Disclosure Form presented within two working hours of the bid submission deadline as set forth in the Invitation to Bid. Any bidder not using subcontractors subject to the above referenced Disclosure Form shall indicate "NONE" on the Disclosure Form and sign and submit the form as

required.

**21 Declaration of Residency:**

I "am" or "am not" (circle one) a "resident bidder"\* as defined by ORS 279A.120, a contractor that has paid unemployment taxes or income taxes in Oregon during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in the bid whether the bidder is a "resident bidder" pursuant to ORS 279A.120.

**22** The bidder's Construction Contractors Board License Number or Landscape Contractors Board License Number is:

**23** Bidder's Tax Identification Number:

**24** Public Works Bond: If the bid is accepted, prior to beginning work on the project, the bidder will file with the Construction Contractors Board, a Public Works Bond in the amount of \$30,000 with a corporate surety authorized to do business in the State of Oregon; and before permitting a subcontractor to begin work on the project, the bidder will verify that the subcontractor has also filed the aforementioned bond. If the bidder, as a certified disadvantaged, minority, women or emerging small business enterprise, elects not to file the Public Works Bond, bidder will file written verification of such certification with the Construction Contractors Board and provide the Board and Roseburg Urban Sanitary Authority with notice of such election.

**Signatures**

**If sole Proprietor or Partnership:**

In witness hereto, the undersigned as set his/her hand this \_\_\_\_ day of \_\_\_\_\_, 2016.

Signature of Bidder

\_\_\_\_\_  
Title:  
\_\_\_\_\_

**If Corporation:**

In witness whereof, the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this \_\_\_ day of \_\_\_\_\_, 2016.

**Name of Corporation:**

\_\_\_\_\_  
By:

Title:

\_\_\_\_\_  
Attest:

\_\_\_\_\_  
Secretary

**ROSEBURG URBAN SANITARY AUTHORITY  
STANDARD BID BOND FORM**

We, \_\_\_\_\_, “as Principal,”  
 (Name of Principal) and \_\_\_\_\_ an \_\_\_\_\_ Corporation,  
 (Name of Surety)

authorized to transact Surety business in Oregon, as “Surety,” hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns to pay unto the Roseburg Urban Sanitary Authority (“Oblige”) the sum of ( )  
 \_\_\_\_\_ dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its proposal or bid to an agency of the Oblige in response to Oblige’s procurement document (No. ) for the project identified as: Biosolids Building Addition, which proposal or bid is made a part of this bond by reference, and Principal is required to furnish bid security in an amount equal to ten percent (10%) of the total amount of the bid pursuant to the procurement document and ORS 279C.365(4) for competitive bidding or 279C.400(5) for competitive proposals.

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

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly authorized legal representatives this \_\_\_\_\_ day of \_\_\_\_\_, 2019.

PRINCIPAL: \_\_\_\_\_ SURETY: \_\_\_\_\_

By \_\_\_\_\_ BY ATTORNEY-IN-FACT:  
 Signature

\_\_\_\_\_  
 Official Capacity Name

Attest: \_\_\_\_\_  
 Corporation Secretary Signature

Address \_\_\_\_\_

\_\_\_\_\_  
 City State Zip

\_\_\_\_\_  
 Phone Fax

**FIRST TIER SUBCONTRACTOR DISCLOSURE FORM**

PROJECT NAME: Biosolids Building Addition

BID#: \_\_\_\_\_

BID CLOSING: DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

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

NAME OF SUBCONTRACTOR	DOLLAR VALUE	CATEGORY OF WORK
1.	\$	
2.	\$	
3.	\$	
4.	\$	
5.	\$	
6.	\$	

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

Form submitted by (bidder name): \_\_\_\_\_

Contact name: \_\_\_\_\_ Phone: \_\_\_\_\_

**Form Received in the RUSA's Office:**

Time: \_\_\_\_\_ Date: \_\_\_\_\_ By: \_\_\_\_\_

**DRUG TESTING PROGRAM CERTIFICATION FORM**

**BIDDER'S NAME:** \_\_\_\_\_

**PROJECT NAME & NUMBER:** Biosolids Building Addition 1001

ORS 279C.505 (2) provides that every public improvement contract contain a condition that the Contractor shall demonstrate that an employee drug testing program is in place. The Agency's award of the Contract for which this certificate is required is conditioned, in part, upon the Bidder's demonstration of compliance with the provisions of ORS 279C.505(2). If the Bidder named above is awarded the Contract, this certificate shall become a part of, and shall constitute a continuing representation and warranty under, the Contract.

To induce the Agency to award the Contract to the Bidder, the undersigned, as the duly authorized representative of the Bidder, hereby represents and warrants, on behalf of the above named Bidder:

1. That Bidder has and enforces, and at all times during the term of the Contract will have and enforce, a written employee drug testing policy that at a minimum, requires compliance with the Oregon Department of Transportation Commercial Drivers License drug testing regulations;
2. A copy of the Bidder's current written employee drug testing policy will be available for inspection by the Agency at any time upon the Agency's request; and
3. The Bidder understands and agrees that its representations and warranties herein will become a continuing part of the Contract and that breach of any of the foregoing will be sufficient grounds for disqualification under 279C.440(2)(d).

The Agency shall not be liable, either directly or indirectly, in any dispute arising out of the substance or procedure of Bidder/Contractor's drug testing program. Nothing in this drug testing provision shall be construed as requiring Bidder/Contractor to violate any legal, including constitutional, rights of any employee, including but not limited to, selection of which employees to test and the manner of such testing. The Agency shall not be liable for Bidder/Contractor's negligence in establishing or implementing, or failure to establish or implement, a drug testing policy, or for any damage or injury caused by Bidder/Contractor's employees acting under the influence of drugs while performing work covered by the Contract. These are Bidder/Contractor's sole responsibilities.

In Witness whereof, the Bidder has caused this document to be executed by its duly authorized representative on the date shown below.

**Signature:** \_\_\_\_\_

**Printed Name, Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**PUBLIC WORKS BOND  
PRE-BID NOTICE AND CERTIFICATION**

I, the undersigned contractor, hereby certify that if awarded the contract for which I am submitting this bid, prior to beginning work on such Project, unless exempt under ORS 279C.800 to 279C.870, I will file with the Construction Contractors Board, a Public Works Bond in the amount of \$30,000 with a corporate surety authorized to do business in the State of Oregon. I further certify that before permitting a subcontractor to start work on the Project upon which I am submitting this bid, I will verify that the subcontractor has also filed such Public Works Bond or has elected not to file such bond as allowed by state law. The Public Works Bond shall provide that the contractor or subcontractor will pay claims ordered by the Bureau of Labor and Industries to workers performing labor upon public works projects. The bond shall be a continuing obligation and remain continuously in effect.

If, as a contractor, I qualify as a disadvantaged, minority, women or emerging small business enterprise certified under ORS 200.055 and I have elected not to file the aforementioned Public Works Bond, I hereby certify that I will file written verification of such certification with the Construction Contractors Board. I also certify that before beginning any work on the Project, I will provide the Roseburg Urban Sanitary Authority and the Construction Contractors Board written notice that I have elected not to file the Public Works Bond. If so certified under ORS 200.055, I understand that my election not to file the Public Works Bond will expire one year from the date it was filed and that a claim for unpaid wages may be filed against the payment bond I submitted on the Project.

I further certify that I understand the Public Works Bond described above is in addition to any other bond that I am required to provide, or that may be required of a subcontractor, for this Project.

**Project Name:** Biosolids Building Addition

**P r o j e c t   N u m b e r : 1 0 0 1**

**Contractor's Printed Name:** \_\_\_\_\_

**Contractor's Signature:** \_\_\_\_\_

**Dated:**

## CONSTRUCTION CONTRACT

This Contract is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2019, by and between \_\_\_\_\_, hereinafter called the "Contractor", and the Roseburg Urban Sanitary Authority, a public authority of the State of Oregon, hereinafter called "RUSA".

### WITNESSETH

That the Contractor and RUSA, for the consideration hereinafter described agree as follows:

**1. WORK TO BE PERFORMED.** The Contractor agrees to do all the work and furnish all necessary labor, materials, tools and equipment for the completion of the ***Biosolids Building Addition*** in accordance with the bid made by the Contractor on the \_\_\_\_\_ day of \_\_\_\_\_, all in full compliance with the Contract Documents referred to herein, and guarantees all materials and workmanship for one year after acceptance of the project.

**2. CONTRACT DOCUMENTS.** The Contract Documents include the RUSA's Invitation to Bid, Information to Bidders, the Bid Form signed by the Contractor, this Construction Contract, First-Tier Subcontractor Disclosure Form, Drug Testing Program Certification Form, Performance Bond, Payment Bond, Public Works Bond Filing Certification form (when required), Standard Drawings and Plans, and other Supplemental Agreements all as required for the full execution and satisfactory completion of the work. All of the Contract Documents are incorporated herein by this reference and made a part of this Contract.

**3. PAYMENT.** In consideration of the faithful performance of the work herein embraced, RUSA agrees to pay the Contractor \$\_\_\_\_\_ as payment in full per the provisions of the Contract Documents.

**4. TIME OF PERFORMANCE - LIQUIDATED DAMAGES.** The Contractor shall commence work under this Contract upon receiving notification to proceed from the RUSA. The Contractor agrees that the work under this Contract shall be completed in its entirety on or before December 6th, 2019. If the Contractor fails to complete the Project within the time hereinbefore mentioned, or in the extended time agreed upon, liquidated damages shall be paid to or withheld by the RUSA ` Project is completed. It has also been agreed that the amount of liquidated damages specified herein is a reasonable forecast of just compensation for the harm that will be caused by a delay in completion of the Project. Any such sum which the Contractor may be obligated to pay under the terms of this Paragraph is paid as liquidated damages, and not as a penalty.

**5. COMPLIANCE WITH LAW.** The Contractor shall comply with all local, state and federal laws, ordinances and regulations applicable to contracts covering municipal contracts, and shall make prompt payment of all amounts that may be due from said Contractor in the way of taxes, other governmental charges or lawful deductions, and shall make prompt payment of all labor and materials and shall save the RUSA harmless from any damages or claims whatsoever in the performance of the Contract. Contractor and all subcontractors agree to comply with the Roseburg Municipal Code Regulations relating to business registration.

**6. NOTICE.** Any notice required or permitted by this Contract must be delivered and served personally, or alternatively, deposited in the United States mail, postage prepaid, registered or certified, return receipt requested, addressed to the parties as shown below:

**RUSA:**  
Roseburg Urban Sanitary Authority  
ATTN: Jim Baird  
1297 NE Grandview Dr.  
Roseburg OR 97470

**CONTRACTOR:**  
  
ATTN:

Such notice, if mailed within the State of Oregon, shall be deemed delivered upon the second day following the date postmarked. If mailed outside the State of Oregon, notice shall be deemed delivered upon the fifth day following the date postmarked.

**7. GOVERNING LAW; VENUE LOCATION.** Oregon law shall be applied to all actions relating to the Contract, and the venue in any such action shall lie in the Circuit Court of Douglas County, Oregon.

**IN WITNESS WHEREOF, the parties hereto have executed this Contract the day and year first above written.**

**RUSA**

**CONTRACTOR**

\_\_\_\_\_  
**Jim Baird**  
**Manager**

**Date:**

\_\_\_\_\_  
(Authorized Signature)  
**Name/Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

\_\_\_\_\_  
**Tax Identification Number**

**ATTEST:**

\_\_\_\_\_

**Roseburg Urban Sanitary Authority  
STANDARD PERFORMANCE BOND**

Bond No.:

Solicitation: \_\_\_\_\_

Project Name: Biosolid Building Addition

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

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

*\*If using multiple sureties*

Total Penal Sum of Bond \$ \_\_\_\_\_

We, \_\_\_\_\_ as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns, firmly by these presents to pay to the Roseburg Urban Sanitary Authority the sum of (Total Penal Sum of Bond) Provided that we the Sureties bind ourselves in such sum “jointly and severally” as well as “severally” only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the Roseburg Urban Sanitary Authority, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

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

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

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless Roseburg Urban Sanitary Authority and members thereof, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its

subcontractors, and shall in all respects perform said Contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall Roseburg Urban Sanitary Authority be obligated for the payment of any premiums.

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

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

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2019.

PRINCIPAL: \_\_\_\_\_

By: \_\_\_\_\_

Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_

Corporation Secretary

SURETY:

\_\_\_\_\_  
*[Add signatures for each surety if using multiple bonds]*

BY ATTORNEY-IN-FACT:

*[Power-of-Attorney must accompany each surety bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Fax

**Roseburg Urban Sanitary Authority  
PAYMENT BOND**

Bond No.:

Solicitation:

Project Name: Biosolid Building Addition

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

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

*\*If using multiple sureties*

Total Penal Sum of Bond \$ \_\_\_\_\_

We, \_\_\_\_\_ as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns, firmly by these presents to pay to the Roseburg Urban Sanitary Authority the sum of (Total Penal Sum of Bond)

---

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

WHEREAS, the Principal has entered into a contract with the Roseburg Urban Sanitary Authority, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

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

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

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided by the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the Roseburg Urban Sanitary Authority and members thereof, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contribution due according to workers compensation requirements and the State Unemployment compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or

prosecuted against Roseburg Urban Sanitary Authority on account of any labor or materials furnished; and do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the Roseburg Urban Sanitary Authority be obligated for the payment of any premiums.

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

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

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2019.

PRINCIPAL: \_\_\_\_\_

By: \_\_\_\_\_

Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_

Corporation Secretary

SURETY: \_\_\_\_\_

*[Add signatures for each surety if using multiple bonds]*

BY ATTORNEY-IN-FACT:

*[Power-of-Attorney must accompany each surety bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Fax

**PUBLIC WORKS BOND FILING CERTIFICATION**

Pursuant to ORS 279C.800 to 279C.870, I, undersigned contractor, do hereby certify that, prior to beginning work on the Project for which I have been awarded the bid by the Roseburg Urban Sanitary Authority:

**1.** I have filed with the Construction Contractors Board (“Board”), a Public Works Bond in the amount of \$30,000 with a corporate surety authorized to do business in the State of Oregon.  **Yes**  **No (Check one)**

**2.** I have elected not to file a Public Works Bond with the Board because I am a disadvantaged, minority, women or emerging small business enterprise certified under ORS 200.055. I have provided the Board written verification of such certification and written notification of my election not to file the Public Works Bond. I understand that my election not to file the Public Works Bond will expire one year from the date it was filed and that a claim for unpaid wages may be filed against the payment bond I submitted on the Project.  **Yes**  **No (Check one)**

**3.** I have verified any subcontractor involved in the Project has, prior to beginning any work on this Project, either filed the Public Works Bond with the Board or has elected not to file the Public Works Bond because the subcontractor is a disadvantaged, minority, women or emerging small business enterprise certified under ORS 200.055.  **Yes**  **No (Check one)**

**(a)** I have verified that any subcontractor involved in this Project that has elected not to file the Public Works Bond has provided the Board written verification of its certification under ORS 200.055 and written notification of its election not to file the Public Works Bond.  **Yes**  **No (Check one)**

I understand the Public Works Bond described above is in addition to any other bond that I am required to provide, or that may be required by a subcontractor, for this Project.

**Project Name:** Biosolid Building Addition

**Project Number:** 1001

**Contractor’s Printed Name:**

**Contractor’s Signature:** \_\_\_\_\_

**Dated:**

**BUREAU OF LABOR AND INDUSTRIES  
PREVAILING WAGE RATES  
FOR  
PUBLIC WORKS CONTRACTS IN OREGON**

Prevailing Wage Rates are the minimum wages that must be paid to all workers employed in the construction, reconstruction, major renovation or painting of all public works, unless specifically exempted by state law. Effective May 15, 2006, the Bureau of Labor and Industries (BOLI) deleted the requirement that the applicable Prevailing Wage Rates be physically included in all bid specifications and contracts for projects subject to the Prevailing Wage Rate law. Instead of including the entire Prevailing Wage Rate publication in the bid specifications and contract, public entities must now simply make reference to the specific prevailing wage rate publication where the prevailing wage rates are found *or* provide a link to the specific prevailing wage rate publication where the prevailing wage rates are found.

In January and July of each year, the Commissioner of the Bureau of Labor and Industries publishes the Prevailing Wage Rates that are required to be paid to workers on public works contracts in the state of Oregon. Quarterly updates are published in April and October of each year. Oregon Bureau of Labor and Industries Prevailing Wage Rates applicable to the subject project/contract are available on BOLI's website at [www.oregon.gov/boli/](http://www.oregon.gov/boli/). The prevailing wages to be applied throughout the duration of this project are those in effect for BOLI Prevailing Wage Rate Region 6, (Douglas County Oregon), upon the date the project is first advertised.

For specific information or questions regarding the Prevailing Wage Rate Law, you may log on to the above referenced website or contact the nearest Oregon Bureau of Labor and Industries office listed below.

**BOLI Office Locations**

Eugene	1400 Executive Parkway, Eugene, OR 97401	541/686-7623
Medford	700 E. Main, Suite 105, Medford, OR 97504	541/776-6270
Portland	800 NE Oregon St., #32, Portland, OR 97232	503/731-4074
Salem	3865 Wolverine St. NE, Bldg. E-1, Salem, OR 97305	503/378-3292

**THIS PROJECT IS SUBJECT TO THE PREVAILING WAGE RATES EFFECTIVE**

**January 1, 2019**

***and the***

**AMENDMENTS PUBLISHED PRIOR TO THE BID DATE**

# **OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION**

## **Modified General Conditions (Volume 1) 2015**

**Roseburg Urban Sanitary Authority  
Roseburg, Oregon**

*Oregon Standard Specifications for Construction, Volume 1, 2015 contains Part 00100, the general conditions. Volume 2 contains Parts 00200 through 03000, the Technical Specifications, which describe the prosecution of the work. These general conditions contained in these provisions have been modified for the use of Roseburg Urban Sanitary Authority. The Oregon Standard Specifications for Construction are joint specifications from the Oregon Department of Transportation and the American Public Works Association, Oregon Chapter.*

August 2016

## TABLE OF CONTENTS

<b>Section 00110 - Organization, Conventions, Abbreviations, and Definitions .....</b>	<b>1</b>
00110.00 Organization of Specifications .....	1
00110.05 Conventions Used Throughout the Specifications Include: .....	1
00110.10 Abbreviations .....	3
00110.20 Definitions .....	5
<b>Section 00120 - Bidding Requirements and Procedures.....</b>	<b>14</b>
00120.00 Prequalification of Bidders .....	14
00120.01 General Bidding Requirements .....	14
00120.05 Requests for Solicitation Documents .....	14
00120.10 Bid Booklet.....	14
00120.15 Examination of Work Site and Solicitation Documents; Consideration of Conditions to be Encountered.....	15
00120.16 Material, Equipment, and Method Substitutions .....	15
00120.30 Changes to Plans, Specifications, or Quantities before Opening of Bids..	16
00120.40 Preparation of Bids: .....	16
00120.45 Submittal of Bids .....	19
00120.60 Revision or Withdrawal of Bids.....	19
00120.65 Opening and Comparing Bids.....	19
00120.70 Rejection of Nonresponsive Bids.....	20
00120.80 Reciprocal Preference for Oregon Resident Bidders .....	20
00120.90 Disqualification of Bidders.....	21
00120.91 Rejection of Bid on Grounds of Nonresponsibility of Bidder.....	21
<b>Section 00130 - Award and Execution of Contract.....</b>	<b>22</b>
00130.00 Consideration of Bids.....	22
00130.10 Award of Contract .....	22
00130.15 Right to Protest Award.....	23
00130.20 Cancellation of Award .....	23
00130.30 Contract Booklet.....	23
00130.40 Contract Bonds, Certificates, and Registrations .....	24
00130.50 Execution of Contract and Bonds .....	25
00130.60 Failure to Execute Contract and Bonds .....	25
00130.70 Release of Bid Guaranties.....	26
00130.80 Project Site Restriction.....	26
00130.90 Notice to Proceed .....	26
<b>Section 00140 - Scope of Work .....</b>	<b>27</b>
00140.00 Purpose of Contract.....	27
00140.10 Typical Sections.....	27
00140.30 Agency-Required Changes in the Work .....	27
00140.50 Environmental Pollution Changes .....	28

00140.60 Extra Work .....	28
00140.65 Disputed Work.....	28
00140.70 Cost Reduction Proposals.....	28
00140.80 Use of Publicly Owned Equipment .....	30
00140.90 Final Trimming and Cleanup .....	30
<b>Section 00150 - Control of Work.....</b>	<b>32</b>
00150.00 Authority of the Engineer .....	32
00150.01 Project Manager’s Authority and Duties .....	32
00150.02 Inspector’s Authority and Duties.....	32
00150.10 Coordination of Specifications and Plans.....	33
00150.20 Inspection.....	33
00150.25 Acceptability of Materials and Work.....	34
00150.30 Delivery of Notices .....	35
00150.35 Plans and Working Drawings.....	35
00150.37 Equipment Lists and Other Submittals .....	36
00150.40 Cooperation and Superintendence by the Contractor.....	36
00150.55 Cooperation with Other Contractors.....	38
00150.70 Detrimental Operation.....	39
00150.80 Removal of Unacceptable and Unauthorized Work.....	39
00150.90 Final Inspection:.....	39
00150.95 Final Acceptance .....	40
00150.96 Maintenance Warranties and Guarantees .....	40
00150.97 Responsibility for Materials and Workmanship .....	40
<b>Section 00160 - Source of Materials.....</b>	<b>41</b>
00160.00 Definitions .....	41
00160.01 Notification of Source of Supply and Materials .....	41
00160.20 Preferences for Materials .....	41
00160.30 Agency-Furnished Materials .....	41
00160.60 Contractor-Furnished Materials and Sources.....	42
<b>Section 00165 – Quality of Material.....</b>	<b>43</b>
00165.00 General.....	43
00165.01 Rejected Materials.....	43
00165.02 Materials Conformance and Quality Compliance Documents .....	43
00165.03 Testing by Agency .....	43
00165.04 Costs of Testing.....	43
<b>Section 00170 - Legal Relations and Responsibilities .....</b>	<b>44</b>
00170.00 General.....	44
00170.01 Other Agencies Affecting Agency Contracts.....	44
00170.02 Permits, Licenses, and Taxes.....	46
00170.03 Furnishing Right-of-Way and Permits.....	46

00170.04 Patents, Copyrights, and Trademarks .....	46
00170.05 Assignment of Antitrust Rights.....	46
00170.10 Required Payments by Contractors.....	47
00170.20 Public Works Bond.....	48
00170.32 Protection of Navigable Waters .....	49
00170.60 Safety, Health, and Sanitation Provisions.....	49
00170.61 Industrial Accident Protection .....	49
00170.62 Labor Nondiscrimination.....	49
00170.63 Payment for Medical Care.....	49
00170.65 Minimum Wage and Overtime Rates for Public Works Projects.....	49
00170.70 Insurance.....	52
00170.71 Independent Contractor Status .....	56
00170.72 Indemnity/Hold Harmless .....	56
00170.74 Employee Drug Testing Program .....	56
00170.78 Conflict of Interest.....	57
00170.79 Third Party Beneficiary.....	57
00170.80 Responsibility for Damage to Work .....	57
00170.82 Responsibility for Damage to Property and Facilities .....	58
00170.85 Responsibility for Defective Work .....	58
<b>Section 00180 - Prosecution and Progress .....</b>	<b>61</b>
00180.00 Scope.....	61
00180.05 Assignment/Delegation of Contract.....	61
00180.06 Assignment of Funds Due under the Contract.....	61
00180.10 Responsibility for Contract.....	61
00180.15 Agency's Right to Do Work at Contractor's Expense.....	62
00180.20 Subcontracting Limitations.....	62
00180.21 Subcontracting .....	63
00180.22 Payments to Subcontractors and Agents of the Contractor .....	65
00180.30 Materials, Equipment, and Work Force.....	66
00180.31 Required Materials, Equipment, and Methods .....	66
00180.32 Alternative Materials, Equipment, and Methods .....	67
00180.40 Limitation of Operations.....	68
00180.41 Project Work Schedules.....	68
00180.42 Preconstruction Conference.....	68
00180.43 Commencement and Performance of Work .....	68
00180.50 Contract Time to Complete Work .....	68
00180.60 Notice of Delay .....	71
00180.70 Suspension of Work.....	71
00180.80 Adjustment of Contract Time.....	72
00180.85 Failure to Complete on Time; Liquidated Damages .....	74

00180.90 Termination of Contract and Substituted Performance.....	75
<b>Section 00190 - Measurement of Pay Quantities .....</b>	<b>77</b>
<b>Section 00195 - Payment.....</b>	<b>78</b>
00195.00 Scope and Limit.....	78
00195.20 Changes to Plans or Character of Work .....	78
00195.30 Differing Site Conditions.....	79
00195.40 Unreasonable Delay by the Agency .....	79
00195.50 Progress Payments and Retained Amounts.....	80
00195.60 Advance Allowance for Materials on Hand.....	82
00195.70 Payment under Terminated Contract .....	84
00195.80 Allowance for Materials Left on Hand .....	85
00195.90 Final Payment.....	85
00195.95 Error in Final Quantities and Amounts .....	86
<b>Section 00196 - Payment for Extra Work .....</b>	<b>87</b>
00196.00 General.....	87
00196.10 Negotiated Price .....	87
00196.20 Force Account.....	87
<b>Section 00197 - Payment for Force Account Work .....</b>	<b>88</b>
00197.00 Scope .....	88
00197.01 General.....	88
00197.10 Materials .....	88
00197.20 Equipment .....	89
00197.30 Labor .....	91
00197.40 Invoices for Special Services.....	92
00197.80 Percentage Allowances .....	92
00197.90 Billings .....	93
<b>Section 00199 - Disagreements, Protests and Claims .....</b>	<b>94</b>
00199.00 General.....	94
00199.10 Procedure for Resolving Disagreements .....	94
00199.20 Protest Procedure .....	94
00199.30 Claims Procedure .....	95
00199.40 Claim Decision; Review; Exhaustion of Administrative Remedies .....	99
00199.50 Mediation.....	101

## **PART 00100 - GENERAL CONDITIONS**

### **Section 00110 - Organization, Conventions, Abbreviations, and Definitions**

*NOTE: Volume 1 of the 2015 “Oregon Standard Specifications for Construction”, Joint specifications of the Oregon Department of Transportation and the Oregon Chapter of the American Public Works Association is hereby referenced in general and is modified by these provisions for general use of the Roseburg Urban Sanitary Authority(RUSA), Roseburg, Oregon. Any reference to Agency is implied to refer to RUSA. These provisions control in the event of any conflict.*

#### **00110.00 Organization of Specifications**

The Specifications are comprised of the following:

- The “2015 Oregon Standard Specifications for Construction”, Volume 1, which contain Part 00100 “General Conditions”, which deal with the solicitation process and contractual relationships;
- The “2015 Oregon Standard Specifications for Construction”, Volume 2, which contain Parts 00200 through 03000 of the detailed “Technical Specifications” involved in prosecution of the Work, organized by subject matter;
- Supplemental Specifications, if any.

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, Supplemental Specifications, or future expansion of the Standard Specifications.

#### **00110.05 Conventions Used Throughout the Specifications Include:**

(a) **Grammar** - The “2015 Oregon Standard Specifications for Construction”, Volume 1, which contain Part 00100 “General Conditions”, are written in the indicative mood, in which the subject is expressed. The “2015 Oregon Standard Specifications for Construction”, Volume 2, which contain Parts 00200 through 03000 of 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. 00110.05(b)

**(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 and Supplemental Specifications. Refer to Section 00110.20 “Definitions”. Defined terms will always be capitalized in Part 00100; in Parts 00200 through 03000, defined terms will generally not be capitalized, with the notable exception of “the Contractor”, “the Agency”, and “the Engineer”.

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

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

- **Statutes and Rules** - Oregon Revised Statutes (ORS) and Oregon Administrative Rules (OAR) referenced in the Specifications are accessible on line, including through the Oregon Legislative Counsel Committee web site and through the Oregon Secretary of State Archives Division web site.
- **Law** - In each case, unless otherwise expressly stated therein, the Law is to be understood to be the current version in effect. This also applies where a specific Law is referenced or cited, regardless of whether the text of the Law has been included in the Specifications or not, and regardless of whether the text of the Law has been summarized or paraphrased. In each case, the current version of the Law is applicable under any Contract. The reader is therefore cautioned to check the actual text of the Law to confirm that the text included in the Specifications has not been modified or superseded.

- **Permits** - Orders and permits issued by a government agency may be modified during the course of performing the Work under a Contract. Therefore, wherever the term “order” or “permit” is used in the Specifications, it is intended to refer to the then-current version. That version may be embodied in a modified, superseding order or permit, or it may consist of all terms and conditions of prior orders or permits that have not been superseded, as well as the additional terms added by amendment or supplement. In certain cases, the orders and/or permits are identified by name in the Specifications; in other cases the terms are used in the generic sense. The reader is cautioned to check the text(s) of each order and permit identified either by name or by generic reference.
- **Applicable Laws and Regulations** - Where the phrase “applicable laws and regulations” appears, it is to be understood as including all applicable laws, acts, regulations, administrative rules, ordinances, statutes, and orders and permits issued by a governmental or regulatory authority.

### 00110.10 Abbreviations

Following are meanings of abbreviations used in the Standard Specifications, the Supplemental 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 Supplemental Specifications, in the Special Provisions, and in OAR 731-005 and OAR 731-007.

AAR	- Association of American Railroads
AASHTO	- American Association of State Highway and Transportation Officials
ABC	- Associated Builders and Contractors, Inc.
AC	- Asphalt Concrete
ACI	- American Concrete Institute
ACWS	- Asphalt Concrete Wearing Surface
AGC	- Associated General Contractors of America
AIA	- American Institute of Architects
AISC	- American Institute of Steel Construction
AISI	- American Iron and Steel Institute
AITC	- American Institute of Timber Construction
ANSI	- American National Standards Institute
APA	- American Plywood Association
APWA	- American Public Works Association
ARA	- American Railway Association
AREA	- American Railway Engineering Association
ASCE	- American Society of Civil Engineers
ASME	- American Society of Mechanical Engineers
ASTM	- American Society for Testing and Materials
ATPB	- Asphalt-Treated Permeable Base
AWG	- American Wire Gauge
AWPA	- American Wood Preservers Association
AWS	- American Welding Society
AWWA	- American Water Works Association

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

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

**00110.20 Definitions**

Following are definitions of words and phrases used in the Standard Specifications, the Supplemental 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 Supplemental Specifications, 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) inviting Bids for Work to be performed or Materials to be furnished.

**Agency** - The city, county, or State agency or special district or political subdivision, as applicable, which has entered into a Contract with the Contractor. For the purpose of this document, Agency is considered to be the Roseburg Urban Sanitary Authority.

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

**Aggregate** - Rock of specified quality and gradation.

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

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

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

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

**Bid Bond** - The Surety bond for Bid guarantee.

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

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

**Bid Documents** - See under Solicitation Document.

**Bid Opening** - The date and time Bids are opened.

**Bid Schedule** - The 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.

**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.

**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 Plans and Specifications. (see 00140.30)

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

**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.

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

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

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

**Contract Documents** - Solicitation Documents, 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, approved Plans, 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.

**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.

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

**Emulsified Asphalt** - Emulsified asphalt cement.

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

**Engineer** - The Chief Engineer of the Agency acting either directly or through authorized representatives. If the Agency has not designated a Chief Engineer, this term denotes the person responsible for administering its public works program.

**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.

**Final Acceptance** - Written confirmation by the Agency that the Project has been completed according to the Contract, 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.

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

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

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

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

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

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

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

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

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

**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.

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

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

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

**Project Manager** - The Engineer's representative who directly supervises the engineering and administration of a Contract.

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

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

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

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

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

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

**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.

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

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

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

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

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

**Solicitation Document** - Documents which define the procurement of a public improvement Project, including, but not limited to, the Bid Booklet, Agency-provided Plans, Standard Specifications, Supplemental 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 and the Supplemental 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. This includes any amended or supplemental permits or orders issued during the course of performing the Work under a Contract.

**Special Services** - Force Account Work services that the Contractor and Engineer agree cannot be satisfactorily performed by the Contractor's and Subcontractors' forces, e.g., fabrication and machining work that is most effectively performed away from the Project Site, or rental of operated Equipment as defined in 00180.20©.

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

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

**Standard Specifications** - "Oregon Standard Specifications for Construction", Volume 1, Part 00100, "General Conditions", and "Oregon Standard Specifications for Construction", Volume 2, Parts 00200 through 03000, "Technical Specifications", current edition, published by the Oregon Department of Transportation.

**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.

**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.

**Supplemental Specifications** - “Supplemental Oregon Standard Specifications for Construction”. Supplemental Specifications are applicable to the particular Contract, and supplement and modify the Standard Specifications with regard to the Work to be done under that Contract.

**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.

**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 auxiliary lanes, 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, or Supplier’s Surety as a guaranty of the Contractor’s performance of its warranty obligations.

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

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

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

## **Section 00120 - Bidding Requirements and Procedures**

### **00120.00 Prequalification of Bidders**

All bidders and its subcontractors at time of bid submittal shall hold such licenses as required by State Statutes and Federal and Local Laws and Regulations and have a current, valid license issued by the Oregon Construction Contractors Board as required by ORS 701.055.

### **00120.01 General Bidding Requirements**

Each Bid must be submitted on the prescribed Bid Form and delivered as specified in the Advertisement for Bid. The Bid Form must contain Signatures of personnel authorized to submit Bids, modify Bids, or withdraw Bids.

### **00120.05 Requests for Solicitation Documents**

Copies of the Oregon Standard Specifications may be purchased at the ODOT Procurement Office - Construction, Contractor Plans, 455 Airport Road SE, Building K, Salem, Oregon 97301-5348 (telephone 503-986-6936).

**(a) Paper Bids** - Bidders must obtain Solicitation Documents from the office of the Engineer or as specified in the Advertisement for Bid. Each request must include both the name of the person ordering or obtaining the Solicitation Documents, and the name of the Entity intending to use them. (The Agency will add the name of the Entity intending to use the Solicitation Documents to the list of Holders of Bidding Plans.) Bidders are cautioned that only Solicitation Documents obtained from the Agency may be used to submit Bids.

**(b) Electronic Bids** – Electronic Bids are not accepted by RUSA.

### **00120.10 Bid Schedule**

The Bid Schedule may include, but is not limited to:

- Bidder's checklist
- Bid Section
- Description and location of the proposed Project
- Time, date, and location for opening Bids
- Project completion time
- Identification of applicable Supplemental Specifications and Special Provisions
- Bid statement
- Certificate of non-collusion
- Certificate of residency
- Certificate of compliance with Oregon tax laws
- Bid Schedule
- Identification of Bidder(s) and Sureties

- Bid signature page
- Bid Bond form
- First-tier Subcontractor disclosure form

Depending on the 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 carefully examine the site of the proposed Work, the Bid Booklet, Plans, and Specifications. Bidders shall also contact Utility owners to verify all Utilities’ anticipated involvement on the Project Site. Bidders are also encouraged to review any subsurface investigation material referenced in 00120.25 that may be available. Submission of a Bid will constitute confirmation that the Bidder has examined the Project Site and Solicitation Documents, 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 Agency and its employees will not be responsible for loss or unanticipated costs suffered by the Bidder because of the Bidder’s failure to become fully informed about all conditions of the Work, or failure to request clarification of Plans and Specifications Bidder believes to be erroneous or incomplete.

Any clarification of Plans and Specifications needed by the Bidder shall be requested in writing through the Engineer. Requests shall be made in sufficient time for the Agency’s reply to reach all Bidders before Bid Closing. Oral explanations or interpretations given before receiving Bids for a Project will not be binding. To be binding, interpretation of the Plans and Specifications by the Agency must be made by written Addendum furnished to all Holders of Bidding Plans according to 00120.30. Notification of erroneous or incomplete Plans or Specifications shall also be submitted to the Engineer. Such notification shall also be made in sufficient time for the Agency to make any necessary modifications and issue Addenda to Bidders prior to Bid Closing.

