

# **10<sup>th</sup> Street & West Lockhart Sewer Improvements**

## **Volume 2 Contract Documents**

Prepared for:

**City of Coos Bay**



**Consulting Engineers & Geologists, Inc.**

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275 Market Ave  
Coos Bay, Oregon 97420-2219  
541-266-9890

**February 2013**  
611026



Reference: 611026

# 10<sup>th</sup> Street & West Lockhart Sewer Improvements

## Volume 2 Contract Documents

Prepared for:

**City of Coos Bay**  
500 Central Avenue  
Coos Bay, OR 97420

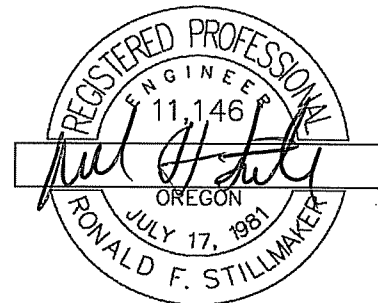
**"This project is fully funded by Lottery funds through the Water/Wastewater Financing Program  
administered by Oregon Business Development Department - Infrastructure Finance  
Authority."**

Prepared by:



Consulting Engineers & Geologists, Inc.  
275 Market Ave  
Coos Bay, Oregon 97420-2219  
541-266-9890

February 2013



Expires 06/30/2014

QA/QC: JMD



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**SECTION 00500**

**AGREEMENT**





# Notice of Award

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

Project:	
Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:
Bidder:	
Bidder's Address: <i>[send Notice of Award Certified Mail, Return Receipt Requested]</i>	

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

4 copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

3 sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [4] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:
  - a. You must deliver with the executed Agreement the insurance certificates as specified in the General Conditions (paragraph 5.03, 5.04, 5.06 including 5.07) and the related Supplementary Conditions to those General Condition sections. Parties required to be listed as insured, additionally insured, or also insured shall all be listed on the Certificates of Insurance. The date of the Certificate shall be left blank. A letter shall be provided, signed by both the Contractor and agent of the insurance company, which authorizes the OWNER to insert the date on the Certificate which is the same date as the Effective Date of the Agreement.
  - b. You must deliver with the executed Agreement, proof that an employee drug testing program is in place. Such proof may include a copy of the adopted policy or program for employee drug testing.
  - c. Also, before you may start any Work at the site, you must:
    - i. Submit a project work schedule.
    - ii. Submit a schedule of values.
    - iii. Schedule a preconstruction conference with Engineer.
    - iv. Receive a Notice to Proceed from the Engineer.

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

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature

Copy to Engineer \_\_\_\_\_  
Title

**Page left intentionally blank.**

# **SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



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ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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**SUGGESTED FORM OF AGREEMENT  
BETWEEN OWNER AND CONTRACTOR  
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between \_\_\_\_\_ (“Owner”) and  
\_\_\_\_\_, (“Contractor”).

Owner and Contractor hereby agree as follows:

**ARTICLE 1 – WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents.  
The Work is generally described as follows:

- Installation of 765 lineal feet of 8” diameter PVC sanitary sewer main
- Installation of 232 lineal feet of 12” diameter PVC sanitary sewer main
- Installation of 7 manholes
- Reconnection of existing sewer laterals
- Abandonment of the existing sanitary sewer main

**ARTICLE 2 – THE PROJECT**

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

10<sup>th</sup> Street & West Lockhart Sewer Improvements  
City of Coos Bay  
Coos Bay, OR 97420

**ARTICLE 3 – ENGINEER**

3.01 The Project has been designed by SHN Consulting Engineers & Geologists, Inc. (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 4 – CONTRACT TIMES**

4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

#### 4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 90 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 135 calendar days after the date when the Contract Times commence to run.

#### 4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$750.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$250.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

### **ARTICLE 5 – CONTRACT PRICE**

#### 5.01 *Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:*

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

### **ARTICLE 6 – PAYMENT PROCEDURES**

#### 6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

#### 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A

of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
  - a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
  - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

#### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

### **ARTICLE 7 – INTEREST**

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the highest rate allowed by the State of Oregon Public Contracting Statutes.

### **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
  - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### **9.01    *Contents***

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to \_\_, inclusive).