**00120.16 Material, Equipment, and Method Substitutions**

When the Contract specifies certain Materials, Equipment, and/or methods, the Bidder shall include those Materials, Equipment, and/or methods in the Bid unless the Engineer has issued an Addendum granting approval to substitute. The procedure for requesting approval is as follows:

- (a) **Written Request** - If a Bidder proposes to use Materials, Equipment and/or methods other than those specified, the Bidder shall send a written request to the Engineer, at least seven Calendar Days prior to Bid Opening, including complete descriptive and technical information on the proposed Materials, Equipment and/or methods.
- (b) **Functional Similarity** - Materials and Equipment proposed for substitution shall be similar in design, and equal or better in quality and function to those specified.

- (c) **Manufacturer's Information** - If manufacturers' brochures or information is needed, the Bidder shall submit three copies of each with all pertinent information clearly marked.
- (d) **Differences** - The Bidder shall specifically note all differences between the specified Materials, Equipment and/or methods and the proposed substitutes.
- (e) **Cost** - Where a substitute will result in alteration of the design or space requirements, or any other modifications to the Plans, the Bidder shall include in the substitution request all items of cost for the revised design and construction.
- (f) **Notification of Holders of Bidding Plans** - If the Engineer approves any proposed substitution, such approval, and any modifications necessitated to the design and construction by the substitution, will be acknowledged by Addenda. Unless the Engineer has approved substitutions of Materials, Equipment, and/or methods prior to opening of Bids, the Bidder shall furnish the items specified in the Contract. Substitution after Award is specified in 00180.31(b), 00180.31(c), and 00180.31(d).

#### **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. The Agency will provide Addenda by mail, fax, email or other electronic method only to those on the list of Holders of Bidding Plans. Bids shall incorporate all Addenda. Bids may be rejected if opened and found by the Agency to not be based on all Addenda issued. It will be the bidder's responsibility to assure that the bidder has all issued Addenda for the project. The Agency will not be responsible for any missed addenda sent as listed in this section.

#### **00120.40 Preparation of Bids:**

(a) General:

- (1) **Paper Bids** - For Bids submitted by paper, the Bidders shall not alter, in any manner, the paper documents bound 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 paper Bid Booklet. Entries on the paper documents in the Bid Section shall be in ink or typed. Signatures and initials shall be in ink, except for changes submitted by facsimile (FAX) transmission as provided by 00120.60 (in which case FAX signatures shall be considered originals).

The Bidder shall properly complete and bind all the paper 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(e))

- (2) **Electronic Bids** – Electronic Bids are not accepted by RUSA

**(b) Bidding Considerations** - Bidders may refer to the following Subsections for requirements that may affect bidding considerations:

- 00120.80, Preference for Oregon Resident Bidders
- 00130.80, Restrictions on Commencement of Work
- 00150.55, Coordination of Work
- 00150.75, Protection and Maintenance of Work
- 00160.20(a), Buy America
- 00160.20(b), Buy Oregon
- 00180.20, Subcontracting Limitations
- 00180.21, Subcontracting
- 00195.50(a-1), Incidentals
- 00195.00(a), Cost of Insurance and Bonds

**(c) Bid Schedule Entries:**

**(1) Paper Bid Schedule Entries** - Using figures, Bidders shall fill in all blank spaces in the paper Bid Schedule. For each item in the paper 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). Bidders shall also enter the total amount of the Bid obtained by adding amounts for all items in the paper Bid Schedule. Corrections or changes of item entries shall be in ink, with incorrect entry lined out and correct entry entered and initialed.

**(2) Electronic Bid Schedule Entries** – Electronic Bid Schedules are not accepted by RUSA

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

**(e) 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 with Paper Bids** - For Bids submitted by paper, the Bid guaranty shall be either a Surety bond, irrevocable letter of credit issued by an insured institution as defined in ORS 706.008 or security in the form of a cashier's check or certified check made payable to the Agency. (see ORS 279C.365(4))

If a Surety bond is submitted, Bidders shall use the Agency's standard Bid Bond form included with the Bid Booklet. Bidders shall submit the bond with original signatures and the Surety's seal affixed. The Bid guaranty shall be submitted by mail, delivery service, or hand delivered to the offices and addresses, and at the times given in the paper Bid Booklet. Alternately, if the Bidder chooses to submit a Bid guaranty in the form of an irrevocable letter of credit issued by an insured institution as defined in ORS 706.008, or a cashier's check or certified check made payable to the Agency (see ORS 279C.365(4)), it 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.

**(f) Disclosure of First-Tier Subcontractors** - If a Bidder's Bid on a public improvement Project 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 by 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 paper Bid Booklet, filling it out and submitting it separately to Roseburg Urban Sanitary Authority at the address or FAX number given in the Bid Booklet; or
- By e-mail, using the form and address provided on the Agency's web site named in the paper Bid Booklet.

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

E-mail submissions must be fully compatible with Word for Windows©. The Agency is not responsible for partial, failed, illegible or partially legible facsimile (FAX) transmissions or e-mail submittals, and such forms may be rejected as incomplete.

Bids not in compliance with the requirements of this Subsection will be considered non-responsive.

### **00120.45 Submittal of Bids**

Bids may be submitted by mail, parcel delivery service, or hand delivery to the offices and addresses, and at the times given in the Bid Schedule. Submit Bids in a sealed envelope marked with the word “Bid”, the name of the Project, and the words “To Be Opened Only by Authorized Personnel” on the outside. 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. Closing time for acceptance of Bids is at the time on the day of the Bid Opening as stated in the Bid Booklet. Bids submitted after the time set for receiving paper Bids will not be opened or considered. The Agency assumes no responsibility for the receipt and return of late paper Bids.

### **00120.60 Revision or Withdrawal of Bids**

Information entered into the Bid Booklet by the Bidder may be changed after the paper Bid has been delivered to RUSA, provided that:

- Changes are prepared according to the instructions identified in the Bid Booklet;
- Changes are received at the same offices, addresses, and times identified in the paper Bid Booklet for submitting Bids;
- The Bid number is included; and
- The changes are submitted in writing or by electronic facsimile (FAX) transmission to the FAX number(s) given in the paper Bid booklet, signed by an individual authorized to sign the Bid. FAX submittals received by the Agency shall constitute an original document.

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

- The written withdrawal request is submitted on the Bidder’s letterhead, either in person or by FAX, and includes the Bid number;
- The request is signed by an individual who is authorized to sign the Bid, and proof of authorization to sign the Bid accompanies the withdrawal request; and
- The request is received at the same offices, addresses, and times identified in the paper Bid Booklet for submitting Bids.

### **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 Notice to Contractors and the Bid Booklet. Bidders and other interested parties are invited to be present.

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

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

### **00120.70 Rejection of Nonresponsive Bids**

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

- The Bid Section documents provided are not properly used or contain unauthorized alterations.
- The Bid is incomplete or incorrectly completed.
- The Bid contains improper additions, deletions, alternate Bids, or conditions.
- The Bid or Bid modifications are not signed by a person authorized to submit Bids or modify Bids, as required by 00120.01.
- The Bid is submitted on documents not obtained directly from the Agency's Plans office as identified in the Advertisement, 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.
- 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 (save for changes received by FAX as provided by 00120.60).
- 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.
- A disclosure of 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 Bid does not acknowledge all issued Addenda.
- The Bid contains entries that are not greater than zero.
- The Bid contains entries with more than two decimals to the right of the decimal point.
- 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.

### **00120.80 Reciprocal Preference for Oregon Resident Bidders**

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:

- 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 701.055, 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.

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

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

### **00130.10 Award of Contract**

After the Bids are opened and a determination is made that a Contract is to be awarded, the Contract will be awarded to the lowest responsible Bidder. For the purposes of this Section, "lowest responsible Bidder" means the lowest Bidder 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 an 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 inquiry concerning responsibility. If a prospective Bidder fails to promptly supply information requested

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

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

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

The Agency will provide Notice of Intent to Award in writing and faxed or emailed to contractors on the Holder of Bidding Plans list. The Notice may also be posted on the Agency's web site. The Award will not be final until the later of the following:

- Three 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 30 Calendar Days of the opening of Bids or within the number of Calendar Days specified in the Special Provisions or a written mutual agreement.

#### **00130.15 Right to Protest Award**

Adversely affected or aggrieved Bidders, limited to the three apparent lowest Bidders and any other Bidder directly in line for Contract Award, may submit to the Roseburg Urban Sanitary Authority Office a written protest of the Agency's intent to Award within three working days following posting of the Notice of Intent to Award. The protest shall specify the grounds upon which it is based.

The Agency is not obligated to consider late protests.

#### **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:

- Supplemental Specifications, if any
- Special Provisions
- Addenda
- Schedule of Items
- Contract
- Performance Bond
- Payment Bond

- Certification of workers' compensation coverage

#### **00130.40 Contract Bonds, Certificates, and Registrations**

Before the Agency will execute the Contract, the successful Bidder shall furnish the following bonds, certificates, and registrations:

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

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

- (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 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) **Workers' Compensation** - To certify compliance with the workers' compensation insurance coverage required by 00170.61(a) and 00170.70(d), the successful Bidder shall submit a "Certification of Workers' Compensation Coverage" from the insurance carrier.

(d) **Registration Requirements:**

- (1) ORS 701.055 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.

- (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.

- (e) **Tax Identification Number:** The successful Bidder shall furnish the Agency the Bidder's Federal Tax Identification Number.

**00130.50 Execution of Contract and Bonds**

(a) **By the Bidder** - The successful Bidder shall deliver the required number of Contract booklets with the properly executed Contract, Performance Bond, Payment Bond, certification of workers' compensation coverage, and the required certificates of insurance, to the RUSA Office within 7 Calendar Days after the date on which the Contract booklets are sent or otherwise conveyed to the Bidder under 00130.10. The Bidder shall return the originals of all documents received from the Agency and named in this Subsection, with original signatures. Certificates of insurance shall also be originals. Certificates of insurance for coverages that are permitted by the Agency under 00170.70(a) to be obtained by appropriate subcontractors shall be delivered by the Contractor to the Agency together with the Contractor's request under 00180.21 for approval of the subcontract with that subcontractor. No copies of these documents will be accepted by the Agency.

Proper execution requires that:

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

(b) **By the Agency** - Within ten Calendar Days after the Agency has received and verified the properly executed documents specified in 00130.50(a), 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 go onto the Project Site on which the Work is to be done, nor move Materials, Equipment, or workers onto that Project Site.

The Contractor will not automatically be entitled to extra compensation because the commencement of Work is delayed by failure of the Agency to send the Contract for execution. However, if more than 30 Calendar Days elapse between the date the Bid is opened and the date the Agency sends the Contract to be executed, the Agency will consider granting an adjustment of time for completion of the Work to offset any actual delay to Contract completion resulting directly from delay in commencement.

**00130.90 Notice to Proceed**

Notice to Proceed will be issued within ten Calendar Days after the Contract is executed by the Agency.

Should the Agency fail to issue the Notice to Proceed within ten Calendar Days of Contract execution, the Contractor may apply for an adjustment of Contract Time according to 00180.80©. The Engineer will record the date the performance of the Contract has begun.

## **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 Typical Sections, dimensions, and other details shown on the Plans, as modified by written order, or as directed by the Engineer.
- The Contractor shall perform all Work determined by the Engineer to be necessary to complete the Project.
- The Contractor shall contact the Engineer for any necessary clarification or interpretation of the Contract.

### **00140.10 Typical Sections**

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

### **00140.30 Agency-Required Changes in the Work**

Changes to the Plans 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
- 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 shall provide the Agency with a copy of any resulting modification to bond documents.

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.

#### **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
- Supplemental Specifications, if any
- 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 based on a force account payment basis. Costs of re-design, which are incurred after the Agency has accepted the proposal, will be included in the cost of proposed work; and
- A date by which the Engineer must accept the proposal in order to accept the proposed change without impacting the Contract Time or cost reduction amount.

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

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

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

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

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

- Statement that the Change Order is made according to 00140.70;
- Revised Plans and Specifications that reflect all modifications necessary to implement the approved cost reduction measures;

- Any conditions upon which the Agency's approval is subject;
- Estimated net savings in construction costs attributable to the approved cost reduction measures; and
- A payment provision according to which the Contractor will be paid 50% of the estimated net savings amount as full and adequate consideration for performance of the Work of the Change Order.

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

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

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

#### **00140.80 Use of Publicly Owned Equipment**

The Contractor is prohibited from using publicly-owned Equipment except in the case of emergency. In an emergency, the Contractor may rent publicly-owned Equipment provided that:

- The Engineer provides written approval that states that such rental is in the public interest; and
- Rental does not increase the Project cost.

#### **00140.90 Final Trimming and Cleanup**

Before Final Inspection as described in 00150.90, the Contractor shall neatly trim and finish the Project and remove all remaining unincorporated Materials and debris. Final trimming and cleanup shall include without limitation the following:

- 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.

Unless the Contract specifically provides for payment for this item, the Agency will make no separate or additional payment for final trimming and cleanup.

## **Section 00150 - Control of Work**

### **00150.00 Authority of the Engineer**

The Engineer has full authority over the Work and its suspension. (see Section 00180) The Contractor shall perform all Work to the complete satisfaction of the Engineer. The Engineer's determination shall be final on all matters, including but not limited to the following:

- Quality and acceptability of Materials and workmanship
- Timely and proper prosecution of the Work
- Interpretation of Plans and Specifications
- Payments due under the Contract

The Engineer's decision is final and, except as provided in 00180.80 for adjustments of Contract Time and Section 00199 for claims for additional compensation, may be challenged only through litigation. Work performed under the Contract will not be considered complete until it has passed Final Inspection by the Engineer and has been accepted by the Agency.

Interim approvals issued by the Engineer, including but not limited to 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.

### **00150.01 Project Manager's Authority and Duties**

The Engineer may designate a Project Manager as its representative on the Project with authority to enforce the provisions of the Contract. When the Engineer has designated a Project Manager, the Contractor should direct all requests for clarification or interpretation of the Contract, in writing, to the Project Manager. The Project Manager will respond within a reasonable time. Contract clarification or interpretation obtained from persons other than the Project Manager will not be binding on the Agency.

The Project Manager shall have the authority to appoint Inspectors and other personnel as required to assist in the administration of the Contract.

### **00150.02 Inspector's Authority and Duties**

To the extent delegated under 00150.01, Inspectors are authorized to represent the Engineer and Project Manager to perform the following:

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

Inspectors are not authorized to:

- Accept Work or Materials.
- Alter or waive provisions of the Contract.
- Give instructions or advice inconsistent with the Contract Documents.

**00150.10 Coordination of Specifications and Plans**

The Contract Documents, including but not limited to Contract Change Orders, the Special Provisions, the Plans, Supplemental Specifications, and the Standard Specifications are intended to collectively describe all of the items of Work necessary to complete the Project.

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

- Contract Change Orders;
- Special Provisions;
- Agency-prepared drawings specifically applicable to the Project and bearing the Project title;
- Reviewed and accepted, stamped Working Drawings;
- Standard Drawings;
- Approved Unstamped Working Drawings;
- Supplemental Specifications;
- Standard Specifications; and
- 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.

**(b) Immaterial Discrepancies** - The Specifications and Plans specify details for the construction and completion of the Work. If Specifications or Plans 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 Specifications or Plans that cannot be resolved by the approach specified in (b) above, the Contractor shall immediately request clarification from the Engineer.

**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. 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. The foregoing sentence shall not apply if the Engineer fails to inspect the Work within a specific period of time required in the Contract, or in the absence of a specific period of time, within a reasonable period of time after receiving the Contractor’s timely written request for inspection or testing.

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 as Extra Work.

- (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** - 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 Specifications and Plans. The Contractor shall correct Work that does not comply with the Specifications and Plans 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 Plans and Specifications. If the Engineer determines that the Materials furnished or the Work performed are not in Close Conformance with the Plans and Specifications, 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 first class mail or priority mail (which at the sender's option may include certified or registered mail return receipt requested), to the current office address as shown in the records of the Agency; or
- By overnight delivery service of a private industry courier, to the current office address as shown in the records of the Agency.

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

- At the time of actual receipt when delivered in person;
- At the time of actual receipt or seven Calendar Days after the postmarked date when deposited for delivery by first class or priority mail, whichever is earlier; or
- At the time of actual receipt or 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 first class mail or priority mail (which at the sender's option may include certified or registered mail return receipt requested); or
- By overnight delivery service of a private industry courier.

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

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

**00150.35 Plans and Working Drawings**

**(a) Plans** - The Plans will show the area of work, details and typical sections of the work.

**(b) Working Drawings** - The Contractor shall supplement the Agency-prepared Plans with stamped or unstamped Working Drawings that show all information necessary to complete the Work. The applicable Section or Subsection of the Standard Specifications will indicate the supplemental information required and whether the drawings are to be stamped or unstamped. Stamped and unstamped Working Drawings are defined as follows:

- (1) Stamped Working Drawings** - Working Drawings, calculations, and other data which are prepared by or under the direction of a Professional Engineer licensed in the State of Oregon, and which bear the engineer's signature, seal, and expiration date.

(2) **Unstamped Working Drawings** - Working Drawings, calculations, and other data that do not bear an engineering seal.

(d) **Number and Size of Drawings** - The Contractor shall submit four copies of Working Drawings for steel Structures and three copies of Working Drawings for other Structures to the Engineer. Submitted copies shall be clear and readable.

Drawing dimensions shall be 8 1/2 inches by 11 inches, 11 inches by 17 inches, or 22 inches by 36 inches in size. One copy of the submitted Working Drawings will be returned to the Contractor after processing. The Contractor shall submit such additional number of copies to the Engineer for processing that the Contractor would like to have returned.

(d) **Processing Working Drawings** - The Engineer will process Working Drawings and include all comments on them as follows:

(1) **Stamped Working Drawings** - Stamped Working Drawings will be designated as "reviewed" or "reviewed with comments" by the Engineer.

(2) **Unstamped Working Drawings** - Unstamped Working Drawings will be designated on the face of the Drawing, as "approved", "approved as noted", "returned for correction" by the Engineer.

The Contractor shall not fabricate or construct any structural components until the stamped or unstamped Working Drawings are returned by the Engineer with written notation of approval or review, as applicable, of the Working Drawings.

The Engineer's processing of the Working Drawings does not amend any contractual obligations of the parties.

The Engineer will process and return Working Drawings within 21 Calendar Days (65 Calendar Days if Railroad approval is required) after receipt by the Engineer. If the Engineer fails to return such drawings within this period of time, the Engineer will consider granting a Contract Time extension according to 00180.80.

#### **00150.37 Equipment Lists and Other Submittals**

The Contractor shall submit Equipment lists, and other required submittals for approval by the Engineer. The Engineer will respond to requests for approval within time frames specified in each Section of the Specifications that requires such approval.

#### **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.

## General Conditions

- 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 Plans and Specifications.
- The appointed single Superintendent, or any alternate Superintendent shall:
  - Be present for all On-Site Work, regardless of the amount to be performed by the Contractor, Subcontractors, Suppliers, or other providers, unless the Engineer provides prior approval of the Superintendent's or alternate Superintendent's absence.
  - Be equipped with a two way radio or cell phone capable of communicating throughout the project during all the hours of Work on the Project Site and be available for communication with the Engineer.
  - Have full authority and responsibility to promptly execute orders or directions of the Engineer.
  - Have full authority and responsibility to promptly supply the Materials, Equipment, labor, and Incidentals required for performance of the Work.
  - Coordinate and control all Work performed under the Contract, including without limitation the Work performed by Subcontractors, Suppliers, and Owner Operators.
  - Diligently pursue progress of the Work according to the schedule requirements of Section 00180.
  - Cooperate in good faith with the Engineer, Inspectors, and other contractors in performance of the Work.
  - Provide all assistance reasonably required by the Engineer to obtain information regarding the nature, quantity, and quality of any part of the Work.
  - Provide access, facilities and assistance to the Engineer in establishing such lines, grades and points as the Engineer requires.
  - Carefully protect and preserve the Engineer's marks and stakes.

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.

#### **00150.55 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 within or next to 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.

**00150.70 Detrimental Operation**

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 foreign materials. (also see 00150.60, 00150.75, and Section 00170)

If 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.

**00150.80 Removal of Unacceptable and Unauthorized Work**

The Contractor shall correct or remove unacceptable 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 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 unauthorized or unacceptable work. The Engineer may issue a written order for the correction or removal of such work at the Contractor’s expense. If, when ordered by the Engineer, the Contractor fails to correct or remove unacceptable or unauthorized work, the Engineer may have the correction, or removal and replacement, done by others and deduct the entire cost from monies due or to become due the Contractor under the Contract.

**00150.90 Final Inspection:**

**(a) On-site Construction Work** - The Engineer will inspect the Project at a time close to the completion of On-Site Work to ensure the Contractor’s compliance with the Plans and Specifications. 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 a Notice of Substantial Completion as specified in 00180.50(g). Within 5 Calendar Days after the Engineer receives the Contractor’s written notification that all punch list items, final trimming and cleanup according to 00140.90 have been completed, the Engineer will review the Project and notify the Contractor that all Work is complete, or will give the Contractor written instruction regarding incomplete or unsatisfactory Work.

**(b) All Contract Work** - The Engineer will issue the Final Completion Notice 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.

**00150.95 Final Acceptance**

After the Engineer completes Final Inspection of all Work and sends Final Completion Notice to the Contractor, 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 the Final Completion Notice, the Contractor shall transfer to the Agency all unexpired manufacturers' 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, requirements, Plans, and Specifications set out in the Contract.
- (b) Whether before or after the Agency's acceptance of the Work, the Contractor shall be responsible for:
  - Correcting or repairing any defects in, or damage to, the Work which results from the use of improper or defective materials or workmanship; or
  - Replacing, in its entirety, the Work affected by the use of improper or defective materials or workmanship to the extent provided by law; and
  - Correcting or repairing any Work, Materials, Structures, Existing Surfacing, Pavement, Utilities, or sites, including without limitation Wetlands, damaged or disturbed in that correction, repair, or replacement. (see 00170.80 to 00170.85)

## Section 00160 - Source of Materials

### 00160.00 Definitions

The following definitions apply to Section 00160:

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

### 00160.01 Notification of Source of Supply and Materials

- (a) **All Materials** - The Contractor shall notify the Engineer in writing of all proposed Materials sources of supply, including without limitation any steel or other fabricators within the following time frames:
  - .At least 10 Calendar Days before using or fabricating Materials, if source is within 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 10 Calendar Days from date of Notice to Proceed. Otherwise, such Materials sources may become unavailable.
- (c) **Approval Required** - Before allowing production or delivery of Materials to begin from any source, the Contractor must obtain the Engineer's approval. Approval to use any source does not imply that Materials from that source will be accepted. If approved sources do not provide Materials that meet Specifications, the Materials will be rejected. The Contractor will then be responsible for locating other sources and obtaining the Engineer's approval.

### 00160.20 Preferences for Materials

- (a) **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.
- (b) **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.

**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.

## **Section 00165 – Quality of Material**

### **00165.00 General**

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

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

### **00165.01 Rejected Materials**

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

### **00165.02 Materials Conformance and Quality Compliance Documents**

For purposes of this Section, "Materials Conformance Documents" means the Contractor's quality-control, the Agency's verification, and the independent assurance test results, and the identity of the testing facility. "Quality Compliance Documents" means those documents specified in ODOT's Nonfield-Tested Materials Acceptance Guide, unless otherwise specified in the Contract.

### **00165.03 Testing by Agency**

When testing Materials, the Agency will conduct the tests in 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.

## **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.

### **Provisions and Requirements**

#### **00170.01 Other Agencies Affecting Agency Contracts**

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

##### **(a) Federal Agencies:**

Agriculture, Department of  
Forest Service  
Natural Resource Conservation Service  
Army, Department of the  
Corps of Engineers  
Commerce, Department of  
National Marine Fisheries Service  
Defense, Department of  
Energy, Department of  
Environmental Protection Agency (EPA)  
Federal Energy Regulatory Commission  
Geology Survey  
Health and Human Services, Department of  
Homeland Security, Department of  
Housing and Urban Development, Department of  
Interior, Department of  
Heritage, Conservation, and Recreation Service  
Bureau of Indian Affairs  
Bureau of Land Management  
Geological Survey  
U.S. Fish and Wildlife Service  
Labor, Department of

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  
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  
Human Resources, Department of  
Labor and Industries, Bureau of  
Land Conservation and Development Department  
Parks and Recreation, Department of  
State Lands, Division 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 Right-of-Way 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:

- Building construction permits, not including specialty work such as heating, ventilation, air conditioning, or electrical;

**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.

#### **00170.10 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 ten 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). As required by ORS 279C.515(2), the rate of interest on the amount due shall be nine percent per annum. 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 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 and ORS 279C.605.

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

#### **00170.20 Public Works Bond**

Before starting Work, the Contractor and subcontractors shall each file with the Construction Contractors Board, and maintain in full force and effect, a separate public works bond, in the amount of \$30,000 unless otherwise exempt, as required by ORS 279C.830(3) and ORS 279C.836. The Contractor shall verify subcontractors have filed a public works bond before the subcontractor begins Work.

**00170.32 Protection of Navigable Waters**

The Contractor shall comply with all applicable Laws, including without limitation the Federal River and Harbor Act of March 3, 1899 and its amendments. The Contractor shall not interfere with waterway navigation or impair navigable depths or clearances, except as U.S. Coast Guard or Corps of Engineer permits allow.

**00170.60 Safety, Health, and Sanitation Provisions**

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

Workers exposed to traffic shall wear upper body garments or safety vests that are highly visible and meet the requirements of 00225.27.

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).

**00170.62 Labor Nondiscrimination**

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

**00170.63 Payment for Medical Care**

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

**00170.65 Minimum Wage and Overtime Rates for Public Works Projects**

**(a) General** - The Contractor shall be 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.

For work performed on Indian Reservations, tribally-owned businesses and businesses owned by tribally-enrolled Native Americans are not subject to the Oregon Bureau of Labor and Industries overtime requirements. These businesses are subject to the Federal Contract Work Hours and Safety Standards Act, which states that employees must be paid time and one-half for all hours worked in excess of forty hours per week.

The Contractor shall comply fully with the provisions of ORS 279C.800 through ORS 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included in the Contract. The Contractor shall pay workers at no less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts according to 00170.65(b) and 00170.65(c).

As required in ORS 279C.845 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 or in FHWA Form 1273. 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.

As required in ORS 279C.845 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 or in FHWA Form 1273. 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.

The Contractor shall comply with the pertinent provisions of ORS 279C.520 and ORS 279C.540. According to ORS 279C.520, 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 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 Days, Monday through Friday; and
- For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

The above will not apply to the Contractor's Work under this Contract if the Contractor is currently a party to a collective bargaining agreement with any labor organization.

According to ORS 279C.845, the Contractor and every subcontractor shall submit written certified statements to the Engineer on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the subcontractor has employed on

the Project and further certifying that no worker employed on the Project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or subcontractor that the Contractor or subcontractor has read such statement and certificate and knows the contents thereof and that the same is true to the Contractor or subcontractor's best knowledge and belief. The certified statements shall set out accurately and completely the payroll records for the prior week including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. Certified statements for each week during which the Contractor or subcontractor has employed a worker on the Project shall be submitted once a month, by the fifth Calendar Day of the following month.

The Contractor and subcontractors shall preserve the certified statements for a period of six years from the date of completion of the Contract.

- (b) When Federal Funds Are Involved** - The Contractor shall pay the wage rate and fringe benefits listed in the publication "General Wage Determinations Issued Under the Davis-Bacon and Related Acts" from the U.S. Secretary of Labor, unless a higher wage rate and fringe benefits are required according to ORS 279C.838, as provided in the Oregon Bureau of Labor and Industries (BOLI) publication titled "Prevailing Wage Rates for Public Works Contracts in Oregon subject to BOTH the State PWR and federal Davis-Bacon Act", which are incorporated herein by reference. See the Project Wage Rates page included with the Special Provisions for the web site address where these publications are available.

For Federal-Aid projects, the Contractor shall comply with the provisions of FHWA Form 1273, "Required Contract Provisions Federal-Aid Construction Contracts", and ORS 279C.520 (see (a) of this Subsection) and ORS 279C.540.

With regard to overtime pay, the Contractor shall comply with the provision affording the greatest compensation.

- (c) When No Federal Funds Are Involved** - The Contractor shall pay the wage rate and fringe benefits listed in the BOLI publication titled "Prevailing Wage Rates for Public Works Contracts in Oregon" which is incorporated by reference. See the Prevailing Wage Rates page included with the Special Provisions for the web site address where this publication is available.

Except for businesses subject to the Federal Contract Work Hours and Safety Standards Act as described in 00170.65(a), the Contractor shall comply with the overtime requirements of ORS 279C.520, ORS 279C.540 (see (a) and (b) of this Subsection), and ORS 279C.845.

- (d) Time Limitation on Claim for Overtime** - According to ORS 279C.545, the Contractor shall:

- (1) Cause a circular, clearly printed in blackface pica 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 which is readily available and freely visible to any or all workers employed to perform Work; and

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

**(e) Owner/Operator Data** - The Contractor shall furnish data to the Engineer for each owner/operator providing trucking services. The data must be provided before the time the services are provided and must include without limitation for each owner/operator:

- Drivers name;
- Copy of drivers 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.

### **00170.70 Insurance**

**(a) Insurance Coverages** - The Contractor shall obtain, at its expense, and keep in effect during the term of the Contract, 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 coverage 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. 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 coverage's.

- (b) **Tail Coverage** - If any of the required liability insurance coverage's of 00170.70(a) are on a "claims made" basis, "tail" coverage will be required at the completion of the Contract for a duration of 24 months, or the maximum time period reasonably available in the marketplace. The Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following Contract completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage provided its retroactive date is on or before the effective date of the Contract. If Continuous "claims made" coverage is used, the Contractor shall keep the coverage in effect for duration of not less than 24 months from the end of the Contract. This will be a condition of Final Acceptance.
- (c) **Additional Insured** - The liability insurance coverage's of 00170.70(a) shall include the Agency, the Agency's governing body, board, or Commission and its members, and the Agency's officers and employees as Additional Insured, 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 coverage's 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 Insured and shall also include Contractor and its officers and employees as Additional Insured.

- (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 its Subcontractors complies with these requirements.

The Contractor shall certify in the Contract that the Contractor is registered by the Oregon Workers' Compensation Division either as a carrier-insured employer, a self-insured employer, an exempt employer, or is an independent contractor who will perform the Work without the assistance of others.

The Contractor shall ensure that its insurance carrier files a guaranty contract with the Oregon Workers' Compensation Division before performing any Work.

- (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 coverage's 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 coverage's 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 coverage's 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 Insured. The Contractor shall obtain, or ensure that the appropriate subcontractors obtain, insurance coverage's 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 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 Authorized Representative, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnities") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to the following:

- Any damage, injury, loss, expense, inconveniences or delay described in this Subsection.
- Any accident or occurrence which happens or is alleged to have happened in or about the Project Site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects.
- Any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract.
- The negligent acts or omissions of the Contractor, a subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.
- Any lien filed upon the project or bond claim in connection with the Work.

Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subsection.

In claims against any person or entity indemnified under this Subsection by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Subsection shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

**00170.74 Employee Drug Testing Program**

As required by ORS 279C.505 (2), the Contractor shall have in place, and maintain during the period of the Contract, an employee drug-testing program. The Agency retains the right to audit and/or monitor the program. On request by the Engineer, the Contractor shall furnish a copy of the employee drug-testing program.

**00170.78 Conflict of Interest**

The Contractor shall not give or offer any gift, loan, or other thing of value to any member of the Agency's governing body or employee of the Agency in connection with the award or performance of any Contract.

The Contractor shall not rent, lease, or purchase Materials, supplies, or Equipment, with or through any Agency employee or member of the Agency's governing body.

No ex-employee of the Agency who has worked for the Agency on any phase of the Project within the prior 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.

**00170.80 Responsibility for Damage to Work**

- (a) **Responsibility for Damage in General** - The Contractor shall perform Work, and furnish Materials and Equipment for incorporation into the Work, at the Contractor's own risk, until the entire Project has been completed and accepted by the Agency. The Contractor shall repair all damages to Work performed, Materials supplied, and Equipment incorporated into the Work, except as otherwise provided in this Section.
- (b) **Repair of Damage to Work** - Until Final Acceptance, the Contractor shall promptly rebuild, repair, restore, and make good damages to all portions of the permanent or temporary Work, except to the extent the Agency has assumed responsibility according to the provisions of (c) below. 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 reasonable protection of the Work from vandalism until Final Acceptance. If reasonable protection has been provided, the Contractor's responsibility for damage resulting from vandalism will be limited to \$5,000 per occurrence. Requests for reimbursement of amounts in excess of \$5,000 shall be in writing and directed to the Engineer. Upon receipt, the Engineer will investigate, evaluate the amount of damages and their cause, and determine whether, and how much, the Contractor will be recompensed.

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 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.

**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 the Performance Bond, Warranty Bond, or warranty 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 Performance Bond, Warranty Bond, or warranty period.

- (b) Contractor Furnished Warranties - Warranties for Local Agency Projects -** For those Contracts that are developed, advertised, awarded, and administered by Local Agencies, and do not contain federal funding, this 00170.85(b) warranty applies.

The Contractor shall warrant all Work and workmanship, including Changed Work, Additional Work, Incidental Work, On-Site Work, and Extra Work, and Materials and Equipment incorporated in the Work, for one year from the date of Third Notification, except that manufacturers' warranties and extended warranties according to 00170.85(c) shall not be abridged.

The Contractor shall be responsible for meeting the technical and performance Specifications required, making good the Work, and for all repairs of damage to 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 site cleanup and remediation caused by, or resulting in whole or in part from, defects in Materials, Equipment, or workmanship.

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 Warranties and Guarantees:**

- (1) Manufacturer Warranties -** For those Specification Sections referencing this 00170.85(c-1) Subsection, the Contractor shall furnish Warranties from the Manufacturer and signed by a Manufacturer's Representative.

The Warranty period will be specified in the applicable Specification Section for which it applies.

The Warranty will start on the date the Engineer accepts the work and authorizes final payment unless otherwise specified in the Contract.

When the Agency makes written notification to the Manufacturer of failure of an item covered by this Warranty, the Warranty period will stop for the effected item or the portion of the effected item that failed, as applicable, until the required repairs or replacements are made and accepted. All repaired or replaced items shall meet current specifications, unless otherwise specified in the Contract, and will be warranted for the remaining Warranty period.

Warranty work shall be performed when weather permits. If, in the opinion of the Engineer, temporary repairs are necessary, the temporary repairs will be made by the Agency or an independent contractor at the Manufacturer's expense. The Manufacturer shall replace all temporary repairs at no additional cost to the Agency.

The Manufacturer shall provide all required traffic control during repair or replacement of failed items at no additional cost to the Agency.

- (2) **Trade Practice Guarantees** - For those Items installed on the Project that have customary trade practice guarantees, the Contractor shall furnish the guarantees to the Engineer at the completion of the Contract.

## **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 provided by 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, 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.

**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 50% of the original Contract Amount. 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 use of Equipment rented with operators will be allowed without a subcontract only when the following requirements are met:
- (1) **Written Request** - The Contractor has submitted to the Engineer a written request describing the service to be provided, its estimated cost, and the estimated duration. The Engineer must approve the request before the service is provided.
  - (2) **Limitations** - The use of Equipment rented with operators is limited to the following services:
    - Truck hauling of Materials (If the trucking is by an owner/operator, in addition to the requirements of 00170.65(e), each truck shall have the name of the owner/operator clearly displayed on the side of the truck); or
    - Performing minor, Incidental, short-duration work under the direct supervision of the Contractor or Subcontractor, with Equipment not customarily owned, leased, or operated by a Contractor, or with Equipment that is temporarily unavailable to the Contractor.
  - (3) **Submittals** - The Contractor shall provide the Engineer with a copy of the rental agreement or purchase order covering the service to be provided. For owner/operator trucking, attach copies of the data required under 00170.65(e). The Contractor shall make certain that the provider of approved services submits payrolls required under Section 00170 and complies with applicable Contract provisions. The service provider will not be considered a Subcontractor under the Contract, but will be considered an agent of the Contractor in the performance of Work.

**(4) Revocation of Approval** - The Engineer may revoke approval for the services provided through rented, operated Equipment at any time the Engineer determines that the work is outside that authorized under 00180.20(c-2). Unless the Contractor promptly submits to the Engineer a subcontract agreement for consent under 00180.21, the service provider shall be immediately removed from the Project Site.

### **00180.21 Subcontracting**

**(a) 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 its 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 7 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 35 Calendar Days after the Engineer's receipt of the request. (28 Calendar Days for the Agency to review and approve the Certificates of Insurance required by 00170.70(f) plus 7 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, on the Agency's form, available from 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 undisclosed 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. 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 its subcontract within ten Calendar Days of the Contractor's receipt of payment from the Agency for the subcontracted Work.
- (2) An interest clause that obligates the Contractor, if payment is not made within 30 days after receipt of payment from the Agency, to pay to the first-tier Subcontractor interest on amounts due in the case of each payment not made according to the payment clause included in the subcontract according to paragraph (1) of this Subsection. A Contractor or first-tier Subcontractor shall not be obligated to pay interest 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

Contractor when payment was due. The interest shall be for the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and shall be computed at the rate specified in 00170.10©.

- (3) A provision requiring the first-tier Subcontractor to include a payment clause and an interest clause conforming to the standards of ORS 279C.580 (see 00180.21(d1) and 00180.21(d-2)) in each of its subcontracts, and to require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or Materials supplier. This payment clause 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 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.

The Engineer's consent to subcontract will not create a contract between the Agency and the Subcontractor, will not convey to the Subcontractor any rights against the Agency, and will not relieve the Contractor or the Contractor's Surety of any of their responsibilities under the Contract.

- (f) **Failure to Comply** - Failure to comply with 00180.21 will be cause for the Engineer to take action reasonably necessary to obtain compliance. This action may include, but is not limited to:

- Suspension of the Work;
- Withholding of Contract payments as necessary to protect the Agency; and Termination of the Contract.

#### **00180.22 Payments to Subcontractors and Agents of the Contractor**

To the extent practicable, the Contractor shall pay in the same units and on the same basis of measurement as listed in the Schedule of Items for subcontracted Work or other Work not done by the Contractor's own organization. In making payment to Subcontractors and to its other agents performing Work and furnishing Materials and Equipment to be incorporated into the Work, the Contractor shall assume all losses resulting from overpayment.

If requested, the Engineer will make estimates of the Work quantities performed by Subcontractors or by others on the Project, and of Materials eligible for advances on Materials in the progress payments. These estimates are approximate only, and will be made in units of measure as listed in the Schedule of Items. The Agency does not guarantee the accuracy of these estimates, and an incorrect estimate will not bind the Agency in final settlement.

If requested in writing by a first-tier Subcontractor, the Contractor shall send to the Subcontractor, within ten 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 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 its Subcontractors 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 will 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:

- The proposed Materials or Equipment are equal to or superior to the specified items in construction, efficiency and utility; or

- Due to reasons beyond the control of the Contractor, the specified Materials or Equipment cannot be delivered to the Project in sufficient time to complete the Work in proper sequence.

**(2) Submittal of Request** - The Contractor shall submit requests for substitution to the Engineer, including manufacturers' brochures and other information needed to verify equality of the proposed item(s).

**(c) Substitution of Equipment Specified to Perform Work** - The Agency encourages development of new or improved Equipment and innovative use of Equipment. When the Specifications require Equipment of a particular size or type to be used to perform certain portions of the Work, the Contractor may submit a request to the Engineer to use Equipment of a different size or type. The request will not be considered as a cost reduction proposal under 00140.70. The request shall:

- Be in writing and include a full description of the Equipment proposed and its intended use;
- Include the reasons for requesting the substitution; and
- Include evidence, obtained at the Contractor's expense and satisfactory to the Engineer, that the proposed Equipment is capable of functioning as well as or better than the specified Equipment.

The Engineer will consider the Contractor's request and will provide a written response to the Contractor, either permitting or denying use of the proposed Equipment. Permission may be granted on a trial basis to test the quality of Work actually produced, subject to the following:

- There will be no cost to the Agency, either in Contract Amount or in Contract Time;
- The permission may be withdrawn by the Engineer at any time if, in the Engineer's opinion, the Equipment is not performing in all respects equivalent to the Equipment specified in the Contract;
- If permission is withdrawn, the Contractor shall perform the remaining Work with the originally-specified Equipment; and
- The Contractor shall remove and replace nonspecification Work resulting from the use of the Contractor's proposed Equipment, or otherwise correct it as the Engineer directs, at no additional compensation.

**(d) Substitution of Methods** - The Agency encourages development of new, improved, and innovative construction methods. When the Plans or Specifications require a certain construction method for a portion of the Work, the Contractor may submit a request for a change by following the provisions of 00140.70, "Cost Reduction Proposals".

### **00180.32 Alternative Materials, Equipment, and Methods**

Whenever the Contract authorizes certain alternative Materials, Equipment, or methods of construction for the Contractor's use to perform portions of the Work, and leaves the selection to the Contractor, the Agency does not guarantee that all listed alternative Materials, Equipment, or methods of construction can be used successfully throughout all or any part of the Work.

The Contractor shall employ only those alternatives that can be used to satisfactorily perform the Work. No additional compensation will be paid for corrective work necessitated by the Contractor's use of an inappropriate alternative.

**00180.40 Limitation of Operations**

**(a) In General** - The Contractor shall comply with all Contract provisions and shall:

- 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;
- 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 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. Contractor's activity related to developing, furnishing, monitoring, and updating these required schedules is Incidental.

**(1) 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:

**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.

**Schedules Do Not Constitute Notice** - Submittal of a Project Work schedule, with supporting Project narrative, does not constitute or substitute for any notice the Contractor is required under the terms of the Contract to give the Agency.

**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 5 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 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.

#### **00180.50 Contract Time to Complete Work**

- (a) **General** - The time allowed to complete the Work or Pay Item is stipulated in the Solicitation Documents, and will be known as the "Contract Time". (see 00110.20)
- (b) **Kinds of Contract Time** - The Contract Time will be expressed in one or more of the following ways:
  - (1) **Fixed Date Calculation** - The calendar date on which the Work or Pay Item shall be completed; or
  - (2) **Calendar Day Calculation** - The number of Calendar Days from a specified beginning point in which the Work or Pay Item shall be completed.
- (c) **Beginning of Contract Time** - When the Contract Time is stated in Calendar Days, counting of Contract Calendar Days will begin with the fifteenth Calendar Day following the date of the Notice to Proceed.

- (d) Recording Contract Time** - All Contract Time will be recorded and charged to the nearest Day.

On Contracts with Calendar Day counts, the Engineer will furnish the Contractor a monthly statement of Contract Time charges. The statement will show the number of Calendar Days counted for the preceding month and the number of Calendar Days remaining prior to the established completion date for that Pay Item.

For Contracts with fixed completion dates for Pay Items, the Engineer will furnish the Contractor a weekly statement of Contract Time charges only after expiration of the Contract Time. The statement will show the number of Calendar Days of liquidated damages that have been assessed, if any. These statements will include any exclusions from, or adjustments to, Contract Time.

- (e) Exclusions from Contract Time** - Regardless of the way Contract Time is expressed in the Contract, certain Calendar Days will not be charged against Contract Time. These exclusions will be allowed when the Contractor is prevented from performing Work due to one of the following reasons, resulting in delay:

- Acts of God or Nature;
- Court orders enjoining prosecution of the Work;
- Strikes, labor disputes or freight embargoes that, despite the Contractor's reasonable efforts to avoid them, cause a shutdown of the entire Project or one or more major operations. "Strike" and "labor dispute" may include union action against the Contractor, a Subcontractor, a Materials supplier, or the Agency; or
- Suspension of the Work by written order of the Engineer for reasons other than the Contractor's failure or neglect.

- (f) Time Calculation Protest** - In the event the Contractor disputes the accuracy of the statement of Contract Time charges, it shall immediately contact the Engineer and attempt to resolve the dispute. If the dispute cannot be resolved informally, the Contractor shall submit a formal written protest to the Engineer within 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 Notice of Substantial Completion.

The Notification will list:

- The date the time charges stopped;
- Final trimming and cleanup tasks (see 00140.90);
- Equipment to be removed from the Project Site;
- Minor corrective work not involving additional payment to be completed; and

- Submittals, including without limitation all required certifications, bills, forms, warranties, certificate of insurance coverage (00170.70(b)), and other documents, required to be provided to the Engineer before Final Acceptance is issued.

The Contractor shall complete all tasks listed in the Notice of Substantial Completion in an expeditious manner within the time frame proposed by the Contractor and accepted by the Engineer. Unless otherwise agreed by the Agency, failure of the Contractor to complete all tasks listed in the Notification within the time frame accepted, will result in the Agency rescinding the Notice of Substantial Completion. Counting of time charges will resume upon expiration of the accepted time frame.

#### **00180.60 Notice of Delay**

The Contractor shall notify the Engineer of any delay that will likely prevent completion of the Work or a Pay Item by the date specified in the Project Work schedule. The notice shall be in writing and shall be submitted within 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 00185.50(e) and 00180.65 delays, failure to include this information will constitute waiver of the Contractor's right to later make such a request.

#### **00180.70 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 for delays due to causes beyond the Contractor's control specified in 00180.50(e). The Engineer will promptly inform the Contractor of adjustments made to Contract Time according to this Subsection, and will include the reasons for adjustment.

If the Agency anticipates delay during performance of the Contract, and specifies its expected duration in the Special Provisions, the Engineer will only consider additional delay beyond the stipulated duration in determining whether to adjust Contract Time.

**(c) Contractor's Request Required** - In the event the Contractor believes that additional Contract Time is due, the Contractor shall submit to the Engineer a timely request for adjustment of Contract Time. The Engineer will not consider untimely requests. The Agency regards as timely only those requests for adjustment of Contract Time that:

- Accompany a proposed revised Project Work schedule submitted according to 00180.41, for comparison with the last revision of the Project Work schedule; or
- Are not otherwise deemed waived and are submitted within 15 Days after the date of Second Notification, if Second Notification has been issued.

The Engineer will not grant an adjustment of Contract Time for events that occurred prior to the date of the last revision of the Project Work schedule. The Engineer will

not authorize, nor the Agency pay, acceleration costs incurred by the Contractor prior to its submittal of a request for adjustment of Contract Time to which the acceleration costs relate.

The Contractor's request for adjustment of Contract Time shall be submitted to the Engineer on a form provided by, or in a format acceptable to, the Engineer, and shall include a copy of the written notice required under 00180.60. The request shall include without limitation:

- Consent of the Contractor's Surety if the request totals more than 30 Calendar Days of additional Contract Time;
- Sufficient detail for the Engineer to evaluate the asserted justification for the amount of additional Contract Time requested;
- The cause of each delay for which additional Contract Time is requested, together with supporting analysis and data;
- Reference to the Contract provision allowing Contract Time adjustment for each cause of delay;
- The actual or expected duration of delay resulting from each cause of delay, expressed in Calendar Days; and
- A schedule analysis based on the current approved Project Work schedule for each cause of delay, indicating which activities are involved and their impact on Contract completion.

**(d) Bases 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;
- Late delivery of Materials and Equipment to be incorporated into the Work, except under those conditions referenced in 00180.50(e);
- 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©. The Engineer may elect not to consider claimed delays that do not affect the specified or adjusted Contract Time required to complete the Work.

The Engineer may adjust Contract Time for causes not specifically identified by the Contractor in its request.

The Engineer will review a properly submitted request for Contract Time adjustment, and within a reasonable time will advise the Contractor of the Engineer's findings. If the Contractor disagrees with the Engineer's findings, the Contractor may request review according to the procedure specified in 00199.40.

#### **00180.85 Failure to Complete on Time; Liquidated Damages**

(a) **Time is of the Essence** - Time is of the essence in the Contractor's performance of the Contract. Delays in the Contractor's performance of the Work may inconvenience the traveling public, interfere with business and commerce, and increase cost to the Agency. It is essential and in the public interest that the Contractor prosecute the Work vigorously to Contract completion.

The Agency does not waive any rights under the Contract by permitting the Contractor to continue to perform the Contract, or any part of it, after the Contract Time or adjusted Contract Time has expired.

(b) **Liquidated Damages** - The Agency will sustain damage if the Work is not completed within the specified Contract Time. However, in certain Agency projects it may be unduly burdensome and difficult to demonstrate the exact dollar value of such damages. The Agency will identify such projects in the Special Provisions related to them. In these projects, the Contractor agrees to pay to the Agency, not as a penalty but as liquidated damages, the amount specified in the Special Provisions for each Calendar Day the Contractor expends performing the Contract in excess of the Contract Time or adjusted Contract Time.

Payment by the Contractor of liquidated damages does not release the Contractor from its obligation to fully and timely perform the Contract according to its terms. Nor does acceptance of liquidated damages by the Agency constitute a waiver of the Agency's right to collect any additional damages it may sustain by reason of the Contractor's failure to fully perform the Contract according to its terms. The liquidated damages shall constitute payment in full only of damages incurred by the Agency due to the Contractor's failure to complete the Work on time.

If the Contract is terminated according to 00180.90(a), and if the Work has not been completed by other means on or before the expiration of Contract Time or adjusted Contract Time, liquidated damages will be assessed against the Contractor for the duration of time reasonably required to complete the Work.

**00180.90 Termination of Contract and Substituted Performance**

**(a) Termination for Default** - Termination of the Contract for default may result if the Contractor:

- Violates any material provision of the Contract;
- Disregards applicable laws and regulations or the Engineer's instructions;
- Refuses or fails to supply enough Materials, Equipment or skilled workers for prosecution of the Work in compliance with the Contract;
- Fails to make prompt payment to Subcontractors;
- Makes an unauthorized general assignment for the benefit of the Contractor's creditors;
- Has a receiver appointed because of the Contractor's insolvency;
- Is adjudged bankrupt and the court consents to the Contract termination; or
- Otherwise fails or refuses to faithfully perform the Contract according to its terms and conditions.

If the Contract is terminated by the Agency, upon demand the Contractor and the Contractor's Surety shall provide the Engineer with immediate and peaceful possession of the Project Site, and of all Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50.

If the Contract is terminated for default, neither the Contractor nor its Surety shall be:

- Relieved of liability for damages or losses suffered by the Agency because of the Contractor's breach of Contract; or
- Entitled to receive any further progress payments until the Work is completed. However, progress payments for completed Work that remain due and owing at the time of Contract termination may be made according to the terms of 00195.50, except that the Engineer will be entitled to withhold sufficient funds to cover costs incurred by the Agency as a result of the termination. Final payment to the Contractor will be made according to the provisions of Section 00195.

If a termination under this provision is determined by a court of competent jurisdiction to be unjustified, the termination shall be deemed a termination for public convenience.

**(b) Substituted Performance** - According to the Agency's procedures, and upon the Engineer's recommendation that sufficient cause exists, the Agency, without prejudice to any of its other rights or remedies and after giving the Contractor and the Contractor's Surety 10 Calendar Days' written notice, may:

- Terminate the Contract;

- Substitute the Contractor with another Entity to complete the Contract;
- Take possession of the Project Site;
- Take possession of Materials on the Project Site;
- Take possession of Materials not on the Project Site, for which the Contractor received progress payments under 00195.50;
- Take possession of Equipment on the Project Site that is to be incorporated into the Work;
- Take possession of Equipment not on the Project Site that is to be incorporated into the Work, and for which the Contractor received progress payments under 00195.50; and
- Finish the Work by whatever method the Agency deems expedient.

If, within the 10 Calendar Day notice period provided above, the Contractor and/or its Surety corrects the basis for declaration of default to the satisfaction of the Engineer, or if the Contractor's Surety submits a proposal for correction that is acceptable to the Engineer, the Contract will not be terminated.

- (c) **Termination for Public Convenience** - The Engineer may terminate the Contract in whole or in part whenever the Engineer determines that termination of the Contract is in the best interest of the public.

The Engineer will provide the Contractor and the Contractor's Surety seven Calendar Days' written notice of termination for public convenience. After such notice, the Contractor and the Contractor's Surety shall provide the Engineer with immediate and peaceful possession of the Project Site, and of Materials and Equipment to be incorporated into the Work, whether located on and off the Project Site, for which the Contractor received progress payments under 00195.50. 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**

**Description**

**00190.00 Scope**

**Lump Sum Basis** - Lump sum, when used, means the Work described shall be completed and accepted without measurement unless changes are ordered in writing by the Engineer. If estimated quantities of the Work to be performed are listed in the Special Provisions, they provide only a basis for adjusting payment amounts. Estimated quantities are approximate only, and are made from a reasonable interpretation of the Plans and Specifications. Computations based on the details and dimensions shown on the Plans or Specifications are not guaranteed to equal estimated quantities. If the Agency issues no Change Order, the Agency will make no pay adjustment for quantities based on the Contractor's computations that overrun or underrun the estimated quantities. If the Agency issues Change Orders for changes in the Work, the Engineer will measure such changes according to the standards set by 00195.20 to determine adjustment of payment.

## Section 00195 - Payment

### Description

#### 00195.00 Scope and Limit

- (a) **General** - The Agency will pay only for items incorporated into the Work or performed according to the terms of the Contract. Payment constitutes full compensation to the Contractor for furnishing all Materials, Equipment, labor, and Incidentals necessary to complete the Work; and for risk, loss, damage, and expense arising from the nature or prosecution of the Work or from the action of the elements, subject to the provisions of 00170.80. The Contractor shall include the costs of bonds and insurance for the Project in the unit price for each Pay Item of Work to be performed.
- (b) **Essential or Incidental Materials or Work** - When the Specifications state that the unit price for a Pay Item is compensation for certain Materials or Work essential or Incidental to the Pay Item, the same Materials or Work will not be measured or paid under any other Pay Item.

### Provisions and Requirements

#### 00195.20 Changes to Plans or Character of Work

- (a) **Insignificant Changed Work** - If the changes made under 00140.30 do not significantly change the character or unit cost of the Work to be performed under the Contract, the Agency will pay for such work at the Pay Item price.

If the Work involved in the change is measured on a lump sum basis and its character is not significantly changed, payment for the Changed Work will be determined:

- As described in the applicable Section of the Specifications;
  - If not described there, on a theoretical unit price determined by dividing the Contractor's lump sum price by the estimated quantity of the Pay Item listed in the Special Provisions; or
  - If neither of the above applies, the Engineer will make an equitable adjustment.
- (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. Adjustments will exclude any loss of anticipated profits. The parties shall agree upon the basis for payment and the amount of adjustment prior to the Contractor commencing the Changed Work. If the basis and amount cannot be agreed upon, the Engineer will make an equitable adjustment, which may increase or decrease the Contract Amount and Contract Time.

Any such adjustments 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.

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.

**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 materially differ 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.

**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 shall not be construed as acceptance or approval of any part of the Work, and shall not relieve the Contractor of responsibility for defective Materials or workmanship.

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.

If the estimated amount due the Contractor for any given month is less than \$1,000, the Agency will make no payment for that month unless requested by the Contractor.

- (1) **Progress Estimates** - At the same time each month, the Engineer will make an estimate of the amount and value of Pay Item Work completed. The amount of Work completed will be the sum of the estimated number of units completed for unit price Pay Items plus the estimated percentage completed of lump sum Pay Items.

The estimated value of the Work completed will then be determined by using the Contract unit price for unit price Pay Items, and by using one of the following methods to determine the value of the lump sum Pay Items:

- The “theoretical unit price”, when the Special Provisions contain an estimated number of units;
- A Contractor-submitted, Engineer-approved Schedule of Values, when there is no theoretical unit price available; or
- Engineer’s determination, when there is neither an available theoretical unit price, nor an approved, Contractor-submitted Schedule of Values.

The amounts to be allowed for lump sum Pay Items in progress payments will not exceed the reasonable value of the Work performed, as determined by the Engineer. Incidentals such as formwork, falsework, shoring, and cribbing shall be included in the unit prices for the various Pay Items requiring their use, unless specified as a separate Pay Item. No payment will be made for Pay Items that include Incidentals until units or portions of such Pay Item Work are in place and completed. The costs of Incidentals will be paid in proportion to the percentage of Pay Item Work completed.

- (2) **Value of Materials on Hand** – If requested by the contractor, the Engineer will make an estimate of the amount and value of acceptable Materials on hand, i.e., already delivered and stored according to 00195.60(a), to be incorporated into the Work.
- (3) **Value of Work Accomplished** - The sum of the values in (1) and (2) above will be collectively referred to in this Subsection as the “value of Work accomplished”, subject to (4) below.

**(4) Limitations on Value of Work Accomplished** - In determining the “value of Work accomplished”, the Engineer’s estimate will be based on the unit prices for the various Pay Items. Any amounts not included in progress payments due to substantial mathematical unbalancing of Pay Item prices will be included in the final payment issued according to 00195.90(b).

**(5) Reductions to Progress Payments** - With each progress payment, the Contractor will receive a Contract payment voucher and summary setting forth the value of Work accomplished reduced by the following:

- Amounts previously paid;
- Amounts deductible or owed to the Agency for any cause specified in the Contract;
- Additional amounts retained to protect the Agency’s interests according to Subsection (e) below.

**(b) Retainage** - The amount to be retained from progress payments will be 5% of the value of Work accomplished, and will be retained in one of the forms specified in Subsection (c) below. No retainage will be withheld from Work performed as Force Account Work or other items decided by the Agency.

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** - Forms of acceptable retainage are specified below in Subsections (1). No other forms are available under Roseburg Urban Sanitary Authority contracts.

**(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(4). 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 00195.90(d).

**(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.
- 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** - The Engineer may withhold such amounts from progress payments or final payment as may reasonably protect the Agency's interests until the Contractor has:

- Complied with all orders issued by the Engineer according to the Specifications; and
- Satisfied all legal actions filed against the Agency, the Agency's governing body and its members, and Agency employees that the Contractor is obliged to defend. (see 00170.72) Notwithstanding ORS 279C.555 or 279C.570, if a Contractor is required to file certified statements on the prevailing rate of wages, but fails to do so, the Agency will retain 25% of any amount earned as required in 00170.65.

**(f) Prompt Payment Policy** - Payments shall be made promptly according to ORS 279C.570.

#### **00195.60 Advance Allowance for Materials on Hand**

**(a) General** - If the total value of Materials on hand is at least \$1,000 or the total value of a single class of Materials on hand is at least \$500, the Engineer may authorize an advance allowance for the Materials in the progress payments. The Agency will not make advance allowances on the Materials unless the following three conditions are satisfied:

**(1) Request for Advance Allowance** - If Materials on hand meet the requirement of (2) below, an advance allowance will be made if:

- A written request for advance allowance for Materials on hand has been received by the Engineer at least five Calendar Days before the pay period cutoff date; and
- The request is accompanied by written consent of the Contractor's Surety.

**(2) Stored or Stockpiled Conditions** - The Materials shall have been delivered and/or acceptably stored or stockpiled according to the Specifications and as follows:

- At the Project Site;
- On Agency-owned property;
- On property in the State of Oregon on which the property owner has authorized storage in writing. The written authorization must allow the Agency to enter upon the property and remove Materials for at least six months after completion of the Project. The Contractor shall furnish a copy of the written permission to the Agency.

To be eligible for advance allowance, the Materials shall:

- Meet Specification requirements;
- Have the required Materials conformance and quality compliance documents on file with the Engineer (see Section 00165);
- Be in a form ready for incorporation into the Work; and
- Be clearly marked and identified as being specifically fabricated, or produced, and reserved for use on the Project.

**(3) Responsibility for Protection** - The Contractor has full control and responsibility for the protection of Materials on hand from the elements and against damage, loss, theft, or other impairment until the entire Project has been completed and accepted by the Agency. If Materials are damaged, lost, stolen, or otherwise impaired while stored, the monetary value advanced for them, if any, will be deducted from the next progress payment. If these conditions in 00195.60(a-1) through 00195.60(a-3) have been satisfied, the amount of advance allowance, less the retainage described in 00195.50, will be determined by one of the following methods as elected by the Engineer:

- Net cost to the Contractor of the Materials, f.o.b. the Project Site or other approved site; or
- Price (or portion of it attributable to the Materials), less the cost of incorporating the Materials into the Project, as estimated by the Engineer.

**(b) Proof of Payment** - The Contractor shall provide the Engineer with proof of payment to the Materials suppliers for purchased Materials within 30 Calendar Days of the date of the progress payment that includes the advance allowance.

If proof of payment is not provided, sums advanced will be deducted from future progress payments, and the Engineer will not approve further prepayment advance allowance requests.

**(c) Terminated Contract** - If the Contract is terminated, the Contractor shall provide the Agency immediate possession of all Materials for which advance allowances have been received, as provided above. If, for any reason, immediate possession of the Materials cannot be provided, the Contractor shall immediately refund to the Agency the total amount advanced for the Materials. The Agency may deduct any amount not so refunded from final payment.

**00195.70 Payment under Terminated Contract**

Payment for Work performed under a Contract that is terminated according to the provisions of 00180.90 will be determined under (a) or (b) of this Subsection.

- (a) **Termination for Default** - Upon termination of the Contract for the Contractor’s default, the Agency will make no further payment until the Project has been completed. The Agency will make progress payments to the party to whom the Contract is assigned, but may withhold an amount sufficient to cover anticipated Agency costs, as determined by the Engineer, to complete the Project. Upon completion of the Project, the Engineer will determine the total amount that the defaulting Contractor would have been entitled to receive for the Work, under the terms of the Contract, had the Contractor completed the Work (the “cost of the Work”).

If the cost of the Work, less the sum of all amounts previously paid to the Contractor, exceeds the expense incurred by the Agency in completing the Work, including without limitation expense for additional managerial and administrative services, the Agency will pay the excess to the Contractor, subject to the consent of the Contractor’s Surety.

If the expense incurred by the Agency in completing the Work exceeds the Contract Amount, the Contractor or the Contractor’s Surety shall pay to the Agency the amount of the excess expense. The Engineer will determine the expense incurred by the Agency and the total amount of Agency damage resulting from the Contractor’s default. That determination will be final as provided in 00150.00.

If a termination for default is determined by a court of competent jurisdiction to be unjustified, it shall be deemed a termination for public convenience, and payment to the Contractor will be made as provided in Subsection (b) below.

**(b) Termination for Public Convenience:**

- (1) **General** - Full or partial termination of the Contract shall not relieve the Contractor of responsibility for completed portions of the Work, or relieve the Contractor’s Surety of the obligation for any just claims arising from the completed 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 may 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; and
- Provides receipts, bills and other records of actual cost of Materials delivered to the designated delivery points.

**00195.90 Final Payment**

(a) **Final Payment** - The amount of final payment will be the difference between the total amount due the Contractor and the sum of all payments previously made. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. After computation of the final amount due, and after Final Acceptance of the Project, final payment will be mailed to the Contractor's last known address as shown in the records of the Agency. Beginning 45 Calendar Days after the date of Final Acceptance, 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.

(b) **No Waiver of Right to Make Adjustment** - The fact that the Agency has made any measurement, estimate, or certification either before or after completion of the Project, Final Acceptance, Agency assumption of possession of the Project Site, 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 or certification is incorrect (except for Agency verifications under 00195.50(d));
- Recovering from the other party damages that may have been suffered because the other party failed to comply with the Contract.

**00195.95 Error in Final Quantities and Amounts**

- (a) **Request for Correction of Compensation** - If the Contractor believes the 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 request review according to the procedure specified in 00199.40. If the Contractor fails to submit a request for 00199.40 review within 30 Calendar Days after the Engineer mails a post-final Contract payment voucher or notice of rejection, the Contractor waives all rights to a claim based on errors in quantities and amounts.

## **Section 00196 - Payment for Extra Work**

### **Description**

#### **00196.00 General**

Only work not included in the Contract as awarded but deemed by the Engineer to be necessary to complete the Project (see 00140.60) will be paid as Extra Work. Regardless of alterations and changes, any item of Work provided for in the Contract will not constitute Extra Work. Payment for alterations and changes to Work will be made according to 00195.20. Compensation for Extra Work will be paid only for Work authorized in writing by the Engineer and performed as specified. Work performed before issuance of the Engineer's written authorization shall be at the Contractor's risk. Extra Work will be paid as determined by the Engineer, according to 00196.10 and 00196.20.

### **Provisions and Requirements**

#### **00196.10 Negotiated Price**

If the Engineer can reasonably determine a price estimate for Extra Work, the Engineer may then give written authorization to the Contractor to begin the Extra Work. As soon as practicable, but within 10 Calendar Days after that authorization, the Contractor shall respond in writing to the Engineer's Extra Work price estimate by submitting to the Engineer an Extra Work price quote. The price quote shall detail the following items related to the Extra Work:

- Types and amounts of Materials
- Hours of Equipment use and hours of labor
- Travel
- Overhead and profit
- Other costs associated with the proposed Extra Work

Pending approval of the price quote, the Engineer will maintain force account records of the Extra Work. As soon as practicable, but within 10 Calendar Days of receipt of a properly supported price quote, the Engineer will review the price quote and advise the Contractor if it is accepted or rejected. The Engineer will not accept a price quote that cannot be justified on a Force Account basis. If the Contractor's price is accepted, the Engineer will issue a Change Order, and the Extra Work will be paid at the accepted price.

#### **00196.20 Force Account**

If the Engineer and the Contractor cannot agree on a price for the Extra Work, the Engineer may issue a Force Account Work order requiring the Extra Work to be paid as Force Account Work. Force Account Work records and payment will be made according to Section 00197.

## Section 00197 - Payment for Force Account Work

### Force Account Work

#### 00197.00 Scope

The Materials, Equipment and labor rates established in this Section apply only to Extra Work ordered by the Engineer to be performed as Force Account Work. These rates do not apply to any other Work performed under the Contract.

#### 00197.01 General

Before ordering Force Account Work, the Engineer will discuss the proposed work with the Contractor, and will seek the Contractor's comments and advice concerning the formulation of Force Account Work specifications. The Engineer is not bound by the Contractor's comments and advice, and has final authority to:

- Determine and direct the Materials, Equipment and labor to be used on the approved Force Account Work; and
- Determine the time of the Contractor's performance of the ordered Force Account Work.

If the Engineer orders the performance of Extra Work as Force Account Work, the Engineer will record, on a daily basis, the Materials, Equipment, labor, and Special Services 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, labor, and Special Services used for the Force Account Work performed on that day.

The following shall be reflected on the daily record:

- Materials used in the Force Account Work as directed by the Engineer, except those furnished and paid under rental rates for use of Equipment;
- Equipment which the Engineer considers necessary to perform the Force Account Work.

Equipment hours will be recorded to the nearest quarter hour;

- Labor costs, including that of Equipment operators and supervisors in direct charge of the specific operations while engaged in the Force Account Work;
- Special Services; 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).

For Force Account work that totals under \$10,000, the Engineer may accept for use the commercially established wholesale rental rate published from the contractor for general construction work including cost with operator as long as the total hourly cost does not exceed the method of establishing equipment, operational costs and labor as described elsewhere in this subsection and subsection 00197.30(a). If this is accepted by the Engineer, record keeping requirements will remain the same.

- (b) **Equipment Description** - On the billing form for Equipment costs, the Contractor shall submit to the Engineer sufficient information for each piece of Equipment and its attachments to enable the Engineer to determine the proper rental rate from the Blue Book.

- (c) **Rental Rates (without Operator):**

- (1) **Rental Rate Formula** - Rental rates for Equipment will be paid on an hourly basis for Equipment and for attachments according to the following formula:

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

Some attachments are considered “standard Equipment” and are already included in the monthly base rate for the Equipment. That information can be obtained from EquipmentWatch.

- (2) **Monthly Base Rate** - The monthly base rate used above for the machinery and for attachments represents the major costs of Equipment ownership, such as depreciation, interest, taxes, insurance, storage, and major repairs.
- (3) **Rate Adjustment Factor** - The rate adjustment factor used above will be determined as per page iii of each section of the Blue Book.
- (4) **Hourly Operating Rate** - The hourly operating rate used above for the machinery and for attachments represents the major costs of Equipment operations, such as fuel and oil, lubrications, field repairs, tires or ground engaging components, and expendable parts.
- (5) **Limitations** - The Blue Book “Regional Adjustment Factor” shall not apply.

If multiple attachments are included with the rental Equipment, and are not considered “standard Equipment”, only the attachment having the higher rental rate will be eligible for payment, provided the attachment has been approved by the Engineer as necessary to the Force Account Work.

Rental will not be allowed for small tools that have a daily rental rate of less than \$5, or for unlisted Equipment that has a fair market value of \$400 or less.

The above rates apply to approved Equipment in good working condition. Equipment not in good working condition, or larger than required to efficiently perform the work, may be rejected by the Engineer or accepted and paid for at reduced rates.

- (d) **Moving Equipment** - If it is necessary to transport Equipment located beyond the Project Site exclusively for Force Account Work, the actual cost to transport the Equipment to, and return it from, its On-Site Work location will be allowed as an additional item of expense. However, the return cost will not exceed the original delivery cost. These costs will not be allowed for Equipment that is brought to the Project Site for Force Account Work if the Equipment is also used on Pay Item or related Work.

If transportation of such Equipment is by common carrier, payment will be made in the amount paid for the freight. No markups will be allowed on common carrier transportation costs. If the Equipment is hauled with the Contractor’s own forces, transportation costs will include the rental rate of the hauling unit and the hauling unit operator’s wage. If Equipment is transferred under its own power, the rental rate

allowed for transportation time will be 75% of the appropriate hourly rate for the Equipment, without attachments, plus the Equipment operator's wage.

- (e) **Standby Time** - If ordered by the Engineer, standby time will be paid at 40% of the hourly rental rate calculated according to this Subsection, excluding the hourly operating rate. Rates for standby time that are calculated at less than \$1 per hour will not be paid. Payment will be limited to not more than eight hours in a 24-hour period or 40 hours in a one-week period.
- (f) **Blue Book Omissions** - If a rental rate has not been established in the Blue Book, the Contractor may:
  - If approved by the Engineer, use the rate of the most similar model found in the Blue Book, considering such characteristics as manufacturer, capacity, horsepower, age and fuel type;
  - Request EquipmentWatch to furnish a written response for a rental rate on the Equipment, which shall be presented to the Engineer for approval; or
  - Request that the Engineer establish a rental rate.
- (g) **Outside Rental Equipment** - If Contractor- or Subcontractor-owned Equipment is not available, and Equipment is rented from outside sources, payment will be based on the actual paid invoice. 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.

- (a) **Standard Calculation** - The hourly amount paid to the Contractor for each employee engaged on Force Account Work will be two times the actual base hourly wage (excluding fringe benefits, vacation, and all other direct or indirect costs including subsistence) paid to the employee for:
  - (1) Work under each Force Account Work order, up to an accumulated total value for labor under that order of \$10,000; and
  - (2) Workers whose work class has an industrial accident insurance rate of 25% or less as determined by the National Council on Compensation Insurance (NCCI) for the assigned risk pool for the appropriate worker class.

This amount paid to the Contractor will be full compensation for all costs associated with labor on Force Account Work including wages, fringe benefits, vacation, insurance, markup and other direct or indirect costs except for per diem costs. If per diem is paid to

workers for similar Pay Item Work, per diem costs will be paid on an actual-cost basis for the Force Account Work. The markup described in 00197.80 will not be added, except that the supplemental markup for Force Account Work performed by Subcontractors will be allowed.

**(b) Work Value for Labor over \$10,000 or NCCI Rate over 25%** - After the accumulated value of labor performed under a Force Account Work order exceeds either 00197.30(a-1) or 00197.30(a-2), payment for Force Account Work labor will be calculated as follows:

- (1) 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.
- (2) 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 NCCI rate for the assigned risk pool for the appropriate work class multiplied by the experience modification factor for the Contractor.
- (3) 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 amounts are required by a collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the Project. The cost of labor calculated under this Subsection will also be subject to the applicable markups in 00197.80.