2. Performance bond (pages \_\_\_\_ to \_\_\_\_, inclusive).
  3. Payment bond (pages \_\_\_\_ to \_\_\_\_, inclusive).
  4. Other bonds (pages \_\_\_\_ to \_\_\_\_, inclusive).
    - a. \_\_\_\_ (pages \_\_\_\_ to \_\_\_\_, inclusive).
    - b. \_\_\_\_ (pages \_\_\_\_ to \_\_\_\_, inclusive).
    - c. \_\_\_\_ (pages \_\_\_\_ to \_\_\_\_, inclusive).
  5. General Conditions (pages \_\_\_\_ to \_\_\_\_, inclusive).
  6. Supplementary Conditions (pages \_\_\_\_ to \_\_\_\_, inclusive).
  7. Specifications as listed in the table of contents of the Project Manual.
  8. Drawings consisting of \_\_\_\_ sheets with each sheet bearing the following general title: \_\_\_\_ [or] the Drawings listed on attached sheet index.
  9. Addenda (numbers \_\_\_\_ to \_\_\_\_, inclusive).
  10. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid (pages \_\_\_\_ to \_\_\_\_, inclusive).
    - b. Documentation submitted by Contractor prior to Notice of Award (pages \_\_\_\_ to \_\_\_\_, inclusive).
  11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Notice to Proceed (pages \_\_\_\_ to \_\_\_\_, inclusive).
    - b. Work Change Directives.
    - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## ARTICLE 10 – MISCELLANEOUS

### 10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### 10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### 10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### 10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

### 10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
  - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:

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

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

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

Address for giving notices:

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

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

CONTRACTOR

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

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

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

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

Address for giving notices:

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

License No.: \_\_\_\_\_

Agent for service of process:

\_\_\_\_\_

*Page left intentionally blank.*

# Notice to Proceed

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

Project:

Owner:

Owner's Contract No.:

Contract:

Engineer's Project No.:

Contractor:

Contractor's Address: *[send Certified Mail, Return Receipt Requested]*

You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_ [(or) the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:  
Submit a project work schedule.  
Submit a schedule of values.  
Attend a preconstruction conference with Engineer.  
Submit all preconstruction information required by the Technical Specifications.

Owner

Given by:

Authorized Signature

Title

Date

Copy to Engineer



## SECTION 00600

### BONDS

<u>Section</u>	<u>Description</u>
00610	Performance Bond
00615	Payment Bond
00620	Contractor's Application for Payment
00625	Certificate of Substantial Completion
	Statutory Public Works Bond





## PERFORMANCE BOND

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

---

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

OWNER (*Name and Address*):

City of Coos Bay  
300 Central Avenue  
Coos Bay, OR 97420

### CONTRACT

Effective Date of Agreement:  
Amount:  
Description (*Name and Location*):

### BOND

Bond Number:  
Date (*Not earlier than Effective Date of Agreement*):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

### CONTRACTOR AS PRINCIPAL

### SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

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

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
  - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract; or
    2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
  - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

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

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

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

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

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

#### 11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*

Surety Agency or Broker:

Owner's Representative *(Engineer or other party)*:



## PAYMENT BOND

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

---

CONTRACTOR (*Name and Address*):

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

OWNER (*Name and Address*):

City of Coos Bay  
300 Central Avenue  
Coos Bay, OR 97420

### CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

### BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

### CONTRACTOR AS PRINCIPAL

### SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

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

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

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

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

#### 15. Definitions

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

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

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

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner's Representative *(Engineer or other)*:





Contractor's Application for Payment No.

Application Period:		Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment  
Change Order Summary

Approved Change Orders		1. ORIGINAL CONTRACT PRICE..... \$
Number	Additions	2. Net change by Change Orders..... \$
		3. Current Contract Price (Line 1 ± 2)..... \$
		4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)..... \$
		5. RETAINAGE:
		a.   X       Work Completed..... \$
		b.   X       Stored Material..... \$
		c. Total Retainage (Line 5a + Line 5b)..... \$
		6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)..... \$
		7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... \$
		8. AMOUNT DUE THIS APPLICATION..... \$
		9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)..... \$
TOTALS		
NET CHANGE BY CHANGE ORDERS		

<b>Contractor's Certification</b>  The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.	Payment of: \$	(Line 8 or other - attach explanation of the other amount)
	is recommended by:	(Engineer) (Date)
	Payment of: \$	(Line 8 or other - attach explanation of the other amount)
	is approved by:	(Owner) (Date)
	Approved by:	Funding Agency (if applicable) (Date)
By:	Date:	