**00197.40 Invoices for Special Services**

Invoices for Special Services that reflect current market pricing may be accepted without complete itemization of Materials, Equipment, and labor costs, if the itemization is impractical or not customary. The invoice for Special Services shall show credit for commercial trade discounts offered or available.

No percentage markup will be allowed other than that specified in 00197.80.

**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:

<b>Subsection</b>	<b>Percent</b>
00197.10 Materials	17
00197.20 Equipment	17
00197.30(b) Labor	22
00197.40 Special Services	17

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 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 the guidelines of 00197.10 through 00197.40. When a billing for Force Account Work has been paid at the Project level, no further corrections will be made because of further review if those corrections amount to less than \$10.

## Section 00199 - Disagreements, Protests and Claims

### Description

#### 00199.00 General

This Section details the process through which the parties agree to resolve any disagreement concerning additional compensation or concerning a combination of additional compensation and Contract Time. (See 00180.80 for disagreements and claims concerning additional Contract Time only, and 00195.95 for disagreements and claims concerning correction of final compensation.) The Agency will not consider direct disagreements, protests, or claims from Subcontractors, Materials suppliers, or any other Entity not a party to the Contract.

### Provisions and Requirements

#### 00199.10 Procedure for Resolving Disagreements

When disagreements occur concerning additional compensation or a combination of additional compensation and Contract Time, the Contractor shall first pursue resolution through the Engineer of all issues in the dispute, including without limitation the items to be included in the written notice in 00199.20. If the discussion fails to provide satisfactory resolution of the disagreement, the Contractor shall follow the protest procedures outlined in 00199.20. If the Engineer denies all or part of the Contractor's protest, and the Contractor desires to further pursue the issues, the Contractor shall submit a claim for processing according to 00199.30.

#### 00199.20 Protest Procedure

If the Contractor disagrees with anything required in a Change Order or other written or oral order from the Engineer, including any direction, instruction, interpretation, or determination that, in the Contractor's opinion, entitles or would entitle the Contractor to additional compensation, the Contractor shall do all of the following in order to pursue a protest and preserve its claim:

- (a) **Oral Notice** - Give oral notice of protest to the Engineer and outline the areas of disagreement before starting or continuing the protested Work.
- (b) **Written Notice** - File a proper written notice of protest with the Engineer within seven Calendar Days after receiving the protested order. In the notice the Contractor shall:
  - Describe the acts or omissions of the Agency or its agents that allegedly caused or may cause damage to the Contractor, citing specific facts, persons, dates and Work involved;
  - Describe the nature of the damages;
  - Cite the specific Contract provision(s) that support the protest;
  - Include the estimated dollar cost, if any, of the protested Work, and furnish a list of estimated Materials, Equipment and labor for which the Contractor might request additional compensation; and

- If additional compensation is estimated to be due, include the estimated amount of additional time required, if any.

The Engineer has no responsibility to evaluate the protest unless the Contractor has timely filed a proper notice submitting all of the above information. Failure to comply with this notice requirement renders the notice improper.

- (c) **Records** - Keep complete records of all costs and time incurred throughout the protested Work, and allow the Engineer access to those and other supporting records. Provide daily records of protested Work, on a weekly basis, on a schedule to be set by agreement with the Engineer.
- (d) **Comparison of Records** - Provide the Engineer adequate facilities for keeping cost and time records of the protested Work. The Contractor and the Engineer will compare records and either bring them into agreement at the end of each day, or record and attempt to explain any differences.
- (e) **Work to Proceed** - In spite of any protest, proceed promptly with the Work ordered by the Engineer.
- (f) **Evaluation of Protest** - The Engineer has no responsibility for evaluating a protest that is not timely filed, or for which adequate supporting documentation has not been kept. Provided the procedures above are followed, the Engineer will promptly evaluate all protests and, if the protest is denied, advise the Contractor in writing of the reasons for full or partial denial. If a protest is found to be valid, the Engineer will, within a reasonable time, make an equitable adjustment of the Contract. Adjustment of time will be evaluated according to 00180.80.
- (g) **Protest Evaluation by Third Party Neutral** - If the Engineer agrees that the Contractor has fully complied with the requirements described in 00199.20(b), and if the Engineer fully or partially denies, in writing, the Contractor's protest according to 00199.20(f), the Contractor may request that a mutually selected Third Party Neutral review the protest. Procedures for selecting, using, and paying for the cost of the Third Party Neutral will be specified by Change Order. If the Contractor does not accept the Engineer's evaluation of the protest, or either the Contractor or Engineer disagrees with the resolution recommended by the Third Party Neutral, the Contractor may pursue a claim as described in 00199.30.

### **00199.30 Claims Procedure**

- (c) **General** - If the Contractor believes that additional compensation is due, or a combination of additional compensation and Contract Time, and has pursued and exhausted all the procedures provided in 00199.10 and 00199.20 to resolve a disagreement and protest, the Contractor may file a claim.

The Agency's Contract is with the Contractor. There is no contractual relationship between the Agency and any Subcontractor. It is the Contractor's responsibility to fully analyze any claim before presenting it to the Agency. In addition, when a claim includes Work done or costs incurred by a Subcontractor, Materials supplier, or any Entity other than the Contractor,

the Contractor remains solely responsible for presenting the claim to the Agency.

Claims that include Work done or costs incurred by any Entity other than the Contractor will not be considered by the Agency unless the Contractor has:

- Completed and provided its own written analysis and evaluation of the claim; and
- Verified by its own independent review and analysis the amount of compensation sought.

**(b) Claims Requirements** - At any time during the progress of the Work, but not later than 15 Calendar Days following the date of the Notice of Substantial Completion, the Contractor shall submit to the Engineer claims for additional compensation or a combination of additional compensation and Contract Time additional to that specified in the Contract. For a claim not submitted within the 15 day limit, that has not met the requirements of 00199.20, or is not filed as provided in 00199.30, the Contractor waives any claim for additional compensation or for additional compensation and Contract Time, and the Agency may reject the claim.

To be considered, claims for additional compensation, or for additional compensation and Contract Time, shall be completed according to 00199.30 and shall be submitted with the required information and in the format below and labeled as required below for each claimed issue:

**(Part 1)** Executive summary (label page 1.1 through page 1.?) - In the Executive summary, include a detailed, factual statement of the claim for additional compensation and Contract Time, if any, with necessary dates and locations of Work involved in the claim, the dates of when the event arose, and when notice was given to the Agency. Also include detailed facts supporting the Contractor's position relative to the Engineer's decision (see 00199.20(f));

**(Part 2)** Copies of the Contract Specifications that support the Contractor's claim (label page 2.1 through page 2.?).

**(Part 3)** Theory of entitlement supporting the claim (label page 3.1 through page 3.?) - Include a narrative of how or why the specific Contract Specifications support the claim and a statement of the reasons why such Specifications support the claim;

**(Part 4)** Itemized list of claimed amounts (label page 4.1 through page 4.?) - Claimed damages that resulted from the event with a narrative of the theories and documents used to arrive at the value of the damages;

**(Part 5)** Additional Contract Time requests (label page 5.1 through page 5.?) - If the claim is for a combination of additional compensation and Contract Time, submit a copy of the schedule that was in effect when the event occurred and a detailed narrative which explains how the event impacted Contract Time. In addition, if an Agency-caused delay is claimed:

- Include the specific days and dates under claim;
- Provide detailed facts about the specific acts or omissions of the Agency that allegedly caused the delay, and the specific reasons why the resulting delay was unreasonable; and
- A schedule analysis that accurately describes the impacts of the claimed delay;
- (Also see 00180.80 for additional requirements regarding claims for Contract Time and causes that are eligible and ineligible for consideration.);

**(Part 6)** Copies of actual expense records (label page 6.1 through page 6.?) - Include documents that contain the detailed records and which support and total to the exact amount of additional compensation sought. Include the information and calculations necessary to support that amount. That amount may be calculated on the basis of Section 00197, if applicable, or may be calculated using direct and indirect costs presented in the following categories:

- Direct Materials;
- Direct Equipment. The rate claimed for each piece of Equipment shall not exceed the actual cost. In the absence of actual Equipment costs, the Equipment rates shall not exceed 75% of those calculated under the provisions of 00197.20. For each piece of Equipment, the Contractor shall include a detailed description of the Equipment and attachments, specific days and dates of use or standby, and specific hours of use or standby;
- Direct labor;
- Job overhead;
- General and administrative overhead; and
- Other categories as specified by the Contractor or the Agency;

**(Part 7)** Supporting documents (label page 7.1 through page 7.?) - Include copies of, or excerpts from the following:

- Any documents that support the claim, such as manuals standard to the industry and used by the Contractor; and
- Any daily reports or diaries related to the event, photographs or media that help explain the issue or event (optional), or all other information the Contractor chooses to provide (optional);

**(Part 8)** Contractor evaluation of a lower tier claim (label page 8.1 through 8.?) - If the claim includes Work done or costs incurred by a Subcontractor, Materials supplier, or any Entity other than the Contractor, the following are required:

Data required by the other Subsections of 00199.30(b);

- Copy of the Contractor’s separate analysis and evaluation;
- Copy of the Contractor’s independent review and analysis of the amount of damages sought; and

**(Part 9)** Certification (label page 9.1 through 9.?) - A certified statement by the Contractor, Subcontractor or Materials supplier, as appropriate, as to the validity of facts and costs containing the following language:

*Under penalty of law for perjury or falsification, the undersigned, (Name), (Title), (Company) certifies that this claim for additional compensation for Work on the Contract is a true statement of the actual costs incurred (in the amount of \$ , exclusive of interest) and is fully documented and supported under the Contract between the parties.*

Signature: \_\_\_\_\_

Date: \_\_\_\_\_, 20

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
Notary Public

My commission expires \_\_\_\_\_

A person authorized to execute Change Orders on behalf of the Contractor must countersign this statement.

Claims shall be made in writing, and shall include all information necessary for the Agency to properly and completely analyze the claim. All pages shall have page numbers and be marked with the numbering system shown above. The Agency reserves the right at any time to request additional information related to the claim or the Contract either directly or through Agents working toward resolution of the disputed or claimed events and issues.

**(c) Records Required** - The Contractor shall keep full and complete records of the actual costs incurred for the submitted claim. These records shall include all worksheets used to prepare the claim establishing the cost components for items of the claim.

**(d) Access to Records** - The Contractor shall provide the Engineer access to all Contractor records required to determine the facts, contentions, and costs involved in the claim. The Engineer may perform an audit of these records. The Contractor shall retain all Contract records for a period of at least three years after Final Acceptance of the Project by the Agency, or until all disputes, including litigation, if any, are resolved (the “record retention period”). The Agency and/or its agents shall be provided full access to all Contract records during the record retention period.

- (e) **Compliance Required** - Full compliance by the Contractor with the provisions of this Section is a condition precedent to the commencement of any lawsuit by the Contractor to enforce any claim.

**00199.40 Claim Decision; Review; Exhaustion of Administrative Remedies**

The Agency intends to resolve all claims at the lowest possible administrative level. If the Engineer denies the claim for additional compensation or a combination of additional compensation and Contract Time, in full or in part, according to 00199.40(a), the Contractor may request review of the denial. The disputed claim for additional compensation or a combination of additional compensation and Contract Time may then be resolved, in full or in part, at any of the three progressive steps of claim review procedure as specified in (b) through (d) of this Subsection. If the Engineer has denied a claim, in full or in part, for Contract Time only according to 00180.80, or has denied a claim, in full or in part, for correction of final compensation according to 00195.95, those disputed claims may then be resolved, in full or in part, at any of the three progressive steps of claim review procedure as specified in (b) through (d) of this Subsection. For all claims, all of the actions and review under each step of the review process shall occur before the review can be advanced to the next higher step.

If, at any step in the claim decision or review process, the Contractor fails to promptly submit requested information or documentation that the Agency deems necessary to analyze the claim, the Contractor is deemed to have waived its right to further review, and the claim will not be considered properly filed and preserved.

- (a) **Decision by the Engineer** - The Engineer will, as soon as practicable, consider, investigate, and evaluate a Contractor's claim for additional compensation, or for a combination of additional compensation and Contract Time, if submitted as required by 00199.30. If the Engineer determines that additional information or documentation is needed to allow proper analysis of the claim, the Contractor shall meet with the Engineer within 14 Calendar Days, or as otherwise agreed by the parties, to present the additional information or documentation, or make other arrangements with the Engineer to supply that material.

The Engineer will advise the Contractor of the decision to accept or deny the claim, and the reasons for any full or partial denial of the claim, within 30 Calendar Days of receipt of the Contractor's claim, or the receipt of requested additional information or documentation regarding the claim, whichever is later, unless the Engineer and Contractor have agreed upon a longer response time. If the Contractor does not accept the Engineer's decision, the Contractor may, within 10 Calendar Days of receipt of the written decision, request in writing that the Engineer arrange a review at Step 1 (see (b) below).

- (b) **Step 1: RUSA General Manager** - The Contractor shall request that the Engineer arrange a meeting with the Roseburg Urban Sanitary Authority General Manager in order to present the denied or partially denied claim for formal review and discussion. The meeting will take place within 21 Calendar Days of the Agency's receipt of the request, or as otherwise agreed by the parties.

If the General Manager determines that the Contractor must furnish additional information or documentation to allow proper analysis of the claim, the manager will schedule a second meeting, to be held within 14 Calendar Days, or as otherwise

agreed by the parties, at which the Contractor shall present the requested information or documentation.

The General Manager will provide a written decision to the Contractor within 30 Calendar Days of the last Step 1 meeting.

If the Contractor does not accept the Step 1 decision, the Contractor may, within 10 Calendar Days of receipt of the written decision, request in writing that the Engineer arrange a review at Step 2 (see (c) below).

**(c) Step 2: RUSA Board of Directors** - The Contractor shall request a meeting with the Board of Directors to present the claim for final Agency review. The presentation will take place within 21 Calendar Days of the Agency's receipt of the Contractor's written request, or as otherwise agreed by the parties.

If the Board determines that the Contractor must furnish additional information or documentation to allow proper analysis of the claim, the Board will schedule a second meeting, to be held within 14 Calendar Days or as otherwise agreed by the parties, at which the Contractor shall present the requested information or documentation. The Board of Directors will provide a written decision to the Contractor within 30 Calendar Days of the final Step 2 meeting.

**(d) Step 3: Litigation** - This step applies to:

- Claims over \$250,000;
- Appeals of Agency Decisions issued under Step 2 above.

The Contractor must follow each step in order, and exhaust all available administrative remedies before resort to litigation. Lawsuits must be properly filed in a court of competent jurisdiction within six months from the date of the final decision that exhausted the Contractor's available administrative remedies under this Section 00199.

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

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

Any dispute between the Agency and the Contractor that arises from or relates to this Contract and that is not resolved under the provisions of Section 00199 shall be brought and conducted solely and exclusively within the Circuit Court for the State of Oregon in the county where the Agency's main office is located; provided, however, if a dispute must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this Subsection be construed as a waiver by Roseburg Urban Sanitary Authority 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.

**00199.50 Mediation**

Notwithstanding the formal claims procedure specified above, the parties may enter into nonbinding mediation by mutual agreement at any time, in which case the parties may also agree to suspend the time requirements in Section 00199 pending the outcome of the mediation process. The rules, time and place for mediation, as well as selection of the mediator, shall be established by mutual agreement. Costs shall be divided equally between the Contractor and the Agency. Either party may terminate mediation at any time upon five Calendar Days notice to the other, after which the time requirements of Section 00199 shall be automatically reinstated.

# SPECIFICATIONS

ROSEBURG URBAN SANITARY AUTHORITY  
3485 W. Goedeck Ave.  
Roseburg, OR

July 12, 2019

Biosolids Building Addition

**ROGERS  
ENGINEERING**

558 S.E. Jackson St.  
Roseburg, OR 97470  
Ph. 541-672-0315  
Fax 541-672-1787

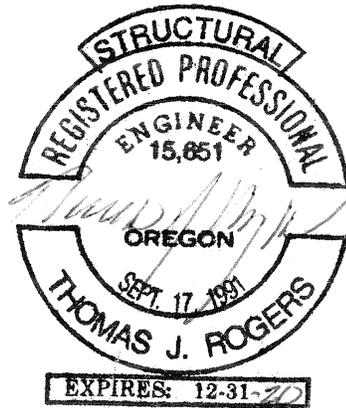
FILE #18-013

PROJECT: BIOSOLIDS BUILDING ADDITION  
3485 W. GOEDECK AVE.  
ROSEBURG, OR 97471

OWNER: ROSEBURG URBAN SANITARY AUTHORITY  
1297 NE Grandview Dr.  
ROSEBURG, OREGON 97470

RUSA MANAGER: Jim Baird  
1297 NE Grandview Dr.  
Roseburg, Oregon 97470  
Phone 541-672-1551  
[jbaird@rusa-or.org](mailto:jbaird@rusa-or.org)

ENGINEER Rogers Engineering  
ATTN: Tom Rogers  
558 S.E. Jackson Street  
Roseburg, Oregon 97470  
Phone 541-672-0315  
Cell 541-643-6315  
Fax 541-672-1787  
[rogerst@rosenet.net](mailto:rogerst@rosenet.net)



TITLE	NO. OF PAGES
DIVISION 0	
00 01 07 SEALS PAGE	
00 01 10 TABLE OF CONTENTS	
DIVISION 1 - GENERAL REQUIREMENTS	
01 11 00 SUMMARY OF WORK.....	3
01 31 13 COORDINATION .....	2
01 33 23 SHOP DRAWINGS PRODUCT DATA AND SAMPLES.....	3
01 41 13 CODES AND STANDARDS.....	1
01 42 13 ABBREVIATIONS AND ACRONYMS.....	2
01 45 00 QUALITY CONTROLS.....	3
01 50 00 TEMPORARY FACILITIES AND CONTROLS.....	2
01 60 00 PRODUCT REQUIREMENTS .....	2
01 62 00 SUBSTITUTIONS AND PRODUCT OPTIONS .....	3
01 73 29 CUTTING AND PATCHING .....	1
01 74 00 CLEANING AND WASTE MANAGEMENT .....	1
01 77 00 CLOSEOUT PROCEDURES.....	2
01 78 23 OPERATION AND MAINTENANCE DATA.....	2
01 78 36 WARRANTIES AND BONDS.....	2
01 78 39 PROJECT RECORD DOCUMENTS.....	1
DIVISION 2 — EXISTING CONDITIONS .....	Not Used
DIVISION 3 - CONCRETE	
03 11 00 CONCRETE FORMING .....	2
03 20 00 CONCRETE REINFORCING.....	2
03 30 00 CAST IN PLACE CONCRETE .....	4
DIVISION 4 - MASONRY .....	Not Used
DIVISION 5 - METALS	
05 50 00 METAL FABRICATIONS.....	3
DIVISION 6 - WOOD & PLASTICS .....	Not Used
DIVISION 7 - THERMAL & MOISTURE PROTECTION	
07 60 00 FLASHING AND SHEETMETAL.....	3
07 61 00 PREFINISHED METAL ROOFING AND SIDING .....	3
DIVISION 8 - DOORS AND WINDOWS .....	Not Used
DIVISION 9 - FINISHES .....	Not Used
DIVISIONS 10 - 13.....	Not Used
DIVISION 22 - PLUMBING	
22 05 00 COMMON WORK RESULTS FOR PLUMBING .....	4
DIVISION 23 - MECHANICAL .....	Not Used
DIVISION 31 - EARTHWORK	
31 10 00 CLEARING AND GRUBBING .....	2
31 20 00 EARTHWORK.....	4
BIOSOLIDS BUILDING	

## PART 1 GENERAL

**SPECIFICATIONS FOR BIOSOLIDS BUILDING ADDITION**

## 1.01 EXPLANATION OF CONTRACT DOCUMENTS:

The Conditions of the Contract and the General Requirements (Division 1) of these Specifications apply to the Work described under each Section hereof. The Contractor shall instruct each subcontractor to become fully familiar with them.

## 1.02 DIVISION AND PARAGRAPH NUMBERING:

Numbering and lettering of Divisions and Paragraphs in these Specifications are merely for identification and may not be consecutive. Divisions included are listed in the "Table of Contents." Contractor shall check his copies of the Project Manual with the Table of Contents to be sure they are complete.

## 1.03 ADDITIONAL DEFINITIONS

The term "Owner" means "Roseburg Urban Sanitary Authority (RUSA)".

The term "Project Manager" means the individual representing RUSA for this Project, and noted as Project Manager on the title sheet of these specifications.

**Unless specifically noted otherwise, all notices and other correspondence with the Owner shall be directed to the attention of the Project Manager.**

The term "approved" means "approved by the Engineer".

The term "for approval" means "for the Engineer's approval".

The term "as directed" means "as directed by the Engineer".

The term "product" includes materials, systems, and equipment.

The term "furnish" means "supply and deliver to the project site".

The term "install" describes operations at the project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

The term "provide" means "furnish and install, complete, in place and ready for operation and use".

The term "Installer" means the Contractor or entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including, installation, erection, application, and similar operations.

The term "selected" means "selected by the Engineer".

Where the words "or approved" are used, the Engineer is the sole judge of quality and suitability of proposed substitution.

## 1.04 SUB-CONTRACTS:

Divisions of Specifications into trade Sections conforms roughly to customary practice. They are used for convenience only. The Owner and the Engineer are not bound to define limits of any subcontract and will not enter into disputes between the Contractor and his employees, including subcontractors.

The General Contractor shall perform at least 50 percent of the Work.

## 1.05 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

Where references are made to other Sections regarding Related Requirements Specified Elsewhere, it is for the convenience of the Contractor only and shall not limit the Contractor's responsibility under other Sections not so referenced. As previously noted, each Section of the Specifications is bound by all applicable requirements of all Sections in Division 1.

## 1.06 WORDING OF SPECIFICATIONS:

These are abbreviated or "streamline" type specifications and frequently include incomplete sentences. The omission of words or phrases such as "The Contractor shall", "according to the drawings", "in conformity with", "shall", "shall be", "as noted", "a", "an", "and", are all intentional. Omitted words or phrases shall be supplied by inference, in the same manner as they are in the notes on the Drawings. Titles and headings are frequently a part of the Specifications, and the same as the text of the article or paragraph. Where question arises as to wording in the Drawings and Specifications, consult the Engineer.

**BIOSOLIDS BUILDING**

**1.07 WORK COVERED BY CONTRACT DOCUMENTS:**

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, permits, fees, transportation, incidentals, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**1.08 CONTRACTS:**

All Work shall be performed under a single contract. The General Contractor shall perform at least 50 percent of the Work.

**1.09 WORK BY OTHERS:**

Items specifically noted in the Contract Documents as:

1. "By Others"
2. "N.I.C." (Not in Contract)
3. "By Owner"

**1.10 OWNER FURNISHED ITEMS:**

- A. Items specifically noted: "Furnished by Owner"
- B. Owner furnished items shall be installed by the Contractor unless noted otherwise.

**1.11 EXISTING CONDITIONS**

The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character, quality and quantity of surface and sub-surface materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all of the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. The Engineer assumes no responsibility for any understanding or representations made during or prior to the bidding or execution of this Contract, unless (1) such understanding or representations are expressly stated in the Contract, and (2) the Contract expressly provides that responsibility therefore is assumed by the Engineer. Representations made, but not so expressly stated, and for which liability is not expressly assumed by the Engineer in the Contract shall be deemed only for the information of the Contractor and the Engineer shall not be liable or responsible therefore.

The Site information on the Drawings represents the best information available to the Engineer during preparation of the Contract Documents.

**1.12 UNACCEPTABLE EXISTING CONDITIONS:**

- A. Exposed to view, or noted in the Contract Documents, or otherwise accessible to verify prior to bid opening date:
  1. Repair or replace as part of this Work.
  2. No additional payments by Owner will be made.
- B. Concealed, and not accessible to verify prior to bidding:
  1. Repair or replace where necessary;
  2. Upon notification from Contractor, Owner will issue Change Order authorizing Contractor to perform this Work and Contract Sum will be adjusted accordingly.

1.13 CONTRACTOR USE OF PREMISES:

- A. The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents, and shall not unreasonably encumber the site with any materials or equipment.
- B. Confine operations to Project Areas directed by the Owner.
- C. Obtain Owner's permission for use of any existing facilities, utilities, areas, materials, etc., not specifically provided for the Contractor's use in the Contract Documents.

END OF SECTION

**PART 1 GENERAL****1.01 SCOPE:**

- A. Contractor is responsible for Project coordination.
- B. Cooperation between the various crafts and subcontractors shall be required for proper execution of the Work.
- C. Prior to the installation of materials or equipment with the Work of other Sections, by Owner, or by other contracts, verify the requirements of the other crafts, Owner, or other contract materials or equipment.
- D. Bring deviations to the attention of the Engineer immediately.
- E. Maintain at the site, copies of all communications and directives from Authorities having jurisdiction. Notify Engineer of all such communications and provide Engineer with copies when requested.
- F. Neither the Owner nor the Engineer will interfere with the Contractor's right and responsibility to coordinate or divide the Work among the Subcontractors or to establish the extent of the Work to be performed by any Subcontractor. The Owner and the Engineer will not enter into disputes between the Contractor and his employees, including subcontractors.

**1.03 SCHEDULES****A. Contractor's Construction Schedule:**

Prior to proceeding with the Work, Contractor shall submit a proposed progress schedule. The progress schedule shall include dates of submission and dates reviewed submittals will be required for each product, as well as the dates for starting and completion of the various stages of construction. Provide in bar or line graph form prepared by a competent draftsman, prior to first payment request.

Include critical dates for procurement of products. Indicate, at suitable scale, percentage of Work scheduled for completion at any time.

Enter actual progress on Chart prior to each progress payment for direct comparison with Schedule. If Contractor fails to deliver Schedule on time or properly update Schedule, with each payment request, Engineer may withhold Progress Payment approval until such time as Contractor complies with these requirements.

Do not proceed with work at the site until Project Manager has approved construction schedule.

If in Engineer's opinion, Work progress falls behind approved Schedule, Contractor shall take necessary action to regain lost time. Contractor shall increase Work amount, or number of shifts, or establish overtime operations, or all of them, and submit for review Schedule revisions in which progress rate will be regained, all without additional cost to the Owner.

Contractor's failure to comply with any of these requirements shall be grounds for determination that the Contractor is not prosecuting the Work with such diligence as will insure Project completion within specified time. Upon such determination Owner may terminate Contractor's right to proceed with the Work, or any separable part thereof, in accordance with Contract Conditions.

**B. Testing Schedule**

Prior to proceeding with the Work, the General Contractor shall submit, for approval by the Engineer, a schedule of required testing and Inspections, including the names addresses and phone numbers of the proposed testing agencies.

1.04 SUPERINTENDENT

- A. General Contractor's Superintendent (as defined in the General Conditions) shall remain at project site during all times during which Work under this contract is being carried out, regardless of the type of trades involved or apparent significance of work being performed.
- B. Superintendent shall not be changed or replaced prior to Final Completion of the project without the Engineer's written consent.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.01 COORDINATION:

- A. Do all necessary work to receive or join work of all trades.
- B. Coordinate the Work to provide adequate clearances for proper installation and maintenance of materials and equipment.

END OF SECTION

## PART 1 GENERAL

## 1.01 DESCRIPTION:

## A. Related Work Specified Elsewhere

1. Substitutions and Product Options: Section 01 62 00
2. Closeout Submittals: Section 01 77 00

## 1.02 GENERAL REQUIREMENTS:

## A. Submittals:

1. Submittals are defined as documents required by the Contract to be submitted to the Engineer for review, and may include shop drawings, product data, samples, or a schedule of construction events.
2. Shop drawings, Product Data, Samples and other Submittals are not part of the Contract. Their purpose is to demonstrate, for those portions of the Work for which Submittals are required, the way the Contractor proposes to conform to the requirements of the Contract and the design concept expressed in the Contract.
3. The Contractor shall review, approve and submit to the Engineer all Shop Drawings, Product Data, Samples and other Submittals required by the Contract regardless of whether the document originated with the Contractor or with some other subcontractor or supplier. They shall be submitted at the time required by the Contract, or, if no time is specified, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor that are not required by the Contract may be returned without action or may not be returned at all.
4. Informational Submittals upon which the Engineer is not expected to take responsive action may be so identified in the Contract.
5. The Engineer's review of any Submittal does not relieve the Contractor from its responsibility to follow the requirements of the Contract. The Engineer is not responsible for ensuring that Submittals are correct. Failure of the Engineer to discover that a submittal varies from the requirements of the Contract Documents shall not relieve the Contractor of its responsibilities to conform to the Contract nor provide a basis for a change order. Nevertheless, the Engineer shall review any Submittals provided in order to make a general determination about whether they appear to meet Contract requirements or the intended design of the project. The Contractor remains responsible for following the contract, including, but not limited to:
  - a. Confirming and correlating all dimensions;
  - b. Fabricating and construction techniques;
  - c. Coordinating the work with that of all other trades and subcontractors;
  - d. Satisfactorily performing the Work in strict accordance with the contract documents;
  - e. The means and methods of construction;
  - f. Conforming to all the requirements of the Contract.

## B. Submittals Shall Include:

1. Date and revision dates.
2. Project title and number.
3. Name of Contractor, Supplier and Manufacturer.
4. Identification of product material.
5. Relation to adjacent structure or material.
6. Field dimensions, clearly identified as such; other dimensions critical to product installation, or relevant to installation of other adjacent products.
7. Specification Section number.
8. Applicable standards such as ASTM, Federal Specification, etc.
9. Identification of deviations from Contract Documents.
10. Contractor's note or stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
11. Transmittal letter with all submittals containing: the number of drawings, data or samples submitted; notification of deviation from the Contract Documents; other pertinent data.

## PART 2 - PRODUCTS

### 2.01 SHOP DRAWINGS:

- A. Defined as: Original drawings prepared by the Contractor, Subcontractor, Supplier or Distributor which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
- B. Prepared by qualified detailer.
- C. Identify details by reference to contract sheet and detail number.
- D. Minimum size sheet 8"x11", maximum 24"x36".

### 2.02 PRODUCT DATA:

- A. Defined as: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
- B. Manufacturer's standard schematic drawings;
  - 1. Modify to delete extraneous information.
  - 2. Supplement standard information as applicable to project.
- C. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data;
  - 1. Clearly mark each copy to identify pertinent materials, products or models.
  - 2. Show dimensions, weights, and clearances required.
  - 3. Show performance data.

### 2.03 SAMPLES:

- A. Defined as: Physical examples to illustrate materials, colors, equipment or workmanship, and to establish standards by which completed work is judged.

## PART 3 - EXECUTION

### 3.01 CONTRACTOR'S RESPONSIBILITY:

- A. Review submittals prior to submission to Engineer. When tendering a Submittal for review, the Contractor represents that it has determined and verified materials, field measurements and field construction criteria related thereto, or shall do so, and has checked and coordinated the information contained with such Submittals with the requirements of the Work and of the Contract. The Contractor shall expressly note where any submittal differs from or varies from the requirements of the Contract, notwithstanding any belief on the part of the Contractor that the variance is obvious.
- B. Verify: field measurements, field construction criteria, catalog numbers and similar data.
- C. Coordinate with requirements of Work and Contract Documents.

- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's or Engineer's review of submittals.
- E. Contractor's responsibility for deviations from the Contract Documents is not relieved by review of submittals unless Engineer gives written acceptance of specific revisions expressly requested by the contractor.
- F. Begin no work which requires submittals until return of submittals with appropriate stamp and initials or signature indicating approval.

#### 3.02 SUBMISSION REQUIREMENTS:

- A. Submit at least 14 days before the date each reviewed submittal is needed.
- B. Submit 3 of copies of shop drawings and product data which the Contractor requires for distribution plus 2 copies which the Engineer will retain.

#### 3.03 ENGINEER'S REVIEW: The Engineer shall have fourteen (14) days to review any Submittals. The Engineer shall review the Submittals and return them to the Contractor stamped with one of the following notations:

- A. "APPROVED": This means that the Contractor immediately can begin the work encompassed by the Submittal.
- B. "APPROVED AS CORRECTED": This means the Contractor is required to make any revisions suggested by the Engineer and, upon correction, may immediately begin the work indicated by the Submittal or may incorporate the material or equipment covered by the Submittal into the Work.
- C. "REVISE AND RESUBMIT": This means the Contractor is required to revise the Submittal and resubmit it to the Engineer. No work shown on the Submittal, or which is dependent upon approval of the Submittal or material or equipment covered by the Submittal, may be incorporated into the Work until the Contractor has made the necessary revisions, resubmitted the Submittal and received the Submittal back marked either "APPROVED" OR "APPROVED AS CORRECTED"
- D. "NOT APPROVED": This means that the Engineer has found the Submittal, material or product data to be unacceptable and not in conformance with the Contract. Generally speaking, rejection of a Submittal simply indicates the Engineer's belief that the defects in the Submittal are so great that it cannot be revised in order to make it conform to the Contract. The Contractor may not begin work indicated by the Submittal, nor incorporate material or equipment, nor proceed with Work dependent upon approval of the Submittal, into the Work based on any Submittal, product data or material that has been marked "NOT APPROVED."
- E. "SUBMIT SPECIFIED ITEM": This means that additional information is required to permit a full review. Work may begin on incorporating the material or equipment covered by the Submittal into the Work, only if it is not affected by the item to be submitted. However, if any material or equipment is affected by the item to be submitted, then no work may begin until the Submittal is resubmitted and returned marked either "APPROVED" or "APPROVED AS NOTED."

#### 3.04 RESUBMISSION REQUIREMENTS:

- A. Revise initial drawings as required and resubmit as specified for initial submittal.
- B. Indicate changes which have been made other than those requested by the Engineer.

END OF SECTION

## PART 1 GENERAL 1.01

## GENERAL

All Products and Execution of the Work shall comply with Reference Standards as specified and defined herein and as supplemented in the respective Sections of the Specifications.

## 1.02 REFERENCE STANDARDS

- A. The term Reference Standards as used throughout these specifications shall include Standard Specifications, Manufacturer's Directions or recommendations, and all applicable Codes, Policies, Regulations, and Ordinances, issued by authorities having jurisdiction.
- B. Reference Standards listed in the respective Sections of the Specifications shall be in addition to Reference Standards specified in this Section.

## 1.03 STANDARD SPECIFICATIONS

Reference herein to specifications issued by organizations or governmental bodies shall mean edition current on date of Invitation to Bid, unless otherwise noted. Wherever reference standard specifications contain provisions which conflict with these Contract Documents the Contract Documents shall govern.

Reference to ES reports, shall include current evaluation reports recognized by ICC, whether originated by ICBO, ICC, BOCA or other recognized code agency.

Comply with applicable Federal, State and Local Standards for VOC limitations, hazardous materials, etc.

## 1.04 MANUFACTURER'S DIRECTIONS

- A. All manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, protected, and conditioned as directed by the manufacturer's printed instructions, unless specifically instructed to the contrary in writing by the Engineer.
- B. The Contractor shall provide all accessories, incidentals, processes and labor required to complete the installation as provided in the manufacturer's recommendations.
- C. Should any provision in these Contract Documents be in conflict with manufacturer's recommendations, or in any other way reduce or nullify the manufacturer's warranty or responsibility, notify the Engineer in writing prior to ordering the respective manufacturer's product.

## 1.05 CODE REQUIREMENTS

- A. The requirements of the Oregon State Structural Specialties Code and Fire and Life Safety Code, current edition; Oregon State Plumbing Code, current edition; Oregon State Mechanical Code, current edition, the Oregon State Electrical Code current edition, and the Oregon Fire Code shall govern all construction.
- B. Comply with all applicable local, State, and Federal environmental regulations.
- C. Comply with all applicable safety codes, including but not limited to the "Oregon Occupational Safety and Health Code", and Workmen's Compensation Board OAR 437-83-2754 and 2755.