# Certificate of Substantial Completion

Project:	
Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

- ☐ All Work under the Contract Documents:      ☐ The following specified portions of the Work:

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\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

- ☐ Amended Responsibilities      ☐ Not Amended

Owner's Amended Responsibilities:

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Contractor's Amended Responsibilities:

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The following documents are attached to and made part of this Certificate:

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This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer	Date
----------------------	------

Accepted by Contractor	Date
------------------------	------

Accepted by Owner	Date
-------------------	------



# STATE OF OREGON

## STATUTORY PUBLIC WORKS BOND

Surety bond #: \_\_\_\_\_ CCB # (if applicable): \_\_\_\_\_

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

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

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

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

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

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

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

SIGNED, SEALED AND DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

Surety by:

Principal by:

\_\_\_\_\_  
(Seal)  
*Company Name*

\_\_\_\_\_  
*Name*

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

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

\_\_\_\_\_  
*Title (e.g. Attorney-in-Fact)*

\_\_\_\_\_  
*Title*

**SEND BOND TO: Construction Contractors Board  
PO Box 14140  
Salem, OR 97309-5052  
Telephone: (503) 378-4621**

\_\_\_\_\_  
*Address*

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





**SECTION 00700**

**GENERAL CONDITIONS**



# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

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ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

### B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

### D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

### E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01   *Delivery of Bonds and Evidence of Insurance***

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### **2.02   *Copies of Documents***

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### **2.03   *Commencement of Contract Times; Notice to Proceed***

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefore.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01    *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02    *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03    *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*



1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

*B. Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price

or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 5 – BONDS AND INSURANCE**

### **5.01   *Performance, Payment, and Other Bonds***

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### **5.02   *Licensed Sureties and Insurers***

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### **5.03   *Certificates of Insurance***

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.



- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
  2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
  - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

## 2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and



- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

## 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

## 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

## 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
  2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

*D. Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

*E. Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

**6.18** *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

**6.19** *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:



1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
  6. any inspection, test, or approval by others; or
  7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## ARTICLE 7 – OTHER WORK AT THE SITE

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## **ARTICLE 8 – OWNER'S RESPONSIBILITIES**

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

#### 8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

#### 8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

#### 8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

#### 8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

#### 8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

#### 9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

#### 9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

#### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

#### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

#### 9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.



### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
  2. approve the Claim; or
  3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

## 11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  2. there is no corresponding adjustment with respect to any other item of Work; and
  3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

## **ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

### **12.01 *Change of Contract Price***

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

#### 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.



- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### **14.01 *Schedule of Values***

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### **14.02 *Progress Payments***

#### **A. *Applications for Payments:***

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

*B. Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
  - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

#### 14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
  - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
  - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.



## 14.07 *Final Payment*

### *A. Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

### *B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

### *C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

#### 14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
  1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
  2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

#### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

## **ARTICLE 16 – DISPUTE RESOLUTION**

### **16.01 *Methods and Procedures***

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
  - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### **17.01 *Giving Notice***

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### **17.02 *Computation of Times***

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### 17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### 17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

### 17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**SECTION 00800**

**SUPPLEMENTAL GENERAL CONDITIONS**





**DIVISION 00800**  
**SUPPLEMENTARY GENERAL CONDITIONS**

These Supplementary General Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC Document C-700 (2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect. Where any section, paragraph, subparagraph, or clause in the General Conditions is supplemented by one of the following paragraphs, the provisions of such section, paragraph, subparagraph, or clause in the General Conditions is amended, voided, or superseded by such following paragraph. The provisions of subsection, paragraph, subparagraph or clause not so amended, voided or superseded shall remain in effect.

SGC-1.01.A.3            Add the following language to the end of paragraph 1.01A.3:

The Application for Payment form to be used on this Project is included as an Exhibit to the Agreement.

SGC-1.01.A.9            Add the following language to the end of paragraph 1.01A.9:

The Change Order form to be used on this Project is included as an Exhibit to the Agreement.

SGC-1.01.A.20           Add the following language to the end of paragraph 1.01A.20:

The Field Order form to be used on this Project is included as an Exhibit to the Agreement.

SGC-1.01.A.45           Replace paragraph 1.01A.45 with the following:

1.01.A.44      Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer as evidenced by Engineer’s definitive Certificate of Substantial Completion it is 100% complete in accordance with the Contract Documents with the exception of minor and specific corrective items that would normally be itemized on a final punch list and completed before final acceptance; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by Engineer’s written recommendation of final payment in accordance with paragraph 14.07. The terms “substantially complete” and ”substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.

SGC-1.01.A.51           Add the following language to the end of paragraph 1.01A.51:

The Work and the Work Area include only new additions as well as changes to existing structures and conditions so designated for alteration as shown and specified herein.

- SGC-1.01.A.52 Add the following language to the end of paragraph 1.01A.50:
- The Work Change Directive form to be used on this Project is included as an Exhibit to the Agreement.
- SGC-2.02.A Amend the first sentence of paragraph 2.02.A to read:
- Owner shall furnish to Contractor up to five (5) copies of the Contract Documents...[remainder stays the same.]
- SGC-2.03.A Amend the first sentence of paragraph 2.03.A to read:
- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed...[remainder stays the same.]
- SGC-3.03.B Add the following paragraph:
- 3.03.B.2. Where a conflict occurs between or within the standards, specifications, and drawings, the more stringent or higher quality requirements shall apply. The precedence of the Construction Documents is in the following sequence:
- a. Addenda and modifications to the Drawings and Specifications take precedence over the original construction documents.
  - b. In the Drawings, the precedence shall be Drawings of a larger scale over those of a smaller scale, figured dimensions over scaled dimensions, and noted materials over graphic indications.
  - c. Should there be a conflict within the Specifications, on the Drawings, or between the Drawings and the Specifications, the Engineer shall decide which stipulation will provide the best installation and his or her decision shall be final.
- SGC-3.03.B Add the following paragraph:
- 3.03.B.3. Before executing the Agreement, the Contractor shall thoroughly familiarize itself with all specified products and submit written notice to Engineer if it objects to the proposed use of any product.
- 3.03.B.4. Referenced standards are a part of these specifications. If choices or options are contained therein, selection will be made by the Engineer.

3.03.B.5. Wherever in these specifications a product is referred to in the singular number, such reference shall include as many such items as are indicated or required to complete the work.

3.03.B.6. These specifications are of the abbreviated or 'streamlined' type and frequently include incomplete sentences. Words such as 'shall,' 'shall be,' 'the Contractor shall,' and similar phrases shall be supplied by inference.

SGC-4.03.A.4 Replace paragraph 4.03.A.4 in its entirety with: "is of an unusual nature, and differs materially from conditions ordinarily encountered in the project region and generally recognized as inherent in work of the character provided in the Contract Documents".

Amend the remainder of the paragraph to read: ...then Contractor shall, within two working days after becoming...

SGC-4.04.A.3 Add the following paragraph:

4.04A.3. Oregon law requires Contractor to follow rules adopted by the Oregon Utility Notification Center (OUNC). These rules are set forth in OAR 952-001-0010 through 952-001-0090. OUNC can be contacted at (503) 232-1987 and copies of the rules can be obtained from the center.

SGC-4.06.A Add the following to paragraph 4.06.A:

1. No reports or drawings of Hazardous Environmental Conditions have been performed at the site. Engineer has not used or relied upon any drawings or other documents relating to existing Hazardous Environmental Conditions at the site in the preparation of the Contract Documents.

SGC-4.06.C.1 Add the following to paragraph 4.06.C:

4.06.C.1 Contractor shall be responsible for and to pay all costs associated with the abatement, removal, and disposal of any existing Asbestos-Cement pipe requiring removal or disturbed during the Work which is shown or indicated in Drawings or Specifications.

SGC-4.06.G Add to the beginning of the first sentence of paragraph 4.06.G:

"Subject to the provisions of the Oregon Constitution, applicable laws and regulations, and to the limits of the Oregon Tort Claims Act: and delete "To the fullest extent permitted by Laws and Regulations."

SGC-4.07

Add the following paragraph:

4.07.A Historical or Archaeological Finds.

1. Where historical objects of archaeological or paleontological nature are encountered during the course of construction, including but not limited to ruins, sites, buildings, artifacts, and fossils, the Contractor shall suspend operations in the area, preserve all such objects from disturbance, and shall notify the Engineer of the nature and location of such finds. The Engineer will arrange for the disposition of all finds and shall notify the Contractor when to proceed with construction in the affected area.