END OF SECTION

## PART 1 GENERAL

## 1.01 ABBREVIATIONS:

- A Reference to technical society, institutional, association or governmental authority is made in accordance with the following:

AA	Aluminum Association
AAMA	American Architectural Metals Assoc.
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	Air-Conditioning and Refrigeration Institute
ARMA	Asphalt Roofing Manufacturer's Assoc.
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Society
AWPA	American Wood Preservers' Assoc.
AWS	American Welding Society
AWWA	American Waterworks Association
AASHO	American Association of State Highway Officials
ASSE	American Society of Sanitary Engineering
CGA	Canadian Gas Association
CISPI	Cast Iron Soil Pipe Institute
CPSC	Consumer Product Safety Commission
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard of the U.S. Dept of Commerce
CSA	Canadian Standards Association.
CSI	Construction Specifications Institute
CTI	Ceramic Tile Institute of America
DOC	Department of Commerce
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories
FCC	Federal Communications Commission
FDA	Food and Drug Administration
FHA	Federal Housing Administration (of HUD)
FM	FM Global
FS	Federal Specifications (from GSA)
FSC	Forest Stewardship Council
GA	Gypsum Association
GSA	General Services Administration
.HI	hydraulic Institute Standards
HUD	U.S Dept. of Housing and Urban Development
IBC	International Building Code (as modified by OSSSC)
ICBO	International Conference of Building Officials
ICC	International Code Council
KCMA	Kitchen Cabinet Manufacturers Assoc.
MSS	Manufacturers Standardization Society.
NAAMM	National Association of Architectural Metal Manufacturers
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NECA	National Electrical Contractors Assoc.
NEMA	National Electrical Manufacturers Assoc.
NFGC	National Fuel Gas Code
NFPA	National Fire Protective Association, Inc.
NRCA	National Roofing Contractor's Association
NSF	National Sanitation Foundation
OEESC	Oregon Energy Efficiency Specialty Code
OESC	Oregon Electrical Specialty Code
OMSC	Oregon Mechanical Specialty Code
OPSC	Oregon Plumbing Specialty Code
OSHA	Occupational Safety and Health Administration
OSHC	Oregon State Highway Commission
ORSC	Oregon Residential Specialty Code (2008 ed)

## OSSC or OSSSC

## Oregon Structural Specialty Code (2010 ed.)

PS	Product Standard, U.S. Dept of Commerce
SIGMA	Sealed Insulating Glass Manufacturers Assoc.
SDI or S.D.I.	Steel Door Institute or Steel deck Institute (depending on context)
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
TCA	Tile Council of America
.TEMS	Tubular Exchanger Manufacturers Association.
TIMA	Thermal Insulation Manufacturer's Association
UL	Underwriter's Laboratories, Inc.
UBC	Uniform Building Code (as modified by OSSSC)
UPC	Uniform Plumbing Code
USDA	U. S. Department of Agriculture
WCLIB	West Coast Lumbermen's Inspection Bureau
WWPA	Western Wood Products Association

B. Other abbreviations used in these documents are in accord with ANSI Y1.1 "Abbreviation for Use on Drawings and in Text" , or are indicated in the Drawings or respective sections of the Specifications.

## 1.02 SYMBOLS AND MISCELLANEOUS ABBREVIATIONS

ACM	Aluminum Composite matl.	GYP	Gypsum	SL	Structural line (Metal Bldg)
AJH	Authority Having Jurisdiction	GB, GBD or <a href="#">GYP.BD</a>	= Gypsum Board	SG	Semi-Gloss
BD	Board	HPL	high pressure plastic lam	SQ	Square
BOT	Bottom of	HVAC	Heating Ventilating & Air Cond.	SS or S.STL.	Stainless Steel
B.U.	Built-Up	ILO	In lieu of	STL.	Steel
C/C	Center to center	IN	Inches	SW	Sidewalk
CJ	Ceiling Joist(s)	ISF	Inside Face	TO	Top of, eg. T0.PL
CONC.	Concrete	LB or #	Pounds	TC	Top of Curb
CMU	Conc. masonry units	LSL	Laminated strand lumber	T&B	Top and Bottom
CMP	Corrugated metal panel	LVL	Laminated veneer lumber	UNO	Unless Noted Otherwise
EA.	Each	Matl.	Material	VCT	Vinyl Composition Tile
E/W	Each Way	MAX.	Maximum	WD	Wood
E.N.	Edge nailing (sheathing)	MEL	Thermoset melamine	WP	Water Proof
		MIN.	Minimum		
ENAM	Enamel	MTL	Metal	W/	With
ES	ICC Evaluation Service report	NTS	Not to Scale	W/O	Without
FNDN	Foundation	OC	On Center	WR	Water Resistant eg. WR.GB
FO	Face of; eg FO.CMU	OSB	Oriented Stand Board	WRB"	Water resistant barrier
FOM	Face of Masonry	OSF	Outside Face	"	Inches or second
FOC	Face of Concrete or Curb	P.D.F.	Power Driven Fastener	'	Feet or Minute
FOS	Face of Studs	PG	Paving Grade or Page	+	Plus
FSH	Face of sheathing	PL or	Property Line or Plate	-	Minus
FT	Feet	P.LAM or HPL	Plastic laminate.	/	Per; eg lb/sf
FTG	Footing	PN - P.N.	Perimeter nailing (sheathing)	#	Number or Pounds
GVP	Gypsum Veneer Plaster	PSF	Pounds/sq.ft.	X	By ; eg. 2 x 4
G.I	Galvanized Steel / Iron	PSI	Pounds/ <a href="#">sq.in.</a>	%	Percent
		PSL	Parallel strand lumber	@	At

END OF SECTION

## PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
  3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Repair and restore construction disturbed by inspection and testing activities.

### 1.03 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
1. Inspections and testing required by the OSSC and in particular OSSC Chapter 17 relating to Structural Tests and Special inspections are applicable to this project. Inspections and Tests required by OSSC shall be the Contractor's responsibility unless specifically indicated elsewhere in the contract documents to be the Owner's responsibility.
  2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.
  3. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services. The Contractor shall coordinate and cooperate with the Owner's testing agency.

- B Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work.
  2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
  3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
  4. Provide facilities for storage and curing of test samples.
  5. Deliver samples to testing laboratories.
  6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
  7. Provide security and protection of samples and test equipment at the Project Site.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Engineer and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
  3. The agency shall not perform any duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities, and shall include these events in the Contractor's Construction Schedule. Times for proposed inspections, tests, and sampling shall be incorporated into the Contractor's Construction Schedule."

#### 1.04 SUBMITTALS

##### A. Testing Schedule

Prior to proceeding with the Work, the General Contractor shall submit, for approval by the Engineer, a schedule of required testing and Inspections, including the names addresses and phone numbers of the proposed testing agencies.

- B. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
2. Submit a final report with closeout submittals, documenting all required special inspections and correction of any discrepancies noted in the inspections. This may be a copy of report required by OSSC 1704.1.2.
3. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:
  - a. Date of issue.
  - b. Project title and number.

#### **BIOSOLIDS CONVEYOR**

- c. Name, address, and telephone number of testing agency.
- d. Dates and locations of samples and tests or inspections.
- e. Names of individuals making the inspection or test.
- f. Designation of the Work and test method.
- g. Identification of product and Specification Section.
- h. Complete inspection or test data.
- I Test results and an interpretation of test results.
- j. Ambient conditions at the time of sample taking and testing.
- k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
- l Name and signature of laboratory inspector.
- m. Recommendations on retesting.

#### 1.05 QUALITY ASSURANCE

- A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' Recommended Requirements for Independent Laboratory Qualification and that specialize in the types of inspections and tests to be performed.
1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

#### PART 2- PRODUCTS (Not Applicable)

#### PART 3- EXECUTION

##### 3.01 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

**PART 1 GENERAL****1.01 RELATED WORK SPECIFIED ELSEWHERE:**

A. Removal of temporary facilities: 01 74 00 CLEANING & WASTE MANAGEMENT

**1.02 REQUIREMENTS OF REGULATORY AGENCIES:**

A. Comply with all applicable codes, ordinances and laws. Pay all permits and fees required for temporary facilities and controls.

**1.03 UTILITIES:**

A. Temporary Lights and Power:

1. Furnish adequate lights and power for safe working conditions, as required by O.S.H.A. or other applicable regulatory agencies.
2. Each Contractor shall provide extension cords and lamps as necessary for the work under his contract, and shall provide his own connections to and extensions from the power panel.
3. Cost of electrical power until the date of Substantial Completion shall be paid for by the Owner.

C. Telephone:

1. Provide a contact number for the project manager.

D. Temporary Toilets:

1. Contractor responsible to meet all State and Local requirements for sanitary facilities.
2. Provide adequate toilet facilities for all those connected with the project.
3. Maintain in sanitary condition.
4. Remove when directed and disinfect the premises.

E. Water:

1. Provide from a proven safe drinking source for all those connected with the work; serve in single service containers or drinking fountain.
2. All water used until substantial completion paid for by Owner.

**1.04 CONSTRUCTION AIDS:**

A. Provide all necessary construction aids, including, but not limited to ladders, ramps, hoists, runways, etc.

B Contractor shall be responsible for all such apparatus, equipment and construction meeting the requirements of labor and State and local laws.

**1.05 BARRIERS:**

A. Construct barricades, fences, railings, and similar safety precautions in accordance with, but not necessarily limited to applicable safety codes, including but not limited to the "Oregon Occupational Safety and Health Code", and WCD Administrative Rules 437-83-2754 thru 437-83-2755.

B. Project Limits Barricade: At Contractor's option.

**1.06 PROJECT ACCESS LOCATIONS:**

- A. Limit to locations approved by the Project Manager,
- B. Upon completion of the Project restore to original condition, unless noted otherwise.

**1.07 SPECIAL CONTROLS:**

- A. Noise Control: The Contractor shall prevent all unnecessary noise from his operations and those from his employees and subcontractors.
- B. Dust Control: During the entire period of construction, the Contractor shall exercise all reasonable and necessary means to abate dust. Necessary sprinkling and wetting shall be performed so that the site will not become excessively dusty at any time and the amount of dust carried in the air will be kept to a minimum.
- C. Rubbish and Debris: Allow no excess accumulation of non-reusable material at the job site. Dispose of accumulations of rubbish and debris in a satisfactory manner, in accordance with the rules and regulations of the pollution control agencies having jurisdiction.
- D. Protection of Existing Improvements:
  - 1. The Contractor is hereby cautioned and notified that he is responsible for the protection of existing improvements which are to remain in place, throughout the execution of this contract. Temporary enclosures, walls, covers, or other protection shall be provided and maintained.
  - 2. The Contractor shall be solely and directly responsible to the Owners and Operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damages which result from carrying out the work to be done under the contract.

**3. 1.08 RESTORATION OF EXISTING IMPROVEMENTS:**

- A. Restoration of Damage: Except as shown on the plans or as provided elsewhere in these specifications, the Contractor shall at his expense repair or replace curbs, sidewalks, driveways, utilities, street surfaces, plant materials, and any and all structures, substructures, and finishes damaged by his operations. This requirement extends to all such work now in place or completed prior to the time damage is incurred. These repairs and replacements shall be similar and equal in every respect to the original work, and acceptable to the Engineer.
- B. Restoration of Services: In the event of interruption to domestic water, or to other utility services as a result of the Contractor's operations, the Contractor shall promptly notify the proper authority. He shall cooperate with said authority in restoration of service as promptly as possible, and shall bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is received.

END OF SECTION

**PART 1 GENERAL****1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE:**

01 41 13 Codes and Standards

**1.02 PRODUCT DELIVERY STORAGE AND PROTECTION****A. Transportation and Handling:**

1. Timing: Arrange Product deliveries in accord with Construction Progress Schedule; coordinate to avoid conflict with Work and site conditions.
2. Delivery and inspection: Deliver Products undamaged, in Manufacturer's original containers or packaging, and with legible identifying labels intact. Immediately upon delivery, inspect shipments to assure that Products are properly protected and undamaged.

**B. Storage and Protection:**

1. General: Follow Manufacturer's instructions. Maintain product identity labels legible and intact. Store Products subject to weather damage in weather tight enclosures. Maintain storage at room temperature and humidity within ranges required by Manufacturer's recommendations.
2. Exterior Storage: Store fabricated Products above ground, on blocking or skids; prevent Product damage and discoloration. Cover Products subject to deterioration with impervious sheet coverings; provide adequate ventilation to prevent condensation.
3. Inspection of Stored Products: Arrange storage to permit easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained as specified and are free from damage, discoloration, and deterioration.
4. Protection after Installation: Provide substantial coverings as necessary to protect installed Products against damage. Remove covering when no longer needed.

**1.03 INAPPROPRIATE PRODUCTS AND METHODS:**

- A. Should any materials be found to be contrary to the Contract, the material no matter in what stage of completion, may be rejected by the Engineer and if rejected shall be removed from the site at once.
- B. If the Contractor believes that any specified product, method, or system is inappropriate for use, or any specified result cannot be achieved, he shall so notify the Engineer at least 7 days prior to Bid opening, or prior to execution of the Agreement if the project is not bid. Failure to deliver such notice of objection within the specified time limit, shall for the purposes of this Contract, establish that the Contractor agrees that the specified products, methods, or systems are appropriate, and achievable, and the Contractor's responsibility to provide and warrant such product, method, or system shall not later be voided or reduced. If after the agreement is signed, the Contractor notifies the Engineer that a specified result, product, or system cannot be provided, then it shall be the Contractor's responsibility to provide a substitute which is acceptable to the Engineer.

**PART 2 PRODUCTS****2.01 NUMBER OF ITEMS SPECIFIED:**

Wherever in these specifications an article, device, or equipment is referred to in the singular number, such reference shall apply to as many such articles as are shown on the Drawings or are required to complete the installations.

**2.02 CONFORMANCE WITH SPECIFIED PRODUCT DESCRIPTIONS**

- A. Conform to applicable Specifications and Reference Standards.

**BIOSOLIDS BUILDING**

- B. Furnish all materials of a kind by one manufacturer, except component parts of an assembly need not be the product of a single manufacturer unless otherwise indicated.
- C. Furnish all items new and free from defects, of size, type, and quality specified.
- D. Refer to Section 01 62 00 for requirements concerning proprietary specifications and product options.
- E. Items shown on the drawings, but not otherwise described or noted, shall be provided in conformance with applicable code requirements.

## PART 3 EXECUTION

### 3.01 PREPARATION AND INSPECTION

- A. No Product shall be applied or installed until conditions and surfaces are acceptable to Applicator or Installer. Prior to ordering products, field verify existing conditions and dimensions critical to product installation.
- B. Notify Engineer of unacceptable condition or surfaces.
- C. Failure to notify Engineer of unsatisfactory condition or subsurface before Work is started shall place full responsibility for final results upon the installer or applicator. This shall not relieve the General Contractor from any responsibilities under this Contract.
- D. Prior to covering, concealing or otherwise affecting the Work of other trades, verify with General Contractor that the Work of the other trade is complete and may be so concealed, covered, or affected. A Subcontractor who fails to make such verification shall assume complete responsibility for any necessary corrective measures. This requirement shall not relieve the General Contractor from any responsibilities under this Contract.

### 3.02 MANUFACTURER'S INSTRUCTIONS:

Perform Work in accord with manufacturer's instructions. Do not omit preparatory or installation procedures required by Manufacturer, unless specifically modified or exempted by Contract Documents. When Contract Documents require Work to comply with Manufacturer's instructions, obtain and distribute such instructions to parties performing Work, and if requested, include copy to the Engineer. Maintain one copy of Manufacturer's instructions at job site during installation and until acceptance. Handle, install, connect, clean, condition, and adjust Products in strict accordance with Manufacturer's instructions and in conformance with specified requirements. Should job conditions or specified requirements conflict with Manufacturer's instructions, consult Engineer for further instructions. Do not proceed with Work without clear instructions.

### 3.03 RESTORATION OF DAMAGE:

Except as shown on the plans or as provided elsewhere in these specifications, the Contractor shall at his expense repair or replace curbs, sidewalks, driveways, utilities, street surfaces, plant materials, and any and all structures, substructures, finishes and other work damaged by his operations. This requirement extends to all such work now in place or completed prior to the time damage is incurred. These repairs and replacements shall be similar and equal in every respect to the original work, and acceptable to the Engineer.

END OF SECTION

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE:

01 33 23 Shop Drawings Product Data and Samples  
01 60 00 PRODUCT REQUIREMENTS

### 1.02 PRODUCTS LIST

Before Contractor's first request for payment, submit to Engineer complete list of major Products proposed for use; include proprietary names, Manufacturer's name, and installing subcontractor's name.

### 1.03 CONTRACTOR'S OPTIONS

- A. Definition of Descriptive Specification: For the purposes of this Contract Descriptive Specification shall mean one or more listed requirements describing a Product, or reference to Standard Specifications or Standards issued by a named Agency, Manufacturer or similar Organization.
- B. For Products specified only by Descriptive Specifications select any product meeting specified requirements.
- C. For Products specified by listing proprietary names of Products:
  - 1. If no Descriptive Specification is included, select any named Product.
  - 2. If descriptive specification is included it shall take precedence. Contractor shall verify with supplier that the named Product may be provided to meet the requirements of the descriptive specification including requirements in addition to named manufacturers regular standards. If Product cannot be provided to meet the specifications, notify Engineer at least seven days prior to Bid Opening, or prior to execution of the Agreement if the Project is negotiated. Failure to deliver such notice within the specified time limit shall for the purposes of this Contract establish that the Contractor has made the required verifications, and he shall be responsible either to provide the Product as specified, or to provide an approved substitute Product at no additional cost to the Owner.
- D. Items shown on the drawings, but not otherwise described or noted, shall be provided in conformance with applicable code requirements.

### 1.04 SUBSTITUTIONS:

- A. Submit requests for substitution approvals in triplicate and include complete data substantiating compliance of proposed substitution with Contract Documents as follows:
  - 1. Identity of product for which substitution is requested, including specification page and paragraph.
  - 2. Identity of proposed substitution, including drawings, photographs, performance and test data, and any other information necessary for evaluation.
  - 3. Quality comparison of proposed substitution with specified product.
  - 4. Changes required in other Work because of substitution.
  - 5. Effect on Construction progress schedule.
  - 6. Cost comparison of proposed substitution with specified product.
  - 7. Any required license fees or royalties.
  - 8. Availability of maintenance service.
  - 9. Source of replacement materials.
- B. In making request for substitution, Manufacturer/Contractor represents:
  - 1. He has personally investigated proposed Product, and determined that it is equal to or superior in all respects to that specified.
  - 2. He will provide the same guarantee for substitutions as for product specified.

3. He will coordinate installation of proposed substitution into Work, making such changes as may be required for the Work to be complete in all respects.
4. He waives all claims for additional costs related to substitution which consequently become apparent.
5. Data submitted with substitution request is complete and accurate.

C. During Bidding Period:

1. No request for approval will be considered unless written request in triplicate has been received by the Engineer at least seven days prior to date set for bid opening.
2. Request submitted without self addressed and stamped envelope will not be individually acknowledged.
3. Engineer will issue addenda prior to Bid Opening listing all approved substitutions.

D. After Contract Award approval will be granted only when:

1. Specified product can not be delivered without project delay, or
2. Specified product has been discontinued, or
3. Specified product has been replaced by a superior product, or
4. Specified product can not be guaranteed as specified, or
5. Specified product will not perform properly, or
6. Specified product will not fit within the designated space, or
7. Specified product does not comply with governing codes or regulations, or
8. Substitution will be clearly in Owners interest.

E. Substitutions will not be considered if:

1. They are indicated or implied on shop drawings or project data submittals without formal request for substitution as described herein above.
2. Acceptance will require substantial revision of the Contract Documents.
3. Engineer does not agree that the proposed substitution meets the requirements listed herein above.

**SUBSTITUTION REQUEST FORM**

TO: Rogers Engineering  
558 SE Jackson ST..  
Roseburg, OR 97470

**PROJECT: RUSA Biosolids Building**

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

Section	Paragraph	Specified Item
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Proposed Substitution

Attached data includes product description, specifications, drawings, photographs, performance and test data, adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The Undersigned also states that the following paragraphs, unless modified on the attachments, are correct.

1. The proposed substitution does not effect dimensions shown on the Drawings.
2. The Undersigned will pay for changes to the building design, including engineering, design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.

Submitted by:

Signature

For Use by Design Consultant

Accepted                       Accepted as Noted

Not Accepted                       Received Too Late

Firm

\_\_\_\_\_  
Address

By \_\_\_\_\_

Date

\_\_\_\_\_  
Telephone

Remarks

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Attachments:

END OF SECTION

BIOSOLIDS BUILDING

**PART 1 GENERAL****1.01 DESCRIPTION:****A. Related requirements specified elsewhere:**

1. Section 01 11 00: Summary of Work
2. Section 01 31 13: Coordination

**B. Execute cutting, patching and fitting required to:**

1. Make all Work fit properly.
2. Uncover Work to provide for installation of ill-timed Work.
3. Remove and replace defective Work, or Work not conforming to the Contract Documents.
4. Repair and restore construction disturbed by inspection and testing activities.

**1.02 PAYMENT FOR COSTS:**

Costs caused by defective or ill-timed Work or Work not conforming to the Contract Documents, including costs of additional professional services shall be borne by the Contractor.

**PART 2 PRODUCTS**

2.01 Materials for the replacement of Work removed shall comply with the Contract Documents for type of Work to be done.

**PART 3 EXECUTION****3.01 PREPARATION AND PROTECTION:**

- A. Obtain written permission from Engineer or his representative prior to removing, bending, boring, or making cuts or cores in any structural element other than as specifically indicated in the Drawings and Specifications.
- B. Provide shoring, bracing and support as required to maintain structural integrity of the Project.
- C. Provide protection for other portions of the Project, including protection from the weather or other sources of damage.

**3.02 PERFORMANCE:**

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- B. Execute cutting and demolition work by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.
- C. Restore Work which has been cut or removed; install new products to Provide completed Work which is in compliance with the Contract Documents.
- D. Refinish entire surfaces as necessary to provide an even finish, to nearest intersections. Unless noted or detailed otherwise repairs and replacements shall match existing adjacent surfaces,

END OF SECTION

**PART 1 GENERAL****1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE:**

Rubbish Control and removal: Section 01 50 00 Temporary Facilities  
Project Closeout: Section 01 77 00

**PART 2 PRODUCTS****2.01 CLEANING MATERIALS**

Use only those which will not create hazards to health or property, and which will not damage surfaces.  
Use only those recommended by Manufacturer of surface to be cleaned.  
Use only on surfaces recommended by cleaning material manufacturer.

**PART 3 EXECUTION****3.01 GENERAL**

Follow cleaning Material and Surface Manufacturer's instructions.

**3.02 DURING CONSTRUCTION**

- A. Remove rubbish and debris on regular basis.
- B. Clean surfaces prior to painting and continue cleaning as needed until painting is complete.
- C. Schedule cleaning so that resultant dust and contaminants will not fall on wet or newly coated surfaces.

**3.03 FINAL CLEANING**

- A. Perform final cleaning prior to Owner Occupancy or Final Completion, whichever of the two is earlier.
- B. Employ skilled workmen for final cleaning.
- C. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign matter from all exposed interior and exterior surfaces...
- D. Hose clean exterior paved surfaces; rake clean other surfaces of grounds, after removal of temporary facilities. Remove nails and other ferrous metal debris from grounds with magnetic pick-up.

END OF SECTION

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Comply with Contract Conditions and specified administrative requirements in closing out Work. In particular note the following requirements:
1. Liquidated damages: General Conditions
  2. Cleaning and Trash Removal: 01 74 00 Cleaning
  3. Record Documents: 01 78 39 Project Record Documents
  4. Operation and Maintenance Data: 01 78 23

### 1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers Work Substantially Complete, as defined in the General Conditions he shall submit to Engineer:
1. Written notice that Work, or designated portion thereof is Substantially Complete.
  2. List of items to be completed or corrected.
- B. Engineer will, as soon as possible after receipt of notice, inspect to verify completion status.
- C. Should Engineer consider that Work is not Substantially Complete:
1. Engineer will notify Contractor in writing, giving reasons therefore.
  2. Contractor shall remedy Work deficiencies, and send second notice of Substantial Completion to Engineer.
  3. Engineer will reinspect Work.
- D. When Engineer concurs that Work is Substantially Complete, he will:
1. Prepare Certificate of Substantial Completion using AIA form G704, accompanied with Contractor's list of items to be completed or corrected, as verified by Engineer.
  2. Submit Certificate to Project Manager and Engineer for their written acceptance of the responsibilities assigned to them in the Certificate.

### 1.03 FINAL COMPLETION

- A. When Contractor considers Work complete, he shall submit written certification that:
1. Contract Documents have been reviewed.
  2. Contractor has inspected Work for compliance with Contract Documents.
  3. Work has been completed in accordance with the Contract Documents.
  4. Equipment and Systems have been tested in presence of Owner's Representative and are operational.
  5. Work is complete and ready for final inspection
- B. Engineer will, as soon as possible after receipt of Contractor's Certification, inspect to verify completion status.
- C. Should Engineer consider Work incomplete or defective:
1. Engineer will notify Contractor in writing, listing incomplete or defective Work.
  2. Contractor shall immediately remedy deficiencies, and send second written certification to Engineer that Work is complete.
  3. Engineer will reinspect Work.
- D. When Engineer finds Work acceptable under Contract Documents, he shall request final closeout submittals.

#### 1.04 REINSPECTION FEES

- A. Should Engineer be required to make more than two final inspections due to Contractor's failure to correct specified deficiencies, Owner will compensate Engineer for additional services, and deduct Engineer's compensation amount from Contractor's final payment as follows:
1. Engineer's time at \$100.00 per hour.
  2. Engineer's employees at 2.5 times the direct personnel expense.
  3. Others at 1.20 times the direct cost incurred.
  4. Charges will be made for necessary travel time, commercial air fare, auto expense computed at 50 cents per mile, room and board, and all other expenses incurred in making inspections.

#### 1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. All closeout submittals shall be made at one time to Engineer, except that extra materials shall be delivered at one time to the Project site, with letter of transmittal listing items to Engineer with verifying signature of receipt by Owner's representative.
- B. Contractor shall submit evidence of payments and release of liens as follows:
1. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G706.
  2. Contractor's Affidavit of Release of Liens, AIA Document G706A including:
  3. Consent of Contractor's Surety to Final Payment, AIA Document G707.
  4. Contractor's release or Waiver of Liens.
  5. Duly sign and execute all submittals before delivery to Engineer.
- C. Submit the following documents and extra materials as required by code or specified elsewhere:
1. Building Official's Certificate of Electrical Inspections.
  2. Building Official's Certificate of Occupancy.
  3. Certificate of Insurance for Products and Completed Operations.
  4. Owners Operating and Maintenance Manuals; see Section 01 78 23.
  5. Project Record Documents; see Section 01 78 39.
  6. Warranties and Bonds; see Section 01 78 36, and the following:  
Roofing, Flashing, Damproofing: see Division 7, all Sections.
- D. Submit final statement of accounting to Engineer, including the following:
1. Original Contract Sum.
  2. Additions and deductions resulting from:  
Deductions for uncompleted Work.  
Penalties and Bonuses.  
Previous change orders.  
Deductions for Liquidated Damages.  
Deductions for Reinspection Payments.  
Other adjustments.
  3. Total Contract Sum, as adjusted.
  4. Previous payments.
  5. Sum remaining due.

#### 1.06 FINAL ADJUSTMENTS AND FINAL PAYMENT

- A. Engineer will prepare and issue final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.
- B. Contractor shall follow procedures specified in Supplementary Conditions in making final application for payment.

END OF SECTION

## 1.01 GENERAL

Compile full details for care and maintenance of materials, equipment, and systems, where specified herein or in other Specification Sections.

Instruct Owner's personnel in maintenance of Products and in operation of equipment and systems.

## 1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

01 33 23 Shop Drawings, Product Data, and Samples.

01 77 00 Closeout Procedures

01 78 39 Project Record Documents.

Demonstrating Electrical Equipment.

## 1.03 PREPARATION AND FORM OF SUBMITTALS

A. Data preparation shall be done by personnel:

1. Completely familiar with the requirements of this Section.
2. Trained and experienced in maintenance and operation of described products.
3. Sufficiently skilled as technical writer to communicate essential data.
4. Sufficiently skilled as draftsman to prepare required drawings.

## 1.04. GENERAL CONTENT OF ALL MANUALS:

A. Table of contents, neatly typed and systematically ordered, listing:

1. Contractor, name of responsible principal, address, and telephone number.
2. Each Product including name, address, and telephone number of  
Subcontractor or installer  
Recommended Maintenance Contractor  
Local source for replacement parts

B. Product Data:

Include only those sheets which are pertinent to specified Product. Annotate each sheet to clearly identify specific product or part installed and data applicable to installation. Delete references to inapplicable data.

C. Drawings:

1. Supplement product data where necessary to clearly illustrate relationship of component parts, and control or flow diagrams.
2. Do not use Project Record Documents as Maintenance Drawings.

D. Written Text:

1. Provide where necessary to supplement Product Data and Drawings.
2. Provide logical sequence of instructions for each procedure.
3. Organize text with separate headings for different procedures.

E. Warranties, Bonds, and Maintenance Contracts:

1. Provide copy of each.
2. Include proper procedures in event of failure.
3. Include instances which might affect validity of Warranties, bonds, or Contracts.

## 1.05 MANUAL FOR MATERIALS AND FINISHES

A. Include Manufacturer's Data as follows:

Catalog number, size, composition, color and texture designations. Required reordering information.

Recommended cleaning materials, methods, and maintenance schedules. Cautions against detrimental cleaning materials and methods.

#### 1.06 MANUAL FOR WEATHER PROTECTION MATERIALS

- A. Include Manufacturer's data as follows:
- Applicable manufacturing standards.
  - Instructions for inspection, maintenance and repair.

#### 1.07 MANUALS FOR ELECTRICAL EQUIPMENT AND SYSTEMS

- A. Include the following Data:
1. Equipment Directory:  
List equipment, by nameplate designation, location and area served. Describe function, operating characteristics, and limiting conditions.
  2. Electrical panelboard circuit directories indicating:  
Electrical Service  
Controls  
Communications, if any.

#### 1.08 ADDITIONAL DATA

Prepare and include additional data:  
When need becomes apparent during instruction of Owner's personnel. As specified in other Sections of Specifications.

#### 1.09 SUBMITTAL SCHEDULE

- A. Preliminary Draft:
1. Submit two copies of proposed format.
  2. Engineer will review, and return one copy with comments.
- B. Final Submittal:
- Submit in final form, one complete copy, 15 days prior to Final inspection.
  - Copy will be returned with comments
  - Submit 2 copies, in approved final form, with closeout submittals.

#### 1.10 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final acceptance, instruct Owner's Personnel in necessary operation, adjustment and maintenance of Products, Equipment and Systems.
- B. Operating and Maintenance Manual shall constitute basis of instruction.
- C. Review manual with Owners personnel in detail to explain all aspects of operations and maintenance.

END OF SECTION

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Bonds and Insurance required prior to Construction, and General and Extended Warranties by General Contractor, are specified in the General Conditions.
- B. Submittal of Bonds and Warranties specified herein: Section 01 77 00.

### 1.02 CERTIFICATES OF WARRANTY

- A. Provide for all Products incorporated into the Work when required by the respective Sections of the Specifications.
- B. Certificates of Warranty or Guarantee required by this Section or in the respective Sections of the Specifications, are in addition to warranties or guarantees required from the General Contractor and Specified in the Supplementary Conditions, and will in no manner reduce or nullify the General Contractor's warranty or guarantee responsibilities.
- C. All Certificates of warranties and guarantees shall:
  - 1. Be type written or professionally printed and be duly signed by the installing Subcontractor, or representative of the Product Manufacturer, authorized to legally bind the Subcontractor or Product Manufacturer.
  - 2. Warrant that the Product will be replaced or properly repaired, without delay and without cost to Owner, should the Product fail to properly function or provide proper service within the specified warranty period.
  - 3. Warranty period shall begin upon Substantial Completion, or if a Certificate of Substantial Completion is not issued, or if Work which is to be covered by warranty is not then complete, Warranty period shall begin upon the date of Final Acceptance.
  - 4. Additional warranty conditions shall be as specified in the respective Sections of the Specifications.
- D. Warranty Submittals Shall include:
  - Project name and address
  - Description of Product, and reference to Specification Section
  - Length of Warranty as specified.
  - Date of beginning for Warranty Period.
  - Conditions of warranty as specified above.
  - Additional conditions of warranty as required for Product by Specifications.
  - Statement that the signator agrees to provide said warranty.
  - Typed Name of individual signing warranty, signature, and date.
- E. Submit with Project Closeout Submittals as specified in Section 01 77 00.
- F. Where extended Warranties or specific conditions of Warranty are called for in the respective Sections of the Specifications or in the Supplementary Conditions, but where no Certificate of Warranty is required to be submitted, the General Contractor may, at his option, and to protect his own interests, require the respective Subcontractors or Suppliers to provide him with Certificates of Warranty covering his Warranty obligations to the Owner.

### 1.03 UNCOVERING AND CORRECTION OF WORK - WARRANTIES

- A. Warranty Period:
  - 1. The warranty period relating to faulty Products and workmanship will begin on the date appearing on the Certificate of Substantial Completion, or if a Certificate of Substantial Completion is not issued, on the date appearing on the final Certificate for Payment to the Contractor, whichever is earlier. The Owner's occupancy or use of the Project will not alter the Warranty Period herein defined.

## **BIOSOLIDS BUILDING**

2. The Contractor shall and hereby does warrant against ordinary wear and usage the following Work as noted, and for the following periods of time after the start of the Warranty Period as defined above:
- a. Warranties for Work and for periods of service as called for in the respective Sections of the Specifications, regardless of limitations or conditions written into any certificates of warranty or guarantee which might be submitted.
  - b. 10 years: Weather tightness of Sealants, Roofing, Moisture barrier, Damproofing, Flashing, Roof Accessories, and other Work which is a component part of Roofing or other weather protective or moisture protective elements of the Work.
  - c. 3 years: Applied finishes against delaminating from surface to which applied.
  - d. 2 years: Electrical work and equipment.

The above warranties are an extension to run concurrently with the one-year statutory warranty, and are in addition to any Guarantee, Bond or warranties called for elsewhere in the Contract Documents.

Should any Work covered by Warranty fail to properly function or to provide proper service within the Warranty period, the Contractor shall correct the defect immediately, at no cost to the Owner, following receipt of written notice from the Owner. Should any other damage be incurred, either as a direct result of the subject defect, or as a result of the Contractor's failure to promptly correct the defect, then the Contractor shall also correct the resulting damage to the Owner's satisfaction, at no additional cost, whether or not said damage is to Work provided under this contract. If delay in correction of a defect covered by warranty can reasonably be expected to create a risk of significant future damage, contingent expenses, or danger to persons or property, and if the Contractor does not act with promptness commensurate to such risk, or if the Owner cannot contact the Contractor after making a reasonable effort, then the Owner may at his option, have the defect corrected and the Contractor shall pay all related costs billed to the Owner.

**Disclaimers and Limitations:** Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

**Reinstatement of Warranty:** When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty except that the remaining warranty period shall be a minimum of one year following acceptance of the subject correction Work.

END OF SECTION

### 1.01 MAINTENANCE OF DOCUMENTS

A. Maintain at Project Site for Owner one record copy each of:

1. Contract Drawings and Project Manual.
2. Addenda, Field Orders, Change Orders and other Contract Modifications.
3. Other written instructions.
4. Approved Shop Drawings, Product Data, and Samples.
5. Field Test Reports.

B. Store Project Record Documents in field office apart from documents to be used for construction, and maintain in clean dry, legible condition; available at all times for inspection by Engineer or Owner.

C. Keep Record Drawings Current; do not Conceal any Work until required information has been recorded. Lack of current Record Documents shall be grounds for withholding progress payments.

### 1.02 RECORDING

A. Documents shall be maintained by a competent draftsman. If Engineer considers submitted drafting to be unacceptable, redraft until acceptable at no additional cost to Owner. Marking shall be by waterproof, felt tip pens.