SGC-5.01.A

Replace the first sentence of paragraph 5.01.A with the following:

“Contractor shall furnish a performance bond in an amount at least equal to the Contract Price as security for the faithful performance of all the Contractor’s obligations under the Contract Documents.”

SGC-5.01.B

Add the following to paragraph 5.01.B:

5.01.B.1 "The Bonds shall be accompanied by the name, address and phone number of the agent for the surety who is authorized to receive notice of claims against the Bond."

SGC-5.01.D

Public Works Bond

1. CONTRACTOR shall have a public works bond filed with the Oregon Construction Contractor’s Board before starting Work on the Project unless exempt under ORS 279C.836 (7) or (8).
2. CONTRACTOR shall include in every subcontract a provision requiring every subcontractor to have a public works bond filed with the Oregon Construction Contractor’s Board before starting Work on the Project unless exempt under ORS 279C.836 (7) or (8).

SGC-5.02.A.1

Add the following subparagraph to paragraph 5.02.A:

5.02.A.1 Bonds and insurance shall be written by companies licensed to do business in the State of Oregon and satisfactory to the Owner.

SGC-5.04.B.1

Amend paragraph 5.04.B.1 to read as follows:

5.04.B.1 with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as addi-

tional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage **and non-contributory with any insurance maintained by Owner** for all claims covered thereby;

SGC-5.04.C

Add the following to paragraph 5.04:

5.04.C           The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.04. C.1       Workers' Compensation, etc. under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions, with a waiver of subrogation in favor of Owner:

(1) State (Oregon Statutory Required)	\$ 500,000
(2) Applicable Federal (e.g. Longshoremen's)	Statutory
(3) Employer's Liability: Each Accident	\$ 500,000
Disease each employee	\$ 500,000
Disease policy limit	\$ 500,000

Contractor shall require all subcontractors to purchase and maintain Workman's Compensation Insurance, including Occupational Disease and Employer's Liability Insurance, in the amounts and coverage as required by all applicable Federal, State or other laws.

5.04.C.2       Contractor's General Liability under paragraphs 5.04.A.3 and A.6 of the General Conditions, which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

(1) General Aggregate (Except Products-Completed Operations)	\$2,000,000
(2) Products-Completed Operations Aggregate	\$2,000,000
(3) Personal and Advertising Injury (per Person/Organization)	\$1,000,000
(4) Each Occurrence (Bodily Injury and Property Damage)	\$1,000,000
(5) Personal Injury Liability Coverage will include Claims arising out of Employment.	
(6) Property Damage Liability Insurance will Provide Coverage for Explosion, Collapse and Underground Damage.	
(7) Excess or Umbrella Liability:	
a. General Aggregate	\$1,000,000
b. Each Occurrence	\$1,000,000

5.04.C.3        Contractual Liability required by paragraph 5.04.B.4 of the General Conditions shall be provided by the Contractor as follows:

(1) Bodily Injury and Property Damage:

a. Combined Single Limit of \$1,000,000

5.04.C.4        Comprehensive -Automotive Liability required under paragraph 5.04.A.6 of the General Conditions shall be provided by the Contractor as follows:

(1) Bodily Injury and Property Damage

a. Combined Single Limit of \$1,000,000

SGC-5.04 D        Add the following paragraph to 5.04:

Insurance shall contain a written provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain a waiver provision in accordance with paragraph 5.07.

SGC-5.09.A        Add the following to paragraph 5.09.A:

5.09.A.1        Owner reserves the right to review, investigate, and reject Insurance companies proposed to be used by Contractor if they are determined inadequate to provide necessary coverages as specified in these documents.

SGC-6.03.B        Add the following to paragraph 6.03.B:

6.03.B.1        Contractor agrees to prefer goods or services that have been manufactured or produced in the United States of America if price, fitness, availability, or quality is otherwise equal.

SGC-6.05        Add the following to paragraph 6.05.A:

After the Effective Date of Agreement, the Engineer may consider formal requests from the Contractor for substitution of materials or methods in place of those specified when submitted in accordance with the requirements of this section and related sections of Division 1000, General Requirements.

SGC-6.05.A.2.e        Add the following to paragraph 6.05.A.2:

6.05.A.2.e It shall be the responsibility of the Contractor to ensure that the items to be furnished as substitution shall fit within the space and envelope of the originally specified item. The Contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the plans and specifications. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment to operate properly and in harmony with the intent of the plans and specifications and to make all changes in the work required by the different arrangement of connections.