B. Label each Document "PROJECT RECORD" in 1" high printed letters.

C. Required Drawings:

1. Maintain one print of Contract Drawings as "work set"; using Marking devices specified to record all Contract changes.
2. Prior to submittal, transfer recorded information to one additional print. Contractor may retain "work set" for his records.

D. Mark Drawings to record:

1. Depths of foundation elements in relation to floor elevation.
2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
4. Field changes of dimensions and details.
5. Changes made by Change Order or other Contract Modifications.
6. Details not on original Contract Drawings.

E. Specifications and Addenda: Legibly mark to record the following:

1. Manufacturer, trade name, catalog number, and Supplier of each Product actually installed.
2. Changes made by Change Order or other Contract Modification.

### 1.03 SUBMITTALS

A. Submit Record Documents as specified in Section 01 77 00 Closeout Procedures, accompanied by transmittal letter, in duplicate, containing:

1. Project Title.
2. Date.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor, or his authorized representative.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

General and Supplementary Conditions, Division 1, and accompanying Drawings.

03 20 00 Concrete Reinforcing

03 30 00 Cast-In-Place Concrete

### 1.02 QUALITY ASSURANCE

- A. Reference Standards: Conform to recommendations of ACI 318 and ACI 347.
- B. Design and Engineering Formwork Design and Engineering are Contractors responsibility.

## PART 2 PRODUCTS

### 2.01 FORM MATERIALS

- A. Plywood: APA Exterior "Plyform", or approved, class I, or class II, thickness as required to support concrete without visible deflection, at rate poured.
- B. Lumber Forms: 2 inch solid douglas fir, No. 2 grade.
- C. Round Column Forms: Seamless coated tube forms; Sleek, Sonotube, or Burke approved.
- D. Metal Forms: Conform to Standards of CRSI.
- E. Form Release Agent: Non staining, non grain-raising, free of mineral oils, and leaving no bond inhibiting residues.

### 2.02 ACCESSORY ITEMS

- A. Ties and Spreaders: Metal type acting as spreaders leaving no metal within 1" of concrete face, and no fractures, spalls, depressions or other surface disfiguration greater than 3/4 inch in size. Strap and wire ties acceptable on footing forms.
- B. Expansion Joint Filler: W.R.Meadows (Sealtight) Asphalt joint filler meeting ASTM D 994 or Fiber Joint filler meeting ASTM D1751. Non extruding, 1/2" thick unless noted otherwise.
- C. Expansion Joint sealer: W.R. Meadows #164, HI-SPEC®, Cold-Applied SOF-SEAL®, Sonolastic® NP1, or approved.

## PART 3 EXECUTION

### 3.01 COORDINATION

- A. Coordinate with others for installation of all cast in place items, allowing sufficient time between the erection of forms and placing of concrete to allow the various trades to properly install their work.
- B. Do not core or sleeve columns, beams or joists without Engineer's specific approval.

### 3.02 INSTALLATION

- A. Construct formwork to meet tolerances specified in ACI 347, section 203.1. Provide for openings, offsets, keyways, reglets, chamfers, blocking and other features required on the Work. Conform to shapes, lines, and surfaces shown in the Drawings and Specified.

- B. Build formwork to prevent washing out of mortar, leakage, spreading, shifting, settling, and visible deflection.
- C. Form all concrete surfaces. Earth sidewalls permitted only with Engineer's specific written approval.

### 3.03 TREATMENT OF FORMS

- A. General: Apply form release agents in strict accordance with Manufacturer's instructions, with special attention to rate and method of application.
- B. Board Forms: Keep wet prior to pouring; wet thoroughly just before placing concrete.

### 3.04 ACCESSORY ITEMS

- A. Ties and Spreaders:  
Set in straight rows, evenly spaced, pattern as approved or as shown in the drawings. No form ties in columns.
- B. Construction Joints:  
Provide where shown or as approved. Form to profiles detailed. Coat one side of metal key joints with bond breaking agent. Install as recommended by manufacturer. Refer to 03 20 00 for reinforcing at construction joint locations.
- C. Slab Expansion Joints:
  - 1. Provide where shown in Drawings and unless noted otherwise:  
Wherever slabs abut vertical surfaces,  
Wherever slabs extend through door openings at ends of foundation walls.  
Not over 15 feet spacing in any direction in slabs.  
Not over 10 feet spacing in exterior curbs and walks.
- D. Anchor Slots:  
Set in true vertical position, anchored securely in place. Provide for masonry abutting concrete, and for masonry veneer and furring; one slot for each abutment not more than 24" oc. for veneer.

### 3.05 FORM REMOVAL

Leave forms in place until concrete has attained sufficient strength to safely support its own weight plus any loads imposed upon it. Formwork not supporting weight of concrete may be removed in 48 hours, provided concrete has hardened sufficiently not to be damaged by form removal, and curing and protection operations are maintained.

### 3.06 REUSE OF FORMS

Engineer will approve reuse of forms provided they are in good condition and have been cleaned, repaired and resealed as required to achieve concrete finish equal to new forms.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

General and Supplementary Conditions, Division 1, and accompanying Drawings. 01 45 00 Quality Controls (Sampling and Testing)  
03 10 00 Concrete Formwork  
03 30 00 Cast In Place Concrete

### 1.02 QUALITY ASSURANCE

Reference Standards:  
CRSI Manual of Standard Practice, and current ASTM Standards.  
OSSSC Chapters 17 Testing and 19 Concrete.  
ASTM C 94 - Standard Specification for Ready-Mixed Concrete.  
ASTM C 1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.

### 1.03 SUBMITTALS

- A. Steel Reinforcing:  
Shop Drawings: Bending and placing drawings prepared in conformance with "Manual of Standard Practice for Detailing Reinforced Concrete Structures, ACI 315".

### 1.04 DELIVERY STORAGE AND PROTECTION

- A. Metal bar and wire mesh reinforcing:  
Identification: Each piece of reinforcing steel grade marked or each shipment accompanied by a certificate of compliance. Deliver all reinforcement to site, bundled, tagged and marked. Use tags indicating bar size, lengths and other information corresponding to markings shown on placement drawings.  
Store on site to protect from ice, mud, oil, and rust or other damage.  
Coordinate for special inspections and testing where required by OSSSC chapter 17, or ACI 318.

## PART 2 PRODUCTS 2.01 MATERIALS

- A. Bars: ASTM A615, Grade 60, unless noted otherwise.  
ASTM A706, Grade 60, for all bars to be welded, unless noted otherwise.
- B. Welded Wire Fabric: ASTM A185, 6x6-6/6 unless noted otherwise.
- C. Accessories: Conform to requirements of Reference Standards. Provide all items necessary for proper placing, spacing, supporting, and fastening of reinforcement in place. Provide galvanized or stainless steel metal accessories where portions will be exposed in finished surfaces.

## PART 3 EXECUTION

### 3.01 GENERAL

Conform to requirements of reference standards.

### 3.02 FABRICATION

- A. Conform to approved shop drawings except as such requirements may be exceeded by Drawings or Specifications. Welding, where required, by AWS certified welders only.
- B. Shop fabricate and cold bend in a manner that will not injure the material.

### 3.03 INSTALLATION OF METAL BAR AND WIRE MESH

#### REINFORCING

##### A. Positioning:

1. Accurately position, support and secure against displacement. Do not cut, bend or displace reinforcing for convenience of other trades. Insure that reinforcing is protected by required thickness of concrete.
2. Mesh reinforcing for slabs poured on grade shall be set on sand/gravel aggregate masonry dobies. Do not attempt to hook mesh up into slab during pour without dobies.

##### B. Splicing:

Tightly wire and tie with bars in tight contact.  
Minimum lap of bar splices: 36 diameters unless detailed otherwise.  
Minimum lap of Welded Wire Fabric: 1-1/2 x mesh spacing, eg. 9" for 6x6 mesh.  
Provide standard splices at corners, and as required, except do not splice in self supporting slabs, beams, joists or headers unless specifically detailed and shown on approved placement drawings.

##### C. Tying:

Wire tie and support at intersections and at intervals not over 3'-0" horizontally and 6'-0" vertically. Suspend reinforcement by wires from forms in footings, or set on wide base wire chairs. Bars balanced on blocks, rocks or bricks not acceptable.  
Wire tie footing dowels in place before pouring.  
Stabbing dowels into wet concrete not acceptable.

##### D. Minimum Concrete Cover Concrete cover cast against earth (below footing reinforcing): 3" minimum.

1. Form Cast and exposed to earth or weather:  
No. 5 and smaller: 1-1/2"  
No. 6 and Larger: 2"
2. Not exposed to weather or earth: 3/4" unless noted otherwise.
3. Wall reinforcing.  
Single layer reinforcing: centered; 1/2" tolerance ea way.
4. Welded Wire Mesh in earth supported slabs: 1" top cover, minimum bottom cover = 2/3 slab thickness.

### 3.04 MINIMUM REINFORCEMENT

- A. Unless exceeded by reinforcing requirements shown in the Drawings and shown on approved placement drawings, provide minimum reinforcing specified hereinafter.
- B. Corners and Intersections: 2' x 2' bars; size and number to match horizontal reinforcing.

### 3.05 CLEANING AND DEFECTIVE MATERIALS

Remove all oil, grease, dirt, scale, loose rust and other bond reducing coatings not specified herein, and replace severely rust-pitted reinforcing.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

General and Supplementary Conditions, Division 1, and accompanying Drawings.  
01 45 00 Quality Controls (Sampling and Testing)  
03 10 00 Concrete Formwork  
03 20 00 Concrete Reinforcing

### 1.02 QUALITY ASSURANCE

- A. Reference Standards: ACI 318 and OSSSC Chapter 19 (2010 edition), as supplemented herein.
- B. Manufacturer's Qualifications: Manufacturer shall be regularly engaged in the manufacture and delivery of ready mixed concrete.
- C. Delivery Tickets: Delivery tickets as required by OSSC and ASTM C-94 Standard specification for Ready Mix Concrete shall be filled out completely for each concrete delivery, and tickets shall be sent to the Engineer.

### 1.03 TESTING

- A. Sampling and Testing will be done in accordance with ASTM C31, and C39, by an independent testing laboratory approved by the Engineer, and paid for by Contractor. Test results sent directly to the Engineer. Contractor shall coordinate with approved testing laboratory and arrange for testing.
- B. Samples for strength tests of each class of concrete placed each day shall be taken not less than once each day, or not less than once for each 150 cubic yards of concrete or not less than once for each 5000 square feet of surface area for walls or slabs. Not less than three cylinders shall be taken for each sample.

If the total volume of concrete is such that the frequency of testing required by the paragraph above would result in less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used. Test 1 cylinder from each sample at 7 days and 1 cylinders at 28 days. Retain 1 cylinder for testing if the 28 day break does not meet specifications.

Note that reference standards require slump and air content tests to be made each time samples are taken for concrete strength tests.

- C. Core samples and tests may be required at Contractor's expense if required cylinder tests are not taken as specified, or if 28 day test on any one cylinder falls more than 20% below specified strength, or if average of any three cylinders is less than specified strength.
- D. If core tests fall below specified design strength, replace structural portion in question at Contractor's expense.

## PART 2 PRODUCTS

### 2.01 GENERAL

Concrete shall be ready Mixed, complying with ASTM C94, and Reference Standards.

### 2.02 COMPOSITION AND STRENGTH

- A. Design Mix: Manufacturer fully responsible for mix design and performance. Fly ash content shall be as high as practical based on manufacturer's design mix requirements, weather, and specific product application. Indicate proposed content on design mix submittal prior to delivery.

## BIOSOLIDS BUILDING

- B. 28 Day Minimum Compressive Strength: 4000 psi.
- C. Maximum Slump: 6" with use of high range water reducers
- D. Maximum Aggregate Size: 3/4" unless otherwise noted or approved for special finishes.
- E. Air Entrainment: Non Air
- F. 2% by Cementous or 15 lb. per yard Crystalline Capillary Waterproofing Admixture
- G. Crack-Reducing Admixture
- H. 5# per yard macro fiber.

### 2.03 OTHER MATERIALS

- A. Floor Sealer: Sealtight "CS-309", AC Horn "Clear Seal 150", or approved.
- B. Bonding Agent: Larson Products "Weld-Crete", or approved.
- C. Construction Joints, Expansion Joints: Section 03 11 00.
- D. Membrane Under Interior Slabs on Grade: Section 31 20 00.
- E. Non-Shrink Grout: Factory premixed high strength grout similar to Embeco, Por-Rok, or Speed Crete.

## PART 3 EXECUTION

### 3.01 GENERAL

Conform to reference standards, as supplemented herein.

### 3.02 PREPARATION

- A. General:
  - 1. Arrange for specified testing; contact Engineer and Building Official at least 48 hours before intended pour. Notify Engineer immediately if pour is called off.
  - 2. Check forms for accuracy, rigidity, completion of embedded items and reinforcing; clean out forms and coat as specified prior to pour.
- B. Bonding:

Except where bond is obtained by use of concrete bonding agent, roughen adjacent concrete to expose bonded aggregate uniformly. Clean all contact surfaces and remove laitance, coatings, loose particles and foreign matter prior to placing adjacent pour.

### 3.03 ENVIRONMENTAL CONDITIONS

- A. Cold Weather:

Conform to recommendations of ACI-306. Protect all Concrete Work from reduced strength caused by frost, freezing, or low temperatures. Provide adequate means of maintaining temperatures of not less than 50 degrees F. when air temperature has fallen to or is expected to fall below 40 degrees F. Remove or replace frozen or frost damaged concrete at Contractor's expense.
- B. Hot Weather:

Conform to recommendations of ACI-305, "Recommended Practice for Hot Weather Concrete", as supplemented herein. Cover reinforcing steel with water soaked burlap, or shade as required to maintain steel temperatures at that or below that of ambient air temperatures. Wet forms thoroughly before placing concrete.
- C. Discontinue placement when, climatic conditions of sun, wind, and heat prevent proper

placement and finishing, or when directed by the Engineer.

### 3.04 PLACING CONCRETE

- A. Employ high frequency mechanical vibrators supplemented by hand spading as necessary to avoid honeycombing and achieve proper consolidation. Extend tip of vibrator into previous layer placed.
- B. Place Concrete in horizontal layers of uniform depth not more than 18" deep. Place as near final location as possible. Movement by vibrator not permitted. Stop pours only at joints where shown or approved. Concrete may be placed by pumping, but the use of aluminum pipe is prohibited.
- C. Avoid segregation of material due to excessive vibration, or drops in excess of 6 feet. Avoid damage to forms.
- D. Support mesh for slabs on chairs or lift completely above slab and work down approximately 1" with grid tamp.

### 3.05 CONSTRUCTION JOINTS

Verify locations and conformance with details; provide only where shown or approved by Engineer. Prepare as specified for proper bonding.

### 3.06 CONCRETE FINISHES

#### A. Slab Finishes - General:

- 1. Screed to true levels or slopes; remove surface water, laitance, and dirt; bring sufficient mortar to surface for proper finishing.
- 2. Do not use chemical dryers or absorb wet spots with neat cement or sand and cement mixtures.
- 3. Rough screed slabs to receive setting beds; finish other slabs monolithically without topping, unless noted otherwise.
- 4. Wait until surfaces are sufficiently dry for finishing.
- 5. Maximum variation in finished slab: 1/8" measured from 10 ft straight edge, laid on slab in any direction.

#### B. Trowel Finish:

- 1. Trowel to produce smooth, hard, dense surface, free from trowel marks.
- 2. Provide trowel finish for all interior slabs unless noted otherwise.
- 3. Avoid surface crazing or cracking due to over floating or troweling.

### 3.07 CURING

#### A. General:

- 1. Protect concrete from direct rays of sun, freezing, wash by rain, and drying for a minimum of 5 days, and until thoroughly hardened.
- 2. Keep forms wet until removed; if removed during curing period, keep walls wet with wet burlap or water spray.
- 3. Cover, apply heat, and/or use other approved means to prevent damage from freezing or premature drying.

#### B. Slab Curing:

- 1. Apply approved sealer in strict compliance with manufacturer's directions for application as a curing compound.
- 2. When temperature exceeds 75 degrees F. within 5 day curing period follow one of the following procedures in addition to the above:

Maintain fine fog spray to cover entire surface being cured.  
Completely cover area being cured with wet sand or burlap, and keep wet.  
Dam or curb slab edges and flood with minimum 1" of water for curing period.

### 3.08 CLEANING AND PATCHING

- A. Immediately following removal of forms or curing membranes, inspect all concrete surfaces and patch all pour joints, voids, form tie holes, honeycombed areas and other imperfections before concrete is thoroughly dry. Patch shall match adjacent surfaces unless noted otherwise for special finishes.
- B. Remove bituminous materials, form release agents, bond breakers, or other materials employed in concreting which would otherwise prevent proper application of sealants, waterproofing, or other finishes or treatments.
- C. Remove ledges and bulges:
- D. Where Concrete is under strength, out of line, exceeds tolerances, or shows objectionable cracks, honeycombing, staining, discoloration, rock pockets, or is otherwise defective, remove and replace or repair as directed by the Engineer at Contractor's expense.

### 3.09 GROUT AT BASE PLATES AND PIPE SLEEVES:

Grout pack solid with specified Non-Shrink Grout under metal base plates set on concrete, and around mechanical, electrical and other pipe where they pass through concrete walls or floors.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

General and Supplementary Conditions, Division 1, and accompanying Drawings. 01 45 00 Quality Control  
03 30 00 Cast in Place Concrete: Grout under base plates on concrete. 13 34 19 Metal Building Systems

### 1.02 WORK INCLUDED

Steel construction (if any) not included in Section 13 61 00. Steel angles, lintels, ledgers, bollards and similar items.

### 1.03 QUALITY ASSURANCE

- A. Reference Standards: Conform to requirements of:  
AWS "Code for Welding in Building Construction".  
AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings".
- ASTM E 935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2000.
- ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000.
- B. Qualifications of Welders: All welders qualified as prescribed in "Qualification Procedure" of the American Welding Society (AWS).

### 1.04 SUBMITTALS

- A. Submit shop drawings in accordance with Section 01 33 23 for all shop or field fabricated assemblies.
- B. Show all locations, markings, quantities, materials, sizes, shapes, joints and methods of joining, connecting, anchoring, fastening and attachment to work of other trades.

## PART 2 PRODUCTS

### 2.01 MATERIALS:

- A. Steel "W" Shapes: Conform to ASTM A36, grade 36.
- B. Steel "M", "C", "S", and "L" Shapes: Conform to ASTM A36.
- C. Welding Rods and Welding: Conform to requirements of AWS for intended use.
- D. Galvanizing:
1. Hardware items, including fasteners: Conform to ASTM A153.
  2. Items both under 1/8" thickness and fabricated from rolled, pressed, and forged shapes, plates, bars and strip: Conform to ASTM A386.
  3. Other galvanizing: Conform to ASTM A123.
- E. Bolts, Nuts, Screws, Washers:
1. Typical unfinished: ASTM A307 unless otherwise noted.

2. Expansion Bolts: Hilti "Kwik-Bolt Concrete Anchors"; Molly "Parabolt" concrete anchors, or approved.

F. Steel Plate: Conform to ASTM A283, Grade C.

G. Steel Tubing: Conform to ASTM A500, Grade B, Fy=46 ksi.

H. Bars, Flats, Rounds: Conform to ASTM A36.

I. Cast Iron: Conform to ASTM A48, soft grey iron.

J. Malleable Iron Castings: Conform to ASTM A47.

K. Shop Prime for Ferrous Metal: Rustoleum Corporation "960 Zinc Chromate Primer", "X-60 Red Bare Metal Primer", or "769 Damp Proof Red Primer", or approved.

### PART 3 EXECUTION

#### 3.01 PREPARATION:

- A. Coordinate with other adjoining and supporting work.
- B. Verify sizes, designs and location of all items; do so at site whenever construction progress permits.

#### 3.02 FABRICATION:

- A. Fabricate in accordance with specified Reference Standards, the Drawings and the approved shop drawings, from specified materials, and true to shapes, with sharp lines and angles.
- B. Miter corners and angles of frames and moldings unless otherwise noted.
- C. Punch, drill, shear, cut, thread and tap as required for items and adjacent Work.
- D. Drill or punch holes; do not cut holes with torch.
- E. Perform shearing and punching to leave clean lines and surfaces.
- F. Conform to minimum bending radii as required by specified reference standards. (Minimum bend 2 x plate thickness for plate up to 1" thick)
- G. Fabricate exterior items for assembly and installation on site without field welding of joint, unless specifically noted or approved.

#### 3.03 FASTENING:

- A. Provide fasteners and anchor assemblies required for complete fabrication, field assembly and erection.
- B. Conceal fastenings wherever practicable.
- C. Permanent shop connections in ferrous metal welded wherever practicable; avoid bolts and screws.
- D. Exterior items fabricated for bolted field joints.
- E. Bolted Connections:
  - 1. Use for field connections only, then only as noted; countersink heads, finish smooth and flush.
  - 2. Provide washers under heads and nuts bearing on wood.
  - 3. Use beveled washers where bearing on sloped surfaces.
- F. Screws: Where necessary for permanent connections in ferrous metal use flat head type; countersink, fill screw holes and finish smooth and flush.

G. Evenly space exposed heads; all heads in same direction.

### 3.04 WELDS

- A. Use electric shielded-arc process according to AWS code.
- B. Maintain shape and profile of item, prevent blisters, run throughs, and surface distortion.
- C. Exposed Welds: Remove burrs, flux, welding oxide, air spots and discoloration; grind smooth, polish or otherwise finish to match material welded.
- D. Field welding of interior or exterior items to be encased in concrete will be permitted: field welding of exposed exterior items not permitted.

### 3.05 FINISHES

#### A. Preparation of Surfaces:

- 1. Thoroughly clean to remove mill scale, rust, dirt, grease and other foreign matter from ferrous metal prior to painting, galvanizing, or hot phosphate treatment.
- 2. Completely eliminate burrs, rough spots, and pitting from exposed ferrous metal items.

#### B. Galvanizing:

- 1. Where galvanizing is noted, perform in accordance with specified ASTM Standards, after fabrication and in largest sections practicable.
- 2. Where galvanizing is removed by welding or other assembly procedures, touch up with molten zinc or zinc rich paint.

#### C. Painting:

- 1. Apply one coat of specified primer to all ferrous metals not noted or scheduled to be galvanized.
- 2. Apply in strict accordance with manufacturer's recommendations.
- 3. Spot paint abrasions and field connections after assembly.

### 3.06 INSTALLATION

- A. General: Install Work plumb, true, rigid, and neatly trimmed out.
- B. Fastenings: Do not clinch fastenings through finish alone without washer; fasten Work tightly to prevent rattle except where expansion-contraction tolerances are required.
- C. Protect dissimilar metals from contact with each other or with other materials causing corrosion.
- D. Use non-shrink grout as specified in Section 03 30 00 for setting frames, plates, sills, bolts, or other items in contact with concrete. Conform to grout manufacturer's recommendations for mixing placing and curing.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

General and Supplementary Conditions, Division 1, and accompanying

### 1.02 QUALITY ASSURANCE

- A. Reference Standards:  
Conform to recommendations of "Architectural Sheet Metal Manual" of the Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA) as modified herein and on the Drawings.
- B. Installer's Qualifications: Minimum of 4 years experience installing the subject Products.
- C. Warranty: Contractor's Warranty: Refer to Supplementary Conditions

### 1.03 DELIVERY STORAGE AND PROTECTION

Deliver and store materials protected from damage and discoloration.

Non ferrous and Stainless Steel sheet metal Products which are not scheduled to be painted and which are to be visible upon completion of the Work, shall be delivered with a continuous adhesive applied protective plastic or paper film, which shall be left in place until ready for final cleaning and finishing. Regardless of sequence or methods of fabrication, it shall be the responsibility of the installing subcontractor to coordinate and maintain protection of sheet metal surfaces until Final Completion, maintaining them free from damage, stain or discoloration.

## PART 2 PRODUCTS

### 2.01 SHEET METAL

- A. Gages: Sheet metal gages specified are minimums; provide heavier gages where required to maintain shape and alignment without waves and buckles.
- B. Galvanized Steel:
  - 1. Zinc-Coated Steel: Commercial quality with 0.20 percent copper, ASTM A526, except ASTM A527 for lock-forming, G90 hot-dip galvanized.
  - 2. Gage: 26 gage minimum, unless noted otherwise.
  - 3. Primer: Alkyd type Zinc Chromate Primer; Rodda, Sherwin Williams, or approved.
  - 4. Locations: All sheet metal work unless noted otherwise.
- D. Baked Enamel Prefinished Galvanized Steel:
  - 1. Prefinished Zinc-Coated Steel: Hot-dip galvanized steel, commercial quality AI S1 G90 extra smooth, primed on both sides and finished on 1 side with 70 percent KYNAR 500 based fluorocarbon coating of minimum 0.70 mils (1.8 mm) total dry film thickness. Minimum 10 year warranty against visible fade, blister, or rust.
  - 2. Strippable coating: Shop-applied liquid to front side of pre-finished metal to protect finish during fabrication, shipment, and field handling.
  - 3. Locations: As required for exposed flashing in connection with prefinished metal roofing.

### 2.02 OTHER MATERIALS

- A. Nails, Rivets and fasteners:

1. Connecting Ferrous Metals: Use only soft rivets having rust resistive coating, galvanized barb type nails and cadmium plated or stainless steel screws and washers.
2. Connecting Copper and High Copper Alloy Metals: Use only copper or copper clad stainless steel fasteners, nails, rivets, screws and washers, except that unclad stainless steel fasteners may be used if not visible upon completion.
3. Connecting Aluminum and Aluminum Alloys: Use only aluminum or stainless steel fasteners, nails rivets, screws, and washers.

B. Sealant: Silicone Type; Dow, GE, or approved.

## PART 3 EXECUTION

### 3.01 PREPARATION

#### A. Inspection:

1. Prior to starting Work of this Section, carefully inspect the installed Work of other trades and verify that they are complete and acceptable for proper installation of approved roofing products.
2. Field verify shapes and dimensions of surfaces to be covered prior to fabrication.
3. Coordinate with roofing and others trades affecting sheet metal Work.
4. Discrepancies:  
Do not proceed until all unsatisfactory conditions have been corrected.  
Proceeding with installation implies acceptance by the installing Subcontractor of all subsurfaces and other conditions affecting this Work.

### 3.02 INSTALLATION

#### A. General

1. Provide all sheet metal Work shown and as required for weather tight job.
2. Form materials accurately to shapes indicated, with lines and angles in true alignment, without waves, buckles, or tool marks using the best standards of modern sheetmetal practice, and in conformance with Reference Standards.
3. Make work weather tight.
4. Conceal fastenings, do not drive nails tight enough to warp metal.
5. Make proper allowance for expansion and contraction.
6. Reinforce corners as required for stiffness.
7. Unless noted otherwise, Hem exposed edges, and angle bottom edges of exposed vertical surfaces to form drip.
8. Protect contacting dissimilar metals from corrosion with approved asphaltic coating compound applied to each face, or hold separation with approved type glazing tape continuous between faces.

#### B. Painting:

1. Shop prime all sheetmetal except copper, stainless steel, and factory finished materials.
2. Touch-up damage to prime coat after installation.

#### C. Cleats:

1. Space 24" oc., unless continuous Cleats or other spacings are specified hereunder or shown in the Drawings.
2. Secure Cleats to substrate with two fasteners, and cover heads with Cleat Tabs.
3. Secure continuous cleats to substrate with Fasteners spaced 12" oc.

#### D. Rain Leaders:(down spouts)

1. Telescope joints 1-1/2" in direction of flow and make watertight.
2. Install clear of wall on hangers compatible with rain leader but 2 gauges heavier, spaced at top, bottom, and not over 6 ft. oc. in between.
3. Provide mitered down spout elbows where required.

E. Gutters:

1. Form to profiles indicated, with slope to outlets.
2. Secure to adjacent construction with appropriate fastener type as indicated in SMACNA manual.

END OF SECTION

---

## PART 1 GENERAL

### 1.01

#### DESCRIPTION

- A. Work in this section includes furnishing and installation of preformed steel ribbed roofing and siding where detailed, and metal accessories and trim necessary for a water-tight building.

### 1.02 RELATED WORK

- A. Installation of Flashing and Sheet Metal - Section 07 60 00 1.03

#### AUTHORIZATION OF INSTALLER

- A. The installer of the system shall be factory trained and authorized by the manufacturer to install the products specified herein. Evidence of manufacturer's certification for this project will be required.

### 1.04 SUBMITTALS

- A. Description Data: Submit manufacturer's descriptive data on materials to be provided. Data shall be sufficient to indicate conformance to all specified requirements including finish.
- B. Installation Instructions and Diagrams: Submit manufacturer's instructions and diagrams required to install complete system.
- C. Shop drawings as necessary to supplement the instructions and diagrams. Drawings shall be thorough and show all typical and special conditions including flashings, materials and thickness, all dimensions, all anchoring methods, sealant locations, fastener, layout sizes, and spacing, and provisions for thermal movement. Show pipe penetrations, roof caps, and other roofing penetrations by other trades in relation to standing seam layout.
- D. Samples: One sample of each of the following:
1. 2 foot long section of typical panel in color specified.
  2. Any Special Flashing designed specifically for this project. E

#### Warranties and Guarantees:

1. Upon completion of this portion of the Work, and as a condition of acceptance, deliver to the Owner a written guarantee, signed by the installer and endorsed by the preformed metal roofing manufacturer guarantying the following:
  - a. That the installed preformed metal roof system will remain intact and free from leaks for a period of five years following the date of final completion.
  - b. That the preformed metal roofing undercoating will remain intact for twenty years.
  - c. That the baked-on factory applied paint will remain intact, and a protective coating for a period of twenty years.
2. Contractor's Warranty: Refer to Contract Conditions

### 1.06 DELIVERY HANDLING AND STORAGE

- A. Deliver, store and handle preformed panels and other manufactured items so that they will not be damaged or deformed.
- B. Delivery: provide adequate packaging for materials which will protect them during shipment. Crated materials shall not be uncrated until ready to use, except for inspection. Immediately upon arrival of the materials at the job site, the Contractor shall inspect materials for damage, dampness, and staining. Damaged or permanently stained materials that cannot be restored to like-new condition shall be replaced with satisfactory material. If materials are wet, remove the moisture and restack and protect the panels until used.
- C. Handling: Handle material carefully to avoid damage to surface, edges and ends.
- D. Storage: Stack materials stored on the site on platforms or pallets and cover with tarpaulins or other suitable weather tight covering which prevents water trapping or condensation. Store panels so that water which might have accumulated during transit or storage will drain off. Do not store the panels in contact with materials that might cause staining, such as mud, lime, cement, fresh concrete or chemicals. Protect stored panels from wind damage.

#### 1.07 SYSTEM REQUIREMENTS

- A. Panels shall be continuous lengths with no joints or seams, except where indicated. Individual panels shall be removable for replacement of damaged material.
- B. There shall be no exposed or penetrating fasteners except where needed for trim flashings.
- C. Roof panel standing seams shall have continuous bead of flexible sealant applied between seams when roof pitch is 2/12 or less.

#### 1.08 PERFORMANCE REQUIREMENTS

- A. Wind uplift - resistance to wind uplift from winds 94.5 mph, exposure B.

### PART 2 PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURER

- A. 26 gage steel panels to match color of existing building.

#### 2.02 GENERAL

- A. Single Source: Wall panels, Roof panels, flashings and other accessories shall be the product of a single manufacturer.
- B. Panel Description:
  - 1. Pre-coated Galvanized Steel: ASTM A653- (A446)C, 40,000 pounds per square inch minimum yield strength. 26 gauge(26g). G90 Galvanized coated.
  - 2. Finish: Factory applied baked enamel, or fluoropolymer coating with minimum 10 year warranty against visible fade, blister, or rust. Approved Finish Systems: Primed both sides, finished one side with Kynar 500, PPG Industries "Duramar 200", Ceramcoat EP or approved; color selected by Engineer, from manufacturer's standard colors.
  - 3. Panel Lengths: Where physically possible and/or practical, panels are to be full length, from top to bottom of wall, and from ridge to eave,

### 2.03 OTHER ACCESSORIES

- A. Accessories: Sheet metal flashings, trim, closure strips, caps and other similar sheet metal accessories used in conjunction with preformed metal panels shall be of the same material and finish as used for the panels.
- B. Concealed Fasteners: Ultra Z low profile pancake head. Electro Zinc -Carbon Steel fasteners. #12 14 x 1 self drilling for metal applications. #12 11 x 1 bugle screw for wood applications. Atlas Bolt and Screw Co. or approved equal.
- C. Exposed Fasteners: Electro Zinc - Carbon Steel. Painted Hex head with neoprene washer. #12 x 2 self-driller for metal applications. #12 x 2 woodfast for wood applications. Atlas Bolt and Screw Co. or approved equal.
- D. Sealant: Kraton G block copolymer based elastomeric sealant, conforming to ASTM G-53-77. Adhesion Minimum 40 PLI on steel. Tensile and elongation conforming to ASTM D-2370. Flexoseal or approved equal.

### PART 3- EXECUTION

#### 3.01 INSPECTION

- A. Inspect surface to receive standing seam metal roofing and flashing. Substrate shall be plumb and true, clean, even, smooth and as dry as possible and free from defects and projections which might affect the installation. Report unsuitable conditions to Engineer.

#### 3.02 INSTALLATION

- A. Flashing: All flashing and related accessories in connection with the preformed metal panels shall be provided as indicated and as necessary to provide a weather tight installation. Details of installations which are not indicated shall be in accordance with NRCA Construction Details, SMACNA Architectural Sheet Metal Manual 5th ed., AA Specifications for Sheet Metal Work, panel manufacturer's printed instructions and details of the approved shop drawings. Installation shall allow for expansion and contraction of flashing.
- D. Flashing Fasteners: Fastener spacing shall be in accordance with the panel manufacturer's recommendations and as necessary to withstand the design loads indicated. Drive exposed penetrating type fasteners properly and drive so as not to damage factory applied coating. Exercise extreme care in drilling pilot holes for fastenings to keep drills perpendicular and centered. After drilling, remove metal filings and burrs from holes prior to installing fasteners. Fasteners shall not exceed that recommended by the manufacturer. Remove panels deformed or otherwise damaged by over-torqued fastenings, and provide new panels.

END OF SECTION

## PART 1 — GENERAL

### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

### 1.02 SUBMITTALS

- A. Not required.

### 1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Refer to Division 1, Summary of Work for description of work.

### 1.04 WORK INCLUDED

- A. Provide all materials, labor, equipment together with all incidental items not shown or specified, which are required by code and good practice to provide complete systems. Refer to Division 1, Summary of Work.

### 1.05 COORDINATION

- A. Coordinate all work in Division 22 with work specified in other Divisions to provide a complete installation. Expense of changes required because of lack of supervision or coordination shall be borne by the Contractor. Such changes shall be to the satisfaction of and directly supervised by the Engineer.

### 1.06 CONTRACT DRAWINGS

- A. Location of piping and equipment on Drawings is approximate. Plan exact location with respect to measurements on the job and work of other trades prior to work. If measurements differ slightly, modify work. If measurements differ substantially, notify Engineer prior to fabrication.

### 1.07 SITE VISIT

- A. Examine site of proposed work and become familiar with job conditions affecting work. No additional allowance will be granted due to lack of information of existing conditions.

### 1.08 SUBSTITUTIONS

- A. Manufacturer's and catalog numbers indicate quality of equipment or materials. Substitution requests must be made in writing to the Engineer prior to bid in accordance with Division 1, Product Requirements. Provide sufficient information indicating compliance with these Specifications.

### 1.09 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Not required.

### 1.10 RECORD DRAWINGS

- A. Provide record "as-built" drawings in accordance with Division 1, Project Record Drawings. Show all deviations from Contract Drawings, including addenda and change order items. Show depth of all stub outs and underground lines. Dimension all concealed piping from column grids or building lines. Transfer all information to reproducible drawings as required at the completion of the project.

### 1.11 PERMITS, CODES, AND INSPECTIONS

- A. Permits: Obtain all permits and pay fees required by governing agencies having jurisdiction over this work.
- B. Codes, Standards: Applicable codes and standards contained therein shall determine minimum requirements for materials, methods, and labor practices not otherwise stated herein.

- C. Inspections: Arrange and pay for inspections and tests required by codes or ordinances.

#### 1.12 CUTTING AND PATCHING

- A. In accordance with Division 1, Cutting and Patching.

#### 1.13 TEMPORARY SERVICES

- A. Provide in accordance with Section Division 1, Temporary Facilities and Controls as required for completion of Work.

#### 1.14 COMPLETION

- A. General: When installation is complete, demonstrate to Engineer that system is complete and operating in conformance with these Specifications.
- B. Final Inspection: Work hereunder will not be inspected for Substantial Completion until operating and maintenance data, record drawings and directories specified herein have been approved.
- C. Final Completion: Entire installation turned over to the Owner in finished and satisfactory working condition.

#### 1.15 WARRANTY

- A. Provide a written warranty covering Work of the Division for a period of one year in accordance with Division 1. Include manufacturer's written warranties for material and equipment.

### PART 2 — PRODUCTS

#### 2.01 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle materials and equipment in a manner to prevent damage and deterioration. Store in original container. Indoor units, if stored outside, must be covered.

#### 2.02 MATERIALS

- A. All materials employed in permanent construction shall be new, full weight, in first class condition and suitable for space provided. All similar materials shall be of one manufacturer.

#### 2.03 PIPES AND PIPE FITTINGS

- A. Steel Pipe: Schedule 40 pipe, black or galvanized, conforming to ASTM A120. Size 2" and smaller fittings shall be threaded.
- B. Copper Tube: Hard drawn copper conforming to ANSI H23.1 and ASTM B88. Type L above grade, type K below grade. Fittings shall be wrought copper 95-5 solder joint fittings, type K, conforming to ANSI B16.22.
- C. Plastic Sewer Pipe: PVC gravity sewer pipe and fittings conforming to ASTM D2665 with solvent weld DWV fittings and tracer wire where below grade.
- D. Plastic Pressure Pipe: PVC or ABS pressure pipe conforming to ASTM D2665 with solvent weld DWV fittings and tracer wire where below grade.

#### 2.04 EXCAVATION AND BACKFILL

- A. General: Refer to Division 2.
- B. Bedding and Backfill Material: Unclassified or native material shall be excavated materials, free of roots, large rocks, debris, clay or other foreign material.
- C. Crushed Rock: 3/4" minus, conforming to the latest Oregon State Highway Specification for base rock.
- D. Gravel: 1/2" by No. 4 washed pea gravel.

- E. Sand: Washed concrete sand or washed fill sand.

### PART 3 — EXECUTION

#### 3.01 PIPES

- A. Route piping in general locations indicated. Coordinate with other piping, ducts, conduits and equipment making necessary offsets. Install to conserve headroom and interfere as little as possible with use of available space. Group piping at common elevations wherever possible.
- B. Slope piping and arrange for drainage at low point.
- C. Provide clearance for proper installation of insulation and for access to other pipes, valves, and equipment as required. Install horizontal lines parallel with walls and partitions, vertical risers plumb and straight. Conceal piping above ceiling and within furring and walls unless otherwise indicated. Piping shall not be installed on the floor without prior approval.

#### 3.02 EXCAVATION AND BACKFILL

- A. Refer to Division 31. Determine location and elevation of underground utilities and uncover by hand digging. If damaged by Contractor, replace immediately at no expense to the Owner and as approved by Engineer.
- B. Completely de-water trenches and excavations before pipe is laid or concrete is placed. When necessary to prevent caving, excavation shall be adequately shored and braced. Shoring shall remain in place for 12" above pipe until testing and inspection are complete. Remove from site excavated materials not suitable for backfill. Delay backfill of trenches until all tests are performed and until after inspection and approval by governing authority. Repair any damage to existing streets, sidewalks, concrete piping, etc., at Contractor's expense.
- C. Excavation: Unless otherwise shown, piping outside the building shall have the following minimum cover over pipes:
  - 1. Match existing
- D. Width of trench shall be adequate to provide working space, but in no case less than 12" plus the inside diameter of the pipe to be placed therein. Provide 6" minimum between adjacent pipes.
- E. Grade Bottom of Trenches: Construct to lines and grades as shown or as required with proper allowances for pipe thickness and gravel base. Over excavation shall be corrected with approved materials, thoroughly compacted.
- F. Pipe Bedding: Provide the following minimum bedding materials:
  - 1. Piping = 3/4" crushed rock.
- G. Backfilling:
  - 1. Under building slabs, concrete slabs, paved areas, streets or sidewalks, all backfill shall be pea gravel or crushed rock. Fill material shall extend from the bedding material to the bottom of surfacing material. Fill all voids around pipe. Fill in 8" lifts and compact to 95% density of AASHTO-T-180.
  - 2. Should backfilled ditch show settlement at any time through one year guarantee period, Contractor shall bring ditch back to grade with compacted fill and repair any damage to concrete or paved areas caused by settlement..

#### 3.03 CLOSING IN UNINSPECTED WORK

- A. Do not cover up or enclose Work until it has been properly and completely inspected and approved.

- 
- B. Should any of the Work be covered up or enclosed prior to all required inspections and approvals, uncover the Work as required, make all repairs and replacement with such materials as are necessary to the approval of the Engineer and at no additional cost to the Owner.

### 3.06 CLEANING UP

- A. Prior to acceptance of Work building, thoroughly clean all exposed portions of the installation, removing all labels and all traces of foreign substances, using only a cleaning solution approved by the manufacturer of the plumbing item and being careful to avoid all damage to finished surfaces.

END OF SECTION

## PART 1 GENERAL

### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

Division 1, and accompanying Drawings.  
31 20 00 EARTHWORK

### 1.02 DEFINITIONS

- A. The term "clearing grubbing and demolition" includes removal of all existing objects (except those objects designated to remain) down to the existing ground level, plus other work as described in this Section.
- B. The term "debris" includes all non reusable materials.

### 1.03 JOB CONDITIONS

- A. General: Protect construction, vegetation, bench marks and monuments in areas to remain undisturbed until Final Completion. Leave in as good condition as found. Protect all trees not designated to be removed.
- B. Special controls: Refer to Section 01 50 00

## PART 2 PRODUCTS (As noted in the Drawings or Specified in Section 31 20 00 Earthwork)

## PART 3 EXECUTION

### 3.01 PREPARATION AND SITE INSPECTION

- A. Notify Engineer at least 2 full days prior to starting Work of this Section.
- B. Inspect entire site and all objects to be removed and to be preserved; determine all requirements for disconnection, capping or protection of existing utilities, as applicable.

### 3.02 Permits and Protections

- A. Remove materials using proper methods. Comply with Oregon DEQ. Obtain proper permits for removal, transportation, and disposal. Permits must be obtained by the contractor or their sub-contractor.
- B. Maintain a copy of disposal permits and dump records for all materials requiring disposal permits
- C. Specific care must be taken not to contaminate the interior of the existing building space with Asbestos, lead base paint or other hazardous materials.

### 3.03 DEMOLITION

Remove all existing construction designated to be removed or required to be removed for the completion of the Work.

### 3.04 CLEARING AND GRUBBING

Completely clear areas to be occupied by structures, fills or other improvements indicated on the Drawings, and scalp to remove all roots, grass, and other debris. Remove all stumps and roots to a depth of 18", and treat remaining ends of such stumps and roots over 3" in diameter with herbicide to prevent regrowth. Remove trees only where so noted on the Drawings.

## BIOSOLIDS BUILDING

3.04 DISPOSAL OF DEBRIS

Remove from site and legally dispose of all debris unless otherwise noted on the Drawings.

END OF SECTION

## PART 1 GENERAL

## 1.01 RELATED WORK SPECIFIED ELSEWHERE:

Division 1, and accompanying Drawings.  
 31 10 00 CLEARING AND GRUBBING  
 03 30 00 CAST IN PLACE CONCRETE

## 1.02 WORK INCLUDED BUT SUBJECT TO COST ADJUSTMENTS:

## A. Rock:

1. Definition: All material which by actual demonstration cannot in the Owner's representative's opinion, be reasonably excavated with a 3/4 yard manufacturer's rated backhoe equipped with a general duty ripper and rock points, or similar approved equipment and which is, in fact, systematically drilled and blasted.
2. Reimbursed Expense: Should rock, as defined herein, be encountered Owner will pay extra for removal and take credit for Earth Excavation omitted, in accordance with the General Conditions.
3. Volume: The volume of rock for which the Owner will pay extra will be defined as that which is within the required vertical depth of the excavation and 1'-0" on either side of the footing. No payment shall be made for any method of rock removal other than systematic drilling and blasting. If material which would be classified as rock as defined above is mechanically removed with excavating equipment of a larger size than specified above, it shall be understood that any added costs for the removal of material by this method shall be included in the unit price for common excavation.

## B. Quicksand and Plastic Soils:

1. Definition: Soft, loose, or wet ground that is incapable of supporting material, equipment, personnel, or structure.
2. Reimbursed Expense: Should quicksand or plastic soils, as defined herein be encountered, which are not indicated in the Contract Documents, Owner will pay extra for dewatering or removal in accordance with the General Conditions.

## C. Buried objects:

Should Wells, Cisterns, Tanks, Cesspools, etc., be encountered, which are not indicated in the Contract Documents, the Owner will pay extra for removal or filling as directed by the Engineer, in accordance with the General Conditions.

## D. Contract Quantities:

Drawings indicate contract quantities; adjustments will be made for variations in accordance with the General Conditions.

## 1.03 TESTING

## A. Soil Bearing:

1. Notify Engineer when excavations are complete.
2. Do not begin fills, formwork or concrete work until Engineer approves.
3. Engineer may order tests at Owner's expense.

## B. Compaction:

1. Definition: Ratio expressed as percentage of dry density of material compacted in field to maximum dry density of same material as described by ASTM D1557-70 or AASHTO T180.
2. Compaction tests taken when and where directed by Engineer.
3. Tests paid for by Owner if test results indicate specified compaction has been achieved, otherwise tests paid for by Contractor.

## 1.04. PROTECTION AND CONTROLS: Refer to Section 01 50 00.

## PART 2 PRODUCTS

## 2.01 FILL MATERIAL

A. General: All fill material is subject to Engineer's approval.

## B. Bar-Run Gravel:

1. Round water-worn, washed, sound, durable, uniform, evenly graded Rock free of soft, friable, thin, elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, clay, or other deleterious substances.

**BIOSOLIDS BUILDING**

2. Size: Minimum-Not more than 10% passing a No.8 sieve; Maximum-specified below.

C. Crushed Rock or Crushed Gravel:

1. Washed, sound, durable, uniform, evenly graded Rock free of soft, friable, thin, elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, clay, or other deleterious substances.
2. Mechanically crushed with at least 80% of particles fractured on 2 faces, and maximum of 5% of particles unfractured.
3. Size: Minimum-Not more than 5% passing a No.8 sieve; Maximum-specified below.

D. Gabion Rock and Rip-Rap: Install / replace as necessary to reconstruct drainage

E. Drain Rock:

1. Round water-worn, washed, sound, durable, uniform, free of soft, friable, thin, elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, clay, or other deleterious substances.
2. Size: 1.1/2" - 3/4" size.

F. Sand:

Fine granular material, naturally produced by rock disintegration and free from organic material, mica, loam clay, and other deleterious substances.

G. Topsoil:

Fertile, friable, natural loam, free of subsoil, stones, clay chunks, seeds, roots, noxious weeds, and approved by Engineer. Soil amendments other than those specified herein are Contractor's responsibility prior to approval of topsoil. Submit representative sample.

## 2.02 OTHER MATERIALS

- A. Moisture barrier: Sisalkraft "Moistop" or approved reinforced waterproof craft paper.
- B. Soil Cloth (Referred to as "Filter Fabric", and "Geotextile Fabric" in the drawings)
  1. Non-woven, heat fused, 100 percent polypropylene stable fiber, freely permeable to moisture transmittal. Minimum nominal weight 5-oz per sq.yd; Dupont "Tytar 3601" or approved.
- C. Mulch: Ground bark, aged, no chunks permitted, size to prevent wind erosion.

## PART 3 EXECUTION

### 3.01 PREPARATION

Prior to starting work of this Section, verify that site clearing has been properly completed and existing grades agree with Drawings. Notify General Contractor of defects requiring correction, and do not start until conditions are satisfactory.

### 3.02 EXCAVATION

A. General:

1. Excavate as necessary for Work shown on Drawings or specified.
2. Remove rocks, pavements and other obstructions as required.
3. Allow ample space for formwork and Utility trenching.
4. Leave bearing surfaces undisturbed, true and level.
5. Shore, brace, sheet and slope excavations to prevent caving, erosion, danger to persons and structures or interference with construction operations as required to comply with safety laws.
6. Repair slides and cave-ins should they occur.
7. Remove shoring before backfilling.

B. Topsoil:

1. Before excavating topsoil, remove any vegetation, sticks, clods, rocks larger than 1-1/2 inches, excessive gravel, and debris.
2. Stockpile topsoil for reuse on site where directed.

C. Depth of Excavations:

1. Excavate to solid bearing at elevations no higher than shown on Drawings.
2. Notify Engineer if adequate solid bearing is not reached.

**D. Temporary Stockpiling:**

Locate in area indicated in Drawings or at location approved by Owner, at least 2 feet away from trench edges. If stockpiles are to remain during rainy periods, grade and cover as required to prevent compaction, erosion, and water infiltration.

**E. Excess Excavation:**

1. Should excavation, through error, be carried to elevations lower than those shown on the Drawings, fill at Contractor's expense.
2. Fill under footings with concrete as required.
3. Fill under slabs with compacted gravel, or crushed rock as required.

**F. Water and Frost:**

1. Keep earth under footings free from frost.
2. Provide and operate pumping equipment, and provide temporary drainage structures as required to keep excavations free from standing water.
3. Should bearing surfaces be softened by water or frost, re-excavate to solid bearing and fill as specified for excess excavation.

**G. Excess Material:**

Unless otherwise noted on the Drawings, remove excess excavated and fill materials from site and legally dispose.

**3.03 FILLING AND COMPACTION****A. Subgrade Preparation:**

1. Do not place fill or backfill until forms, debris and decayable materials have been removed, waterproofing measures completed and areas approved by the Engineer.
2. Scarify areas to receive fill or backfill to 6 inch depth and until surface is free from ruts or other uneven features. Disc or blade scarified surface until free from large clods.
3. Bring scarified material to proper moisture content and compact to specified density.
4. If the above specified conventional methods cannot achieve specified compaction for subgrade, consult the Engineer. The intent is to provide an even dense surface below the specified minimum fill depth. Cost adjustments for variations in excavation and fill, or in procedures required by the Engineer to obtain acceptable subgrade conditions, shall be made in accordance with the General Conditions.

**B. Fill and Compaction Sequence:**

1. After subgrade compaction has been approved by the Engineer, spread approved fill material in layers not exceeding 8" in uncompacted depth.
2. Water or aerate fill material as necessary, and thoroughly mix to obtain moisture content to permit proper compaction.
3. Compact each layer to specified minimum degree and repeat compaction process until plan grade is attained.

**C. Density Requirements:**

1. Subgrade and Fills under slabs, paving, and foundations ..... 95percent.
2. Subgrade and Backfill against walls for full depth and width ..... 95percent.
3. Other fills ..... 90 percent.
4. Compact topsoil and mulch only as required to minimize settlement.]

**D. Fills Under Interior Slabs:**

1. Base Layer on compacted subgrade: 8" minimum depth, crushed rock 1-1/2" minus size.
2. Top Layer: 4" minimum depth, gravel 3/4" minus size.
3. Sand Bed: Cover gravel
4. Moisture Barrier: Cover sand with Moisture Barrier; lap 6" at joints and up vertical surfaces.

**E. Fills Under Exterior Slabs:**

Base Layer on compacted subgrade: 8" minimum depth, crushed rock 1-1/2" minus size. No Top Layer, Moisture Barrier, or Sand Bed required.

**F. Fills Against Walls:**

1. Where walls are Damproofed: fill against wall and around drain tiles with approved 1-1/2"-3/4" size drain rock, to within 8" of final grade, and 24" minimum out from face of wall, remainder of fill same as for fill against other walls. Lay continuous blanket of approved filter fabric in trench prior to installing drain rock. Fold filter fabric over drain rock prior to final backfill to create continuous separation between drain rock and adjacent earth cut and backfill materials.
2. Other Walls: Fill with approved material from excavations or with approved imported fill.

G. Fills Under Paving: N.I.C.

H. Other Fills:

Unless otherwise noted on the Drawings, fill with approved materials from site or from approved local source, allowing for required finish grading materials.

### 3.04 GRADING

A. General:

1. Contractor responsible for grading and staking shall verify all grades prior to starting grading and when finish grading is completed, to insure proper drainage.
2. Should site conditions, elevations or slopes conflict with elevations shown on the Drawings, consult the Engineer prior to beginning grading operations.
3. Grade entire area to smooth, level or evenly sloped uniform surfaces between elevations indicated on Drawings.
4. Allow for specified finish grading materials and fills.
5. Round abrupt changes in slope.
6. Slope ground away from building walls and to insure water is conducted to area drains, gutters, etc.
7. Refill to required levels, any areas which settle within warranty period.

B. Finish Grading

1. Remove rocks or clods over 1" in largest dimension, and all sticks and twigs.
2. Machine drag where possible, otherwise hand rake.
3. Do no finish grading when moisture content is such that soil balls or clods.
4. Hold finish grade approximately 3/4" below top of walks and curbs, unless noted otherwise on the Drawings.

C. Topsoil and Mulch placement and Grading:

1. If subsoil has not been freshly graded, scarify at least 4 inches deep.
2. Place Topsoil approximately 6" deep in lawn and planting areas.
3. Place Mulch approximately 6" deep in planting areas over topsoil.
4. Roll and tamp lightly to prevent wind erosion and future settlement.
5. Remove stones and clods larger than 3/4" and all sticks and twigs.
6. Leave surfaces ready for soil preparation by Landscaper.

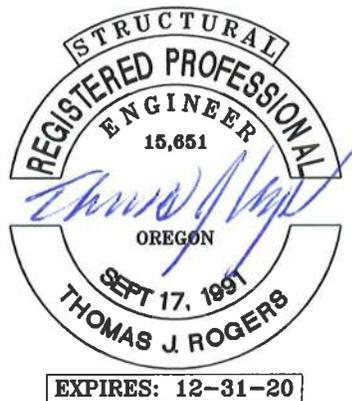
END OF SECTION

# STRUCTURAL CALCULATIONS

ROSEBURG URBAN SANITARY AUTHORITY  
3485 W. Goedeck Ave.  
Roseburg, OR

July 12, 2019

24 Pages

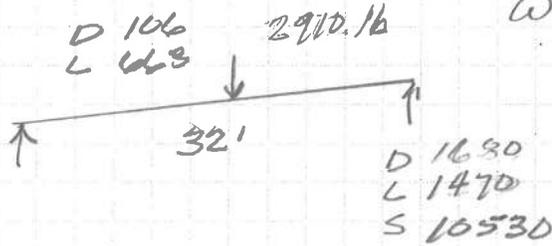


Biosolids Building Addition

**ROGERS**  
**ENGINEERING**  
558 S.E. Jackson St.  
Roseburg, OR 97470  
Ph. 541-672-0315  
Fax 541-672-1787

FILE #18-013

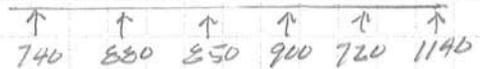
**ROOF RAFTER**



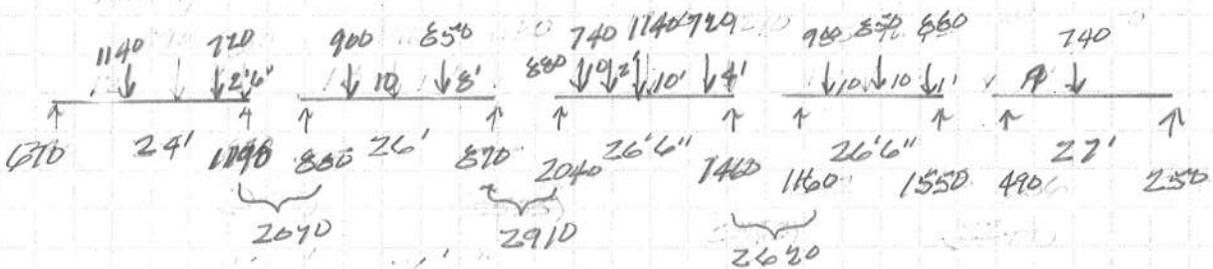
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PURLINS	1.0
W16	1.0
	<u>4.0</u>

S 25' pft

**CONVEYOR**



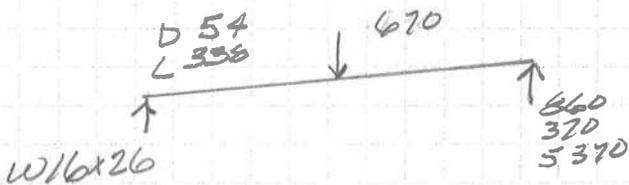
**CENTER SUPPORT BEAMS**



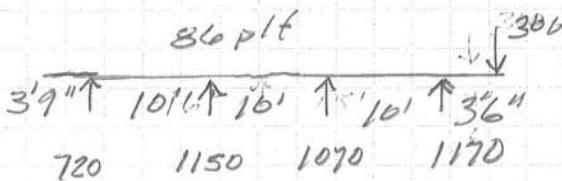
MAX. 1500 @ 26'6" SPAN  
1660 @ 24' SPAN

W 6x20

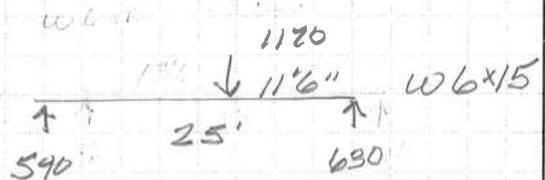
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**CROSS CONVEYOR**



**INLET BEAM**



**Steel Beam**

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 Software copyright ENERCALC, INC. 1983-2018, Build:10.18.12.13 .  
 Licensee : rogers engineering

Lic. # : KW-06005053

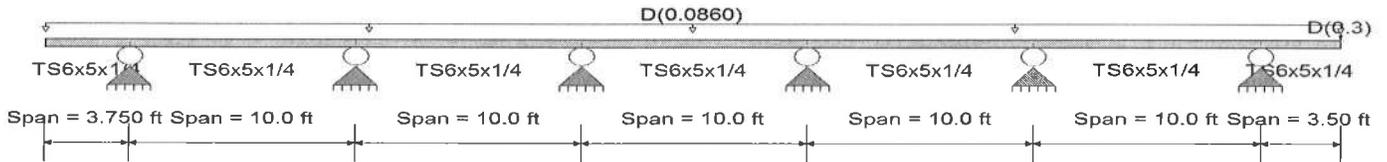
Description : conveyor reactions

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : ASCE 7-16

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Beam is Fully Braced against lateral-torsional buckling  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E: Modulus : 29,000.0 ksi



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Loads on all spans...  
 Uniform Load on ALL spans : D = 0.0860 k/ft

Load(s) for Span Number 7  
 Point Load : D = 0.30 k @ 3.50 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	<b>0.084 : 1</b>	Maximum Shear Stress Ratio =	<b>0.018 : 1</b>
Section used for this span	<b>TS6x5x1/4</b>	Section used for this span	<b>TS6x5x1/4</b>
Ma : Applied	1.577 k-ft	Va : Applied	0.6010 k
Mn / Omega : Allowable	18.862 k-ft	Vn/Omega : Allowable	33.952 k
Load Combination	+D+H	Load Combination	+D+H
Location of maximum on span	10.000 ft	Location of maximum on span	10.000 ft
Span # where maximum occurs	Span # 6	Span # where maximum occurs	Span # 6
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.033 in	Ratio =	2538 >=180
Max Upward Total Deflection	-0.006 in	Ratio =	20548 >=180

**Overall Maximum Deflections**

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D Only	1	0.0022	0.000	D Only	-0.0002	3.156
D Only	2	0.0062	4.917	D Only	0.0000	3.156
D Only	3	0.0050	5.083	D Only	-0.0000	0.167
D Only	4	0.0045	4.917	D Only	-0.0000	9.833
D Only	5	0.0075	5.333	D Only	0.0000	9.833
D Only	6	0.0000	5.333	D Only	-0.0058	7.500
D Only	7	0.0331	3.500	D Only	0.0000	7.500

**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8
Overall MAXimum		0.738	0.880	0.845	0.898	0.721	1.140	
Overall MINimum		0.443	0.528	0.507	0.539	0.433	0.684	
+D+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+L+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+Lr+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+S+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+0.750Lr+0.750L+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+0.750L+0.750S+H		0.738	0.880	0.845	0.898	0.721	1.140	
+D+0.60W+H		0.738	0.880	0.845	0.898	0.721	1.140	



**Steel Beam**

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Description: Center support beam 1

**CODE REFERENCES**

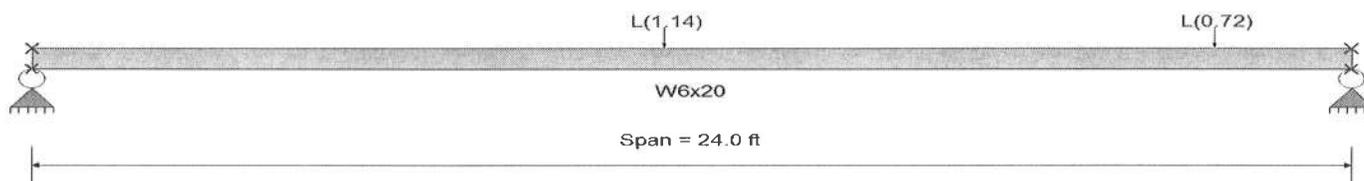
Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10

Load Combination Set: IBC 2015

**Material Properties**

Analysis Method: Allowable Strength Design  
 Beam Bracing: Completely Unbraced  
 Bending Axis: Major Axis Bending

Fy: Steel Yield: 36.0 ksi  
 E: Modulus: 29,000.0 ksi



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added

Load(s) for Span Number 1

Point Load: L = 1.140 k @ 11.50 ft

Point Load: L = 0.720 k @ 21.50 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	0.332 : 1	Maximum Shear Stress Ratio =	0.051 : 1
Section used for this span	<b>W6x20</b>	Section used for this span	<b>W6x20</b>
Ma : Applied	7.681 k-ft	Va : Applied	1.191 k
Mn / Omega : Allowable	23.135 k-ft	Vn/Omega : Allowable	23.213 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	11.520ft	Location of maximum on span	21.531 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.566 in	Ratio =	509 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.5657	12.137		0.0000	0.000

**Vertical Reactions**

Support notation: Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.669	1.191
Overall MINimum	0.502	0.893
L Only	0.669	1.191
+0.750L	0.502	0.893

**Steel Beam**

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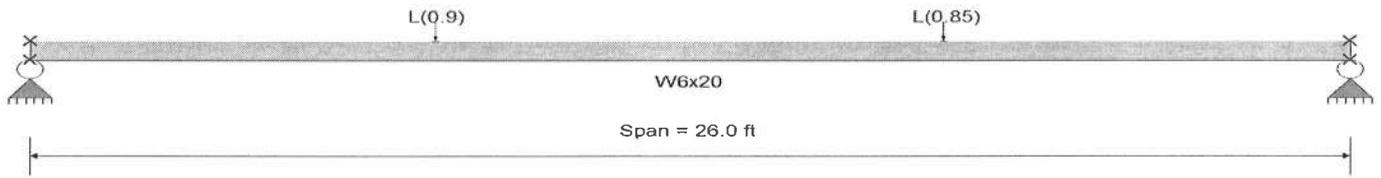
Lic. # : KW-06005053  
 Description : Center support beam 2

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Completely Unbraced  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E: Modulus : 29,000.0 ksi



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Load(s) for Span Number 1  
 Point Load : L = 0.90 k @ 8.0 ft  
 Point Load : L = 0.850 k @ 18.0 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio = Section used for this span	<b>0.375 : 1</b> <b>W6x20</b>	Maximum Shear Stress Ratio = Section used for this span	<b>0.038 : 1</b> <b>W6x20</b>
Ma : Applied	7.077 k-ft	Va : Applied	0.8846 k
Mn / Omega : Allowable	18.884 k-ft	Vn/Omega : Allowable	23.213 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	8.023ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.747 in	Ratio =	418 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.7473	13.000		0.0000	0.000

**Vertical Reactions**

Support notation : Far left is #1

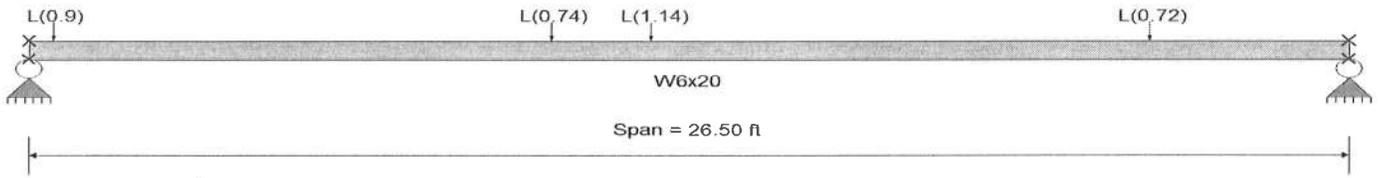
Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.885	0.865
Overall MINimum	0.663	0.649
L Only	0.885	0.865
+0.750L	0.663	0.649

**Steel Beam**  
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 Description: Center support beam 3  
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 Licensee: rogers engineering

**CODE REFERENCES**  
 Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**  
 Analysis Method : Allowable Strength Design  
 Beam Bracing : Completely Unbraced  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E: Modulus : 29,000.0 ksi



**Applied Loads** Service loads entered. Load Factors will be applied for calculations.

- Beam self weight NOT internally calculated and added
- Load(s) for Span Number 1
  - Point Load : L = 0.90 k @ 0.50 ft
  - Point Load : L = 0.740 k @ 10.50 ft
  - Point Load : L = 1.140 k @ 12.50 ft
  - Point Load : L = 0.720 k @ 22.50 ft

DESIGN SUMMARY				Design OK	
Maximum Bending Stress Ratio =	0.626 : 1	Maximum Shear Stress Ratio =	0.088 : 1		
Section used for this span	W6x20	Section used for this span	W6x20		
Ma : Applied	13.227 k-ft	Va : Applied	2.041 k		
Mn / Omega : Allowable	21.133 k-ft	Vn/Omega : Allowable	23.213 k		
Load Combination	L Only	Load Combination	L Only		
Location of maximum on span	12.493ft	Location of maximum on span	0.000 ft		
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1		
Maximum Deflection					
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360		
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360		
Max Downward Total Deflection	1.232 in	Ratio =	258 >= 180		
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180		

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	1.2319	13.099		0.0000	0.000

**Vertical Reactions** Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.041	1.459
Overall MINimum	1.531	1.094
L Only	2.041	1.459
+0.750L	1.531	1.094

**Steel Beam**

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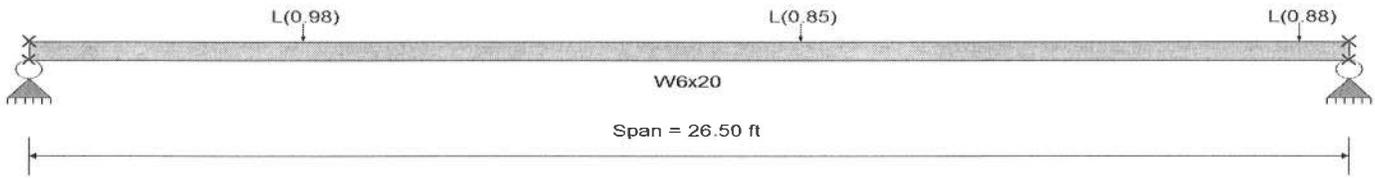
Description : Center support beam 4

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Completely Unbraced  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E : Modulus : 29,000.0 ksi



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added

Load(s) for Span Number 1

Point Load : L = 0.980 k @ 5.50 ft

Point Load : L = 0.850 k @ 15.50 ft

Point Load : L = 0.880 k @ 25.50 ft

**DESIGN SUMMARY**

Maximum Bending Stress Ratio =	<b>0.418 : 1</b>	Maximum Shear Stress Ratio =	<b>0.067 : 1</b>
Section used for this span	<b>W6x20</b>	Section used for this span	<b>W6x20</b>
Ma : Applied	8.211 k-ft	Va : Applied	1.547 k
Mn / Omega : Allowable	19.658 k-ft	Vn/Omega : Allowable	23.213 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	15.446ft	Location of maximum on span	25.516 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.835 in	Ratio =	381 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.8354	13.174		0.0000	0.000

**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.163	1.547
Overall MINimum	0.872	1.161
L Only	1.163	1.547
+0.750L	0.872	1.161

**Steel Beam**

Lic. #: KW-06005053

Description: Center support beam 5

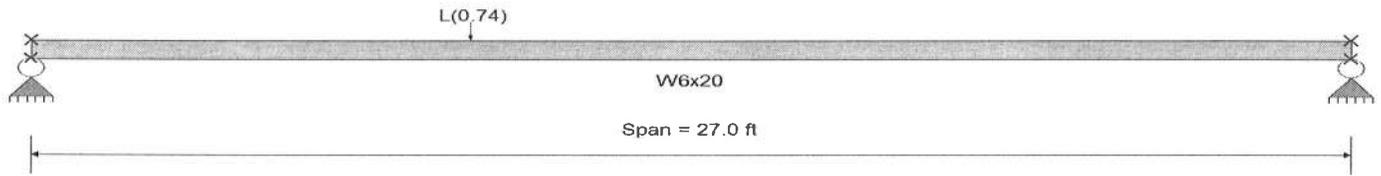
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**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design	Fy : Steel Yield : 36.0 ksi
Beam Bracing : Completely Unbraced	E: Modulus : 29,000.0 ksi
Bending Axis : Major Axis Bending	



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Load(s) for Span Number 1  
 Point Load : L = 0.740 k @ 9.0 ft

**DESIGN SUMMARY**

		Design OK	
Maximum Bending Stress Ratio =	<b>0.192 : 1</b>	Maximum Shear Stress Ratio =	<b>0.021 : 1</b>
Section used for this span	<b>W6x20</b>	Section used for this span	<b>W6x20</b>
Ma : Applied	4.434 k-ft	Va : Applied	0.4933 k
Mn / Omega : Allowable	23.114 k-ft	Vn/Omega : Allowable	23.213 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	9.026ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.378 in	Ratio =	858 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.3775	12.343		0.0000	0.000

**Vertical Reactions**

Load Combination	Support 1	Support 2
Overall MAXimum	0.493	0.247
Overall MINimum	0.370	0.185
L Only	0.493	0.247
+0.750L	0.370	0.185

Support notation : Far left is #1  
 Values in KIPS

**Steel Beam**

Lic. #: KW-06005053

Description: Rafter

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**CODE REFERENCES**

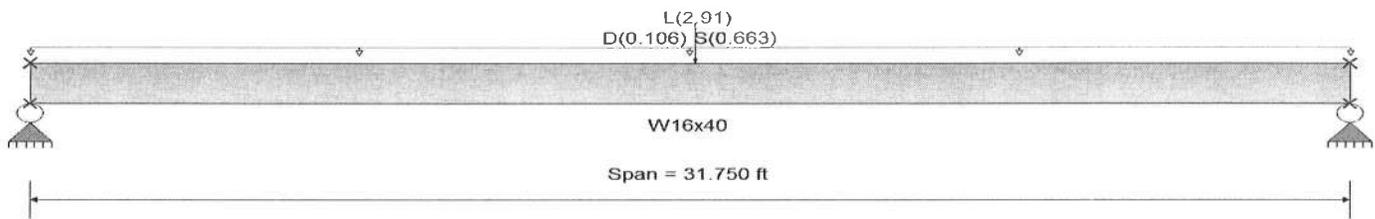
Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Beam bracing is defined as a set spacing over all spans  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E: Modulus : 29,000.0 ksi