SGC-6.06.A Add the following sentences to the beginning of paragraph 6.06.A:

6.06.A Bidder shall list subcontractors and suppliers on Bid Form, Section 00435, sign and submit the completed form to Owner within two (2) working hours of the time and at the place for receipt of Bids as identified in the Instructions to Bidders, Section 00200, Article 12.

SGC-6.06.G Add the following paragraphs:

6.06.G.1 Contractor agrees to make all provisions of the contract with the Owner applicable to any Subcontractor performing work under the contract.

6.06.G.2 Contractor and all first tier Subcontractors and Suppliers must comply with prompt payment provisions pursuant to ORS 279C.505. Contractor shall include in each subcontract for property, materials or services (1) a payment clause which obligates the Contractor to pay such Subcontractor or Supplier within 30 days of receiving payment from the Owner, (2) an interest penalty clause which obligates the Contractor to pay the Subcontractor an interest penalty on delinquent payments, and (3) a clause which requires first tier Subcontractors or Suppliers to include similar payment and interest penalty clauses in lower tier subcontracts. These clauses and the rights and obligations described thereby, shall conform to the requirements of ORS 279C.515, and ORS 279C.580.

SGC-6.06.H Add the following paragraph:

6.06.H Contractor will comply with ORS 279C.580 regarding all relations with subcontractor.

SGC-6.09 Add the following paragraphs:

6.09.D Payment of Prevailing Wage Rates for Public Works. The Contractor and all persons doing or contracting to do any of the work contemplated by the Contract shall comply with all Federal and State Laws in employment and payment of labor. Contractor shall comply with all provisions of said laws (and pay all related fees), not only in regard to the payment of prevailing wage rates, but also in the matter of the necessary certificates and affidavits required to accompany each request for payment. No payment, progress or otherwise, will be paid unless accompanied by the necessary certificates and affidavits pertaining to prevailing wages.

6.09.E The minimum wages to be paid workers on this project shall not be less than the prevailing rate including fringe benefits in accordance with ORS Ch 279C, paid to the corresponding classes of workers in the locality where the public work is being provided. Prevailing rates shall be in accordance with the most current version (or as it is modified by addendum) of the "Prevailing Wage Rates for Public Works Contracts in Oregon" as published by the Oregon Bureau of Labor and Industries. Such publications can be obtained from the Bureau of Labor and Industries and a copy of the most current version is to be supplied to the Owner with the first pay request. If a dispute arises as to what is the prevailing wage rate for any class of workers, and a dispute cannot be settled by the parties involved, it may be referred to the Commissioner of Labor, State of Oregon, for final determination.

6.09.E.1 The wage rates are minimum rates only and the Owner will not consider any claims for additional compensation because of payment made by the Contractor or a Subcontractor of any wage rate in excess of the prevailing rate.

6.09.E.2 If Owner determines at any time that the prevailing rate of wage has not or is not being paid as required herein, it may retain from moneys due to Contractor an amount sufficient to make up the difference between the wages actually paid and the prevailing rate of wages, and may also cancel the Contract. Liquidated damages for failure to pay the rate of wage required herein shall be an additional amount equal to the unpaid premium over and above the liability of the Contractor, any Subcontractor, or surety to pay said unpaid minimum to any workers affected.

6.09.F Under the provisions of Oregon Law, ORS 279C, the wage certification form on public works contracts must be provided: Once within fifteen (15) days of the date the Contractor or Subcontractor first began work on the project and once before the final inspection of the project by the public contracting Owner. In addition, for projects exceeding ninety (90) days, submissions are to be made at 90-day intervals. Payroll information is to be filed with both the public



contracting Owner and the Wage and Hour Division, Bureau of Labor and Industries, 1400 S.W. 5th Avenue, Portland. Oregon 97201. This payroll information must be kept by the Contractor and/or Subcontractor for three (3) years.

6.09.G Contractor shall strictly observe and obey all of the terms and provisions of Chapter 279C, Oregon Revised Statutes, pertaining specifically, but not exclusively, to the furnishings of Workers Compensation Insurance, payment of laborers and materialmen, the withholding of State and Federal income and other taxes, hours of labor, and all other regulations provided in said chapter, and shall hold Owner harmless on account thereof.