**Unbraced Lengths**

First Brace starts at 4.0 ft from Left-Most support  
 Regular spacing of lateral supports on length of beam = 4.0 ft



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Uniform Load : D = 0.1060, S = 0.6630 k/ft, Tributary Width = 1.0 ft  
 Point Load : L = 2.910 k @ 16.0 ft

**DESIGN SUMMARY**

Maximum Bending Stress Ratio =	<b>0.739 : 1</b>	Maximum Shear Stress Ratio =	<b>0.174 : 1</b>
Section used for this span	<b>W16x40</b>	Section used for this span	<b>W16x40</b>
Ma : Applied	96.900 k-ft	Va : Applied	12.208 k
Mn / Omega : Allowable	131.138 k-ft	Vn/Omega : Allowable	70.272 k
Load Combination	+D+S	Load Combination	+D+S
Location of maximum on span	15.875ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	1.013 in	Ratio =	375 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	1.176 in	Ratio =	324 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	1.1758	15.966		0.0000	0.000

**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	12.208	12.208
Overall MINimum	1.010	1.010
D Only	1.683	1.683
+D+L	3.126	3.149
+D+S	12.208	12.208
+D+0.750L	2.765	2.783
+D+0.750L+0.750S	10.659	10.676
+0.60D	1.010	1.010
L Only	1.444	1.466
S Only	10.525	10.525

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 Description : End Rafter

**CODE REFERENCES**

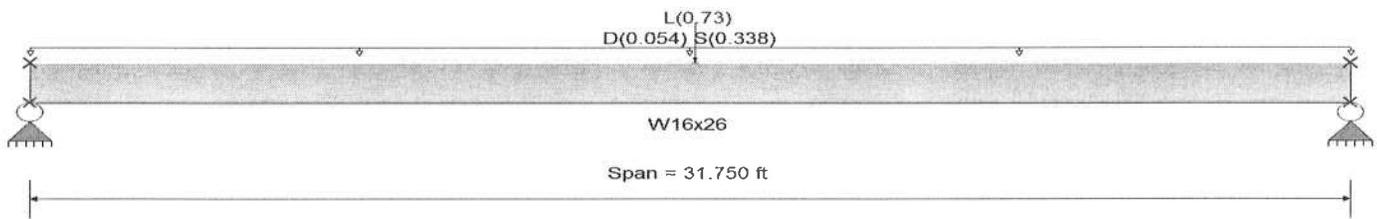
Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Beam bracing is defined as a set spacing over all spans  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E: Modulus : 29,000.0 ksi

**Unbraced Lengths**

First Brace starts at 4.0 ft from Left-Most support  
 Regular spacing of lateral supports on length of beam = 4.0 ft



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Uniform Load : D = 0.0540, S = 0.3380 k/ft, Tributary Width = 1.0 ft  
 Point Load : L = 0.730 k @ 16.0 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	<b>0.622 : 1</b>	Maximum Shear Stress Ratio =	<b>0.110 : 1</b>
Section used for this span	<b>W16x26</b>	Section used for this span	<b>W16x26</b>
Ma : Applied	49.395 k-ft	Va : Applied	6.223 k
Mn / Omega : Allowable	79.401 k-ft	Vn/Omega : Allowable	56.520 k
Load Combination	+D+S	Load Combination	+D+S
Location of maximum on span	15.875ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.888 in	Ratio =	428 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	1.031 in	Ratio =	369 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	1.0315	15.966		0.0000	0.000

**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.223	6.223
Overall MINimum	0.362	0.368
D Only	0.857	0.857
+D+L	1.219	1.225
+D+S	6.223	6.223
+D+0.750L	1.129	1.133
+D+0.750L+0.750S	5.153	5.157
+0.60D	0.514	0.514
L Only	0.362	0.368
S Only	5.366	5.366

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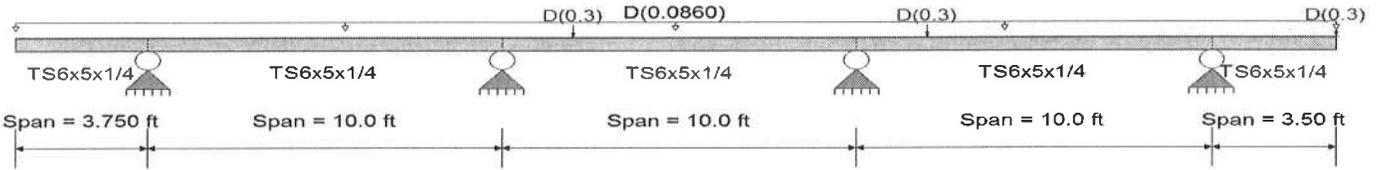
Lic. #: KW-06005053  
 Description : Cross conveyor reactions

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : ASCE 7-16

**Material Properties**

Analysis Method : Allowable Strength Design  
 Beam Bracing : Beam is Fully Braced against lateral-torsional buckling  
 Bending Axis : Major Axis Bending  
 Fy : Steel Yield : 36.0 ksi  
 E : Modulus : 29,000.0 ksi



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Loads on all spans...  
 Uniform Load on ALL spans : D = 0.0860 k/ft

Load(s) for Span Number 3  
 Point Load : D = 0.30 k @ 2.0 ft

Load(s) for Span Number 4  
 Point Load : D = 0.30 k @ 2.0 ft

Load(s) for Span Number 5  
 Point Load : D = 0.30 k @ 3.50 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	0.084 : 1	Maximum Shear Stress Ratio =	0.021 : 1
Section used for this span	TS6x5x1/4	Section used for this span	TS6x5x1/4
Ma : Applied	1.577 k-ft	Va : Applied	0.6832 k
Mn / Omega : Allowable	18.862 k-ft	Vn/Omega : Allowable	31.911 k
Load Combination	+D+H	Load Combination	+D+H
Location of maximum on span	10.000ft	Location of maximum on span	10.000 ft
Span # where maximum occurs	Span # 4	Span # where maximum occurs	Span # 2
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.030 in	Ratio =	2828 >= 180
Max Upward Total Deflection	-0.004 in	Ratio =	31525 >= 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D Only	1	0.0048	0.000		0.0000	0.000
D Only	2	0.0036	4.583	D Only	-0.0004	9.333
D Only	3	0.0089	4.750		0.0000	9.333
D Only	4	0.0009	3.000	D Only	-0.0038	8.167
D Only	5	0.0297	3.500		0.0000	8.167

**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5	Support 6
Overall MAXimum		0.719	1.147	1.070	1.168	
Overall MINimum		0.431	0.688	0.642	0.701	
+D+H		0.719	1.147	1.070	1.168	
+D+L+H		0.719	1.147	1.070	1.168	

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 Engineer: TR  
 Project ID: 18-013  
 Project Descr: Shed Addition

R12

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Description : Cross conveyor reactions

Vertical Reactions	Support notation : Far left is #1						Values in KIPS
	Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	
+D+Lr+H		0.719	1.147	1.070	1.168		
+D+S+H		0.719	1.147	1.070	1.168		
+D+0.750Lr+0.750L+H		0.719	1.147	1.070	1.168		
+D+0.750L+0.750S+H		0.719	1.147	1.070	1.168		
+D+0.60W+H		0.719	1.147	1.070	1.168		
+D+0.750Lr+0.450W+H		0.719	1.147	1.070	1.168		
+D+0.750S+0.450W+H		0.719	1.147	1.070	1.168		
+0.60D+0.60W+0.60H		0.431	0.688	0.642	0.701		
+D+0.70E+0.60H		0.719	1.147	1.070	1.168		
+D+0.750L+0.750S+0.5250E+H		0.719	1.147	1.070	1.168		
+0.60D+0.70E+H		0.431	0.688	0.642	0.701		
D Only		0.719	1.147	1.070	1.168		
Lr Only							
L Only							
S Only							
W Only							
E Only							
H Only							

**Steel Beam**

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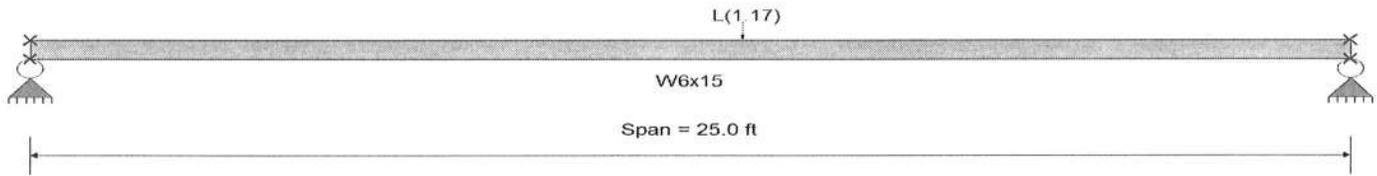
Description : Cross conveyor inlet beam

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing : Completely Unbraced	E: Modulus :	29,000.0 ksi
Bending Axis : Major Axis Bending		



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Load(s) for Span Number 1  
 Point Load : L = 1.170 k @ 13.50 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	<b>0.533 : 1</b>	Maximum Shear Stress Ratio =	<b>0.032 : 1</b>
Section used for this span	<b>W6x15</b>	Section used for this span	<b>W6x15</b>
Ma : Applied	7.266 k-ft	Va : Applied	0.6318 k
Mn / Omega : Allowable	13.628 k-ft	Vn/Omega : Allowable	19.839 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	13.500ft	Location of maximum on span	13.500 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.777 in	Ratio =	386 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.7765	12.857		0.0000	0.000

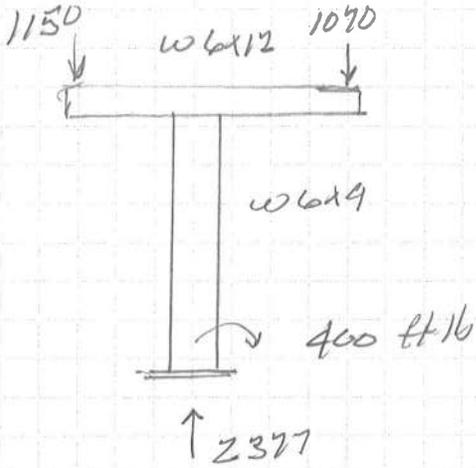
**Vertical Reactions**

Support notation : Far left is #1

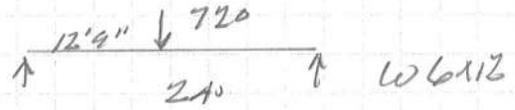
Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.538	0.632
Overall MINimum	0.404	0.474
L Only	0.538	0.632
+0.750L	0.404	0.474

CENTER SUPPLIES



CROSS CONVEYOR  
INLET BEAM



### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	DL		-1					
2	Live	LL				2			

### Load Combinations

	Description	Sol..	PD..	SR..	BLC Fact...								
1	IBC 16-8	Yes			DL	1							
2	IBC 16-9	Yes			DL	1	LL	1	LLS	1			
3	IBC 16-10...	Yes			DL	1	RLL	1					

### Joint Loads and Enforced Displacements (BLC 2 : Live)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N3	L	Y	-1.07
2	N4	L	Y	-1.15

### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...)	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HR1	W6x12	Beam	Wide Flange	A36 Gr.36	Typical	3.55	2.99	22.1	.09
2	HR2	W6x9	Column	Wide Flange	A36 Gr.36	Typical	2.68	2.2	16.4	.041

### Envelope Member Section Forces

	Member	Sec	Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	2.377	2	0	1	0	1	0	.4	2	0	1
2			min	.157	1	0	1	0	1	0	0	1	0	1
3		2	max	2.368	2	0	1	0	1	0	.4	2	0	1
4			min	.148	1	0	1	0	1	0	0	1	0	1
5		3	max	2.359	2	0	1	0	1	0	.4	2	0	1
6			min	.139	1	0	1	0	1	0	0	1	0	1
7		4	max	2.35	2	0	1	0	1	0	.4	2	0	1
8			min	.13	1	0	1	0	1	0	0	1	0	1
9		5	max	2.341	2	0	1	0	1	0	.4	2	0	1
10			min	.121	1	0	1	0	1	0	0	1	0	1
11	M2	1	max	0	1	0	1	0	1	0	0	1	0	1
12			min	0	1	-1.07	2	0	1	0	0	1	0	1

**Envelope Member Section Forces (Continued)**

Member	Sec	Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
13	2	max	0	1	-.03	1	0	1	0	1	0	1	2.713	2
14		min	0	1	-1.1	2	0	1	0	1	0	1	.038	1
15	3	max	0	1	1.21	2	0	1	0	1	0	1	5.901	2
16		min	0	1	-.06	1	0	1	0	1	0	1	.151	1
17	4	max	0	1	1.18	2	0	1	0	1	0	1	2.913	2
18		min	0	1	.03	1	0	1	0	1	0	1	.038	1
19	5	max	0	1	1.15	2	0	1	0	1	0	1	0	1
20		min	0	1	0	1	0	1	0	1	0	1	0	1

**Envelope AISC ASD Steel Code Checks**

Member	Shape	Code C...	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	Fa [ksi]	Ft [ksi]	Fb y-y [...]	Fb z-z [...]	Cb	Cmy	Cmz	ASD Eqn	
1	M1	W6x9	.208	0	2	.000	0	z	1	18.085	21.6	27	23.76	1...	1	.6	H1-3
2	M2	W6x12	.520	5	2	.061	5	y	2	8.734	21.6	27	18.574	1	.6	.85	H1-2

**Envelope Joint Reactions**

Joint	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	1	2.377	2	0	1	0	1	0	1
2		min	0	1	.157	1	0	1	-.4	2	0	1
3	Totals:	max	0	1	2.377	2	0	2				
4		min	0	1	.157	1	0	1				

Rogers Engineering  
 558 S.E. Jackson St.  
 Roseburg, OR 97470  
 Ph. 541-672-0315  
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Project Title: RUSA  
 Engineer: TR  
 Project ID: 18-013  
 Project Descr: Shed Addition

R17

Printed: 12 JUL 2019, 2:29PM

**Steel Beam**

File = T:\P66GWL-6\2018\18055D-Bladdition.ec6  
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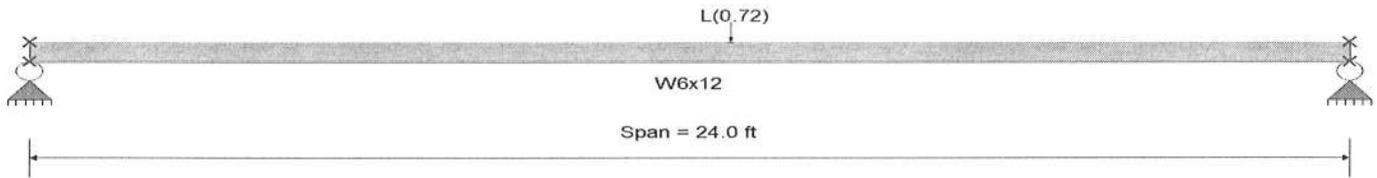
Description: Cross conveyor discharge *beam*

**CODE REFERENCES**

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10  
 Load Combination Set : IBC 2015

**Material Properties**

Analysis Method : Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing : Completely Unbraced	E: Modulus :	29,000.0 ksi
Bending Axis : Major Axis Bending		



**Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added  
 Load(s) for Span Number 1  
 Point Load : L = 0.720 k @ 12.750 ft

**DESIGN SUMMARY**

**Design OK**

Maximum Bending Stress Ratio =	<b>0.603 : 1</b>	Maximum Shear Stress Ratio =	<b>0.019 : 1</b>
Section used for this span	<b>W6x12</b>	Section used for this span	<b>W6x12</b>
Ma : Applied	4.301 k-ft	Va : Applied	0.3825 k
Mn / Omega : Allowable	7.138 k-ft	Vn/Omega : Allowable	19.971 k
Load Combination	L Only	Load Combination	L Only
Location of maximum on span	12.754ft	Location of maximum on span	12.754 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.559 in	Ratio =	516 >= 180
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
L Only	1	0.5585	12.274		0.0000	0.000

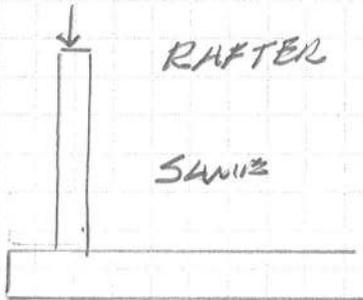
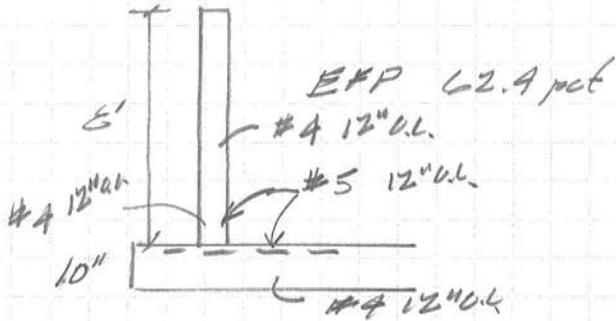
**Vertical Reactions**

Support notation : Far left is #1

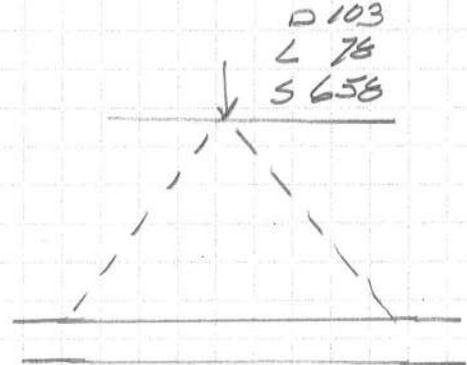
Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.338	0.383
Overall MINimum	0.253	0.287
L Only	0.338	0.383
+0.750L	0.253	0.287

PERIMETRAL WALL



D 1648  
L 1256  
S 10530



## Cantilevered Retaining Wall

File = t:\P66GWL-6\2018\1\BOB5D-Bladdition.ec6  
 ENERCALC, INC. 1983-2017, Build:6.17.4.30, Ver:6.17.12.31

Lic. #: KW-06005053

Licensee: ROGERS ENGINEERING

Description: Perimeter wall

Calculations per ACI 318-14, ACI 530-11, IBC 2015,  
 CBC 2016, ASCE 7-10

### Criteria

Retained Height	=	8.00 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft
Vertical component of active Lateral soil pressure options:		
NOT USED for Soil Pressure.		
NOT USED for Sliding Resistance.		
NOT USED for Overturning Resistance.		

### Soil Data

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	62.4 psf/ft
Toe Active Pressure	=	45.0 psf/ft
Passive Pressure	=	250.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe	=	110.00 pcf
Friction Coeff btwn Ftg & Soil	=	0.400
Soil height to ignore for passive pressure	=	12.00 in

### Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
Used for Sliding & Overturning		

### Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

### Lateral Load Applied to Stem

Lateral Load	=	0.0 plf
...Height to Top	=	0.00 ft
...Height to Bottom	=	0.00 ft

### Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Wind on Exposed Stem = 12.2 psf

### Design Summary

#### Wall Stability Ratios

Overturning	=	4.38 OK
Sliding	=	1.16 OK
<i>Slab Resists All Sliding !</i>		
Total Bearing Load	=	6,710 lbs
...resultant ecc.	=	4.79 in
Soil Pressure @ Toe	=	1,090 psf OK
Soil Pressure @ Heel	=	587 psf OK
Allowable	=	1,500 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	1,308 psf
ACI Factored @ Heel	=	705 psf
Footing Shear @ Toe	=	19.0 psi OK
Footing Shear @ Heel	=	67.0 psi OK
Allowable	=	82.2 psi

#### Sliding Calcs Slab Resists All Sliding !

Lateral Sliding Force = 2,394.5 lbs

### Stem Construction

#### Design Height Above Ftg

ft =	2.00	Stem OK
Wall Material Above "H"	=	Concrete Concrete
Thickness	=	12.00 12.00
Rebar Size	=	# 4 # 5
Rebar Spacing	=	12.00 12.00
Rebar Placed at	=	User Spec User Spec

#### Design Data

fb/FB + fa/Fa	=	0.407	0.630
Total Force @ Section	lbs =	1,797.1	3,185.9
Moment....Actual	ft-l =	3,594.2	8,518.2
Moment....Allowable	ft-l =	8,823.0	13,524.8
Shear.....Actual	psi =	15.0	26.5
Shear.....Allowable	psi =	82.2	82.2
Wall Weight	psf =	150.0	150.0
Rebar Depth 'd'	in =	10.00	10.00
Lap splice if above	in =	12.00	13.45
Lap splice if below	in =	12.00	3.60
Hook embed into footing	in =	12.00	3.60

#### Concrete Data

f <sub>c</sub>	psi =	3,000.0	3,000.0
F <sub>y</sub>	psi =	60,000.0	60,000.0

Top Stem	2nd
----------	-----

Stem OK	Stem OK
2.00	0.00
Concrete	Concrete
12.00	12.00
# 4	# 5
12.00	12.00
User Spec	User Spec
0.407	0.630
1,797.1	3,185.9
3,594.2	8,518.2
8,823.0	13,524.8
15.0	26.5
82.2	82.2
150.0	150.0
10.00	10.00
12.00	13.45
12.00	3.60
12.00	3.60
3,000.0	3,000.0
60,000.0	60,000.0

### Load Factors

Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Rogers Engineering  
 558 S.E. Jackson St  
 Roseburg, OR 97470  
 Ph. 541-672-0315  
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Project Title: RUSA  
 Engineer: TR  
 Project Descr: Shed Addition

Project ID: 18-013 *FDN3*

Printed: 4 NOV 2018, 5:33PM

## Cantilevered Retaining Wall

File = I:\P66GWL-6\2018\1\BOB5D-Bladdition.ec6  
 ENERCALC, INC. 1983-2017, Build:6.17.4.30, Ver:6.17.12.31  
 Licensee : ROGERS ENGINEERING

Lic. # : KW-06005053

Description : Perimeter wall

### Footing Dimensions & Strengths

Toe Width = 2.00 ft  
 Heel Width = 6.00 ft  
 Total Footing Width = 8.00 ft  
 Footing Thickness = 10.00 in  
 Key Width = 1.00 in  
 Key Depth = 0.00 in  
 Key Distance from Toe = 2.00 ft  
 f'c = 3,000 psi Fy = 60,000 psi  
 Footing Concrete Density = 150.00 pcf  
 Min. As % = 0.0018  
 Cover @ Top 2.00 @ Btm. = 3.00 in

### Footing Design Results

	<u>Toe</u>	<u>Heel</u>
Factored Pressure	= 1,308	705 psf
Mu' : Upward	= 2,516	0 ft-lb
Mu' : Downward	= 432	0 ft-lb
Mu: Design	= 2,084	8,518 ft-lb
Actual 1-Way Shear	= 18.98	67.00 psi
Allow 1-Way Shear	= 82.16	82.16 psi
Toe Reinforcing	= # 4 @ 12.00 in	
Heel Reinforcing	= # 5 @ 12.00 in	
Key Reinforcing	= None Spec'd	

#### Other Acceptable Sizes & Spacings

Toe: #4@ 17.25 in, #5@ 26.50 in, #6@ 37.75 in, #7@ 48.25 in, #8@ 48.25 in, #9@ 4  
 Heel: #4@ 8.25 in, #5@ 12.50 in, #6@ 17.75 in, #7@ 24.00 in, #8@ 31.75 in, #9@ 40  
 Key: Slab Resists Sliding - No Force on Key

### Summary of Overturning & Resisting Forces & Moments

Item	.....OVERTURNING.....				.....RESISTING.....		
	Force lbs	Distance ft	Moment ft-lb		Force lbs	Distance ft	Moment ft-lb
Heel Active Pressure	= 2,434.5	2.94	7,168.2	Soil Over Heel	= 4,400.0	5.50	24,200.0
Surcharge over Heel	=			Sloped Soil Over Heel	=		
Toe Active Pressure	= -40.0	0.44	-17.8	Surcharge Over Heel	=		
Surcharge Over Toe	=			Adjacent Footing Load	=		
Adjacent Footing Load	=			Axial Dead Load on Stem	=		
Added Lateral Load	=			* Axial Live Load on Stem	=		
Load @ Stem Above Soil	=	8.83		Soil Over Toe	= 110.0	1.00	110.0
				Surcharge Over Toe	=		
				Stem Weight(s)	= 1,200.0	2.50	3,000.0
				Earth @ Stem Transitions	=		
<b>Total</b>	= 2,394.5	<b>O.T.M.</b>	= 7,150.4	Footing Weight	= 1,000.0	4.00	4,000.0
<b>Resisting/Overturning Ratio</b>		=	<b>4.38</b>	Key Weight	=	2.04	
Vertical Loads used for Soil Pressure =		6,710.0	lbs	Vert. Component	=		
				<b>Total =</b>	<b>6,710.0</b>	<b>lbs R.M. =</b>	<b>31,310.0</b>

\* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

## Cantilevered Retaining Wall

File = I:\P66GWL-6\2018\1BOB5D-Bladdition.ec6  
 ENERCALC, INC. 1983-2017, Build:6.17.4.30, Ver:6.17.12.31

Lic. #: KW-06005053

Licensee: ROGERS ENGINEERING

Description: Perimeter wall w/ column

### Criteria

Retained Height	=	8.00 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft
Vertical component of active Lateral soil pressure options:		
NOT USED for Soil Pressure.		
NOT USED for Sliding Resistance.		
NOT USED for Overturning Resistance.		

### Soil Data

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	62.4 psf/ft
Toe Active Pressure	=	45.0 psf/ft
Passive Pressure	=	250.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe	=	110.00 pcf
Friction Coeff btwn Ftg & Soil	=	0.400
Soil height to ignore for passive pressure	=	12.00 in

Calculations per ACI 318-14, ACI 530-11, IBC 2015,  
 CBC 2016, ASCE 7-10

### Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
Used for Sliding & Overturning		

### Axial Load Applied to Stem

Axial Dead Load	=	103.0 lbs
Axial Live Load	=	736.0 lbs
Axial Load Eccentricity	=	0.0 in

### Design Summary

#### Wall Stability Ratios

Overturning	=	4.41 OK
Sliding	=	1.18 OK
<i>Slab Resists All Sliding !</i>		
Total Bearing Load	=	7,549 lbs
...resultant ecc.	=	6.26 in
Soil Pressure @ Toe	=	1,313 psf OK
Soil Pressure @ Heel	=	574 psf OK
Allowable	=	1,500 psf
<i>Soil Pressure Less Than Allowable</i>		
ACI Factored @ Toe	=	1,627 psf
ACI Factored @ Heel	=	712 psf
Footing Shear @ Toe	=	24.4 psi OK
Footing Shear @ Heel	=	67.0 psi OK
Allowable	=	82.2 psi

#### Sliding Calcs Slab Resists All Sliding !

Lateral Sliding Force	=	2,394.5 lbs
-----------------------	---	-------------

### Lateral Load Applied to Stem

Lateral Load	=	0.0 plf
...Height to Top	=	0.00 ft
...Height to Bottom	=	0.00 ft

Wind on Exposed Stem	=	12.2 psf
----------------------	---	----------

### Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type	=	Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

### Stem Construction

#### Design Height Above Ftg

ft =	2.00	Stem OK	0.00	Stem OK
Wall Material Above "Ht"	=	Concrete		Concrete
Thickness	in =	12.00		12.00
Rebar Size	=	# 4		# 5
Rebar Spacing	in =	12.00		12.00
Rebar Placed at	=	User Spec		User Spec

#### Design Data

fb/FB + fa/Fa	=	0.407		0.630
Total Force @ Section	lbs =	1,797.1		3,185.9
Moment....Actual	ft-l =	3,594.2		8,518.2
Moment.....Allowable	ft-l =	8,823.0		13,524.8
Shear.....Actual	psi =	15.0		26.5
Shear.....Allowable	psi =	82.2		82.2
Wall Weight	psf =	150.0		150.0
Rebar Depth 'd'	in =	10.00		10.00
Lap splice if above	in =	12.00		13.45
Lap splice if below	in =	12.00		6.00
Hook embed into footing	in =	12.00		6.00

#### Concrete Data

f'c	psi =	3,000.0		3,000.0
Fy	psi =	60,000.0		60,000.0

### Load Factors

Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Rogers Engineering  
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 Roseburg, OR 97470  
 Ph. 541-672-0315  
 Fax 541-672-1787

Project Title: RUSA  
 Engineer: TR  
 Project Descr: Shed Addition

Project ID: 18-013 *PN 5*

Printed: 4 NOV 2018, 5:33PM

## Cantilevered Retaining Wall

File = t:\P66GWL-6\2018\18085D-Bladdition.ec6  
 ENERCALC, INC. 1983-2017, Build:6.17.4.30, Ver:6.17.12.31  
 Licensee : ROGERS ENGINEERING

Lic. #: KW-06005053

Description: Perimeter wall w/ column

### Footing Dimensions & Strengths

Toe Width	=	2.00	ft
Heel Width	=	6.00	
Total Footing Width	=	8.00	
Footing Thickness	=	10.00	in
Key Width	=	1.00	in
Key Depth	=	0.00	in
Key Distance from Toe	=	2.00	ft
$f_c$	=	3,000	psi
$F_y$	=	60,000	psi
Footing Concrete Density	=	150.00	pcf
Min. As %	=	0.0018	
Cover @ Top	=	2.00	
@ Btm.	=	3.00	in

### Footing Design Results

	Toe	Heel
Factored Pressure	= 1,627	712 psf
$\mu_u$ : Upward	= 3,101	0 ft-lb
$\mu_u$ : Downward	= 432	0 ft-lb
$\mu_u$ : Design	= 2,669	8,518 ft-lb
Actual 1-Way Shear	= 24.40	67.00 psi
Allow 1-Way Shear	= 82.16	82.16 psi
Toe Reinforcing	= # 4 @ 12.00 in	
Heel Reinforcing	= # 5 @ 12.00 in	
Key Reinforcing	= None Spec'd	

#### Other Acceptable Sizes & Spacings

Toe: #4@ 17.25 in, #5@ 26.50 in, #6@ 37.75 in, #7@ 48.25 in, #8@ 48.25 in, #9@ 4  
 Heel: #4@ 8.25 in, #5@ 12.50 in, #6@ 17.75 in, #7@ 24.00 in, #8@ 31.75 in, #9@ 40  
 Key: Slab Resists Sliding - No Force on Key

### Summary of Overturning & Resisting Forces & Moments

Item	.....OVERTURNING.....			.....RESISTING.....			
	Force lbs	Distance ft	Moment ft-lb	Force lbs	Distance ft	Moment ft-lb	
Heel Active Pressure	= 2,434.5	2.94	7,168.2	Soil Over Heel	= 4,400.0	5.50	24,200.0
Surcharge over Heel	=			Sloped Soil Over Heel	=		
Toe Active Pressure	= -40.0	0.44	-17.8	Surcharge Over Heel	=		
Surcharge Over Toe	=			Adjacent Footing Load	=		
Adjacent Footing Load	=			Axial Dead Load on Stem	= 103.0	2.50	257.5
Added Lateral Load	=			* Axial Live Load on Stem	= 736.0	2.50	1,840.0
Load @ Stem Above Soil	=	8.83		Soil Over Toe	= 110.0	1.00	110.0
				Surcharge Over Toe	=		
				Stem Weight(s)	= 1,200.0	2.50	3,000.0
				Earth @ Stem Transitions	=		
				Footing Weight	= 1,000.0	4.00	4,000.0
				Key Weight	=	2.04	
				Vert. Component	=		
<b>Total</b>	= 2,394.5	<b>O.T.M.</b>	= 7,150.4	<b>Total</b>	= 6,813.0	<b>lbs R.M.</b>	= 31,567.5
<b>Resisting/Overturning Ratio</b>		=	<b>4.41</b>				
Vertical Loads used for Soil Pressure	=	7,549.0	lbs				

\* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

Rogers Engineering  
 558 S.E. Jackson St  
 Roseburg, OR 97470  
 Ph. 541-672-0315  
 Fax 541-672-1787

Project Title: RUSA  
 Engineer: TR  
 Project Descr: Shed Addition

Project ID: 18-013 *FDW 6*

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## Cantilevered Retaining Wall

File = t:\P66GWL-6\2018\180B5D-Bladdition.ec6  
 ENERCALC, INC. 1983-2017, Build:6.17.4.30, Ver:6.17.12.31

Lic. #: KW-06005053

Licensee: ROGERS ENGINEERING

Description: Perimeter wall w/ seismic

Calculations per ACI 318-14, ACI 530-11, IBC 2015,  
 CBC 2016, ASCE 7-10

### Criteria

Retained Height	=	8.00 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft
Vertical component of active Lateral soil pressure options:		
NOT USED for Soil Pressure.		
NOT USED for Sliding Resistance.		
NOT USED for Overturning Resistance.		

### Soil Data

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	62.4 psf/ft
Toe Active Pressure	=	45.0 psf/ft
Passive Pressure	=	250.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe	=	110.00 pcf
Friction Coeff btwn Ftg & Soil	=	0.400
Soil height to ignore for passive pressure	=	12.00 in

### Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
Used for Sliding & Overturning		

### Axial Load Applied to Stem

Axial Dead Load	=	103.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

### Lateral Load Applied to Stem

Lateral Load	=	32.0 plf
...Height to Top	=	8.00 ft
...Height to Bottom	=	0.00 ft

### Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Wind on Exposed Stem = 12.2 psf

### Design Summary

#### Wall Stability Ratios

Overturning	=	3.76 OK
Sliding	=	1.06 OK
<i>Slab Resists All Sliding !</i>		

Total Bearing Load	=	6,813 lbs
...resultant ecc.	=	7.17 in

Soil Pressure @ Toe	=	1,233 psf OK
Soil Pressure @ Heel	=	470 psf OK
Allowable	=	1,500 psf
Soil Pressure Less Than Allowable		

ACI Factored @ Toe	=	1,480 psf
ACI Factored @ Heel	=	564 psf
Footing Shear @ Toe	=	21.7 psi OK
Footing Shear @ Heel	=	67.0 psi OK
Allowable	=	82.2 psi

#### Sliding Calcs Slab Resists All Sliding !

Lateral Sliding Force	=	2,650.5 lbs
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### Stem Construction

#### Design Height Above Ftg

ft =	2.00	0.00
Wall Material Above 'H'	=	Concrete Concrete
Thickness	in =	12.00 12.00
Rebar Size	=	# 4 # 5
Rebar Spacing	in =	12.00 12.00
Rebar Placed at	=	User Spec User Spec

#### Design Data

fb/FB + fa/Fa	=	0.473	0.706
Total Force @ Section	lbs =	1,989.1	3,441.9
Moment....Actual	ft-l =	4,170.2	9,542.2
Moment....Allowable	ft-l =	8,823.0	13,524.8
Shear.....Actual	psi =	17.5	30.0
Shear.....Allowable	psi =	82.2	82.2
Wall Weight	psf =	150.0	150.0
Rebar Depth 'd'	in =	10.00	10.00
Lap splice if above	in =	12.00	15.07
Lap splice if below	in =	12.00	6.70
Hook embed into footing	in =	12.00	6.70

#### Concrete Data

f'c	psi =	3,000.0	3,000.0
Fy	psi =	60,000.0	60,000.0

### Load Factors

Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

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*Page 7*  
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$M_u$ : Design	= 2,375	9,542 ft-lb
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Allow 1-Way Shear	= 82.16	82.16 psi
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				Earth @ Stem Transitions	=		
				Footing Weight	= 1,000.0	4.00	4,000.0
				Key Weight	=	2.04	
				Vert. Component	=		
<b>Total</b>	<b>= 2,650.5</b>	<b>O.T.M. =</b>	<b>8,387.7</b>	<b>Total =</b>	<b>6,813.0 lbs</b>	<b>R.M. =</b>	<b>31,567.5</b>
<b>Resisting/Overturning Ratio</b>		<b>=</b>	<b>3.76</b>				
Vertical Loads used for Soil Pressure =		6,813.0	lbs				

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