6.09.H Contractor shall employ no person for more than ten hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires it. In such cases, Contractor shall pay the laborer at least time and a half pay for all overtime in excess of eight hours in any one day or 40 hours in any one week, when the work week is five consecutive day, Monday through Friday; or ten hours in any one day, or 40 hours in any one week, when the work week is four consecutive day, Monday through Friday; and for all work performed on Saturday and any legal holiday specified in ORS 279C.540. When specifically agreed to in a written labor-management negotiated labor agreement, a laborer may be paid at least time and a half pay for work performed in any legal holiday specified in ORS 187.010 and 187.020 and not listed in ORS 279C.540(1)(B).

Contractor to comply with ORS 279C.520 to 279C.545 regarding hours of labor and overtime.

6.09.I Contractor shall comply with ORS 279C.530 and shall make payment promptly, as due, to any person, copartnership, association, or corporation furnishing medical, surgical, hospital, or other needed care of attention incident to sickness or injury to the employees of Contractor of all sums which the Contractor agreed to pay or collected or deducted from the wages of employees pursuant to any law, Contractor or agreement for the purpose of providing payment for such service.

6.09.J The Contractor, or its Subcontractors, if any, and all employers working under this Contract are subject employers under Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide Workers' Compensation for all their subject workers as defined under ORS chapter 656 (ORS 279C.530(2)).

6.09.K Contractor shall comply with all federal, state, and local laws and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of the Contract. If new or amended statutes, ordinances, or regulations are adopted, or the Contractor encounters a condition not referred to in the bid document not caused by the Contractor and not discoverable by reasonable site inspection which requires compliance with federal, state, or local laws or regulations dealing with the prevention of environmental pollution or the preservation of natural resources, both the Owner and the Contractor shall have all the rights and obligations specified in ORS 279C.525 to handle the situation.

6.09.L This Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, handicap, marital status, age, or national origin. Such action shall include, but not be limited to: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

6.09L.1 The Contractor shall post in conspicuous places available to employees and applicant for employment, notices setting forth the provisions of this nondiscrimination clause. Contractor's and Subcontractor's solicitations and advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, handicap, marital status, age, or national origin.

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

#### SGC-6.10.A

Add the following paragraphs:

6.10.A.1 Contractor and any Subcontractor shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

6.10.A.2 Contractor shall pay promptly all contributions or amounts to the State Industrial Accident Fund and the State Unemployment Compensation Fund from Contractor or any Subcontractor in connection with the performance of the contract.

- SGC-9.03.A Delete paragraph 9.03.A in its entirety and substitute the following paragraph:
- 9.03.A Owner will furnish a Resident Project Representative to assist Engineer in providing more continuous observation of the Work.
1. The responsibilities and authority and limitation thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the related Supplementary General Conditions.
- SGC-9.03 Add the following paragraph:
- 9.03.B Should the Engineer furnish a Resident Project Representative, this assistant will be assigned to various portions of the work by the Engineer. It is understood that the Resident Project Representative shall have the power, in the absence of the Engineer, to issue instructions and make decisions within the limitations of the authority of the Engineer. The authority of such assistants shall, however, be limited to the particular portion or phase of the work to which they are assigned and by the particular duties assigned to them by the Engineer.
- SGC-9.08.A Change the second sentence of paragraph 9.08.A to read:
- ...Claims, disputes, all matters in question, and other matters between Owner and Contractor arising prior to the date of final payment is due relating to the acceptability of the Work, classifications of Unit Price Work, and the interpretations of the Contract Documents pertaining to the performance of the work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- SGC-9.09.D Add the following sentence:
- 9.09.B When functioning as interpreter and judge under this paragraph 9.09, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.
- SGC-9.10 Add the following paragraph:
- 9.10 Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on Owner and Contractor. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of

any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation; a Claim may be made therefore as provided in paragraph 10.05.

SGC-10.05.A Modify the lines of paragraph 10.05.A as indicated below:

- Line 4 - change "30" to "15"
- Line 8 - change "60" to "30"
- Line 21 - change "30" to "15"

SGC-10.05.A Add the following paragraph to 10.05.A:

10.05.A.1 Contractor shall comply with ORS 279C.600 and ORS 279C.605 regarding the Notice of Claim.

SGC-11.03.D.1 Delete paragraph 11.03.01 in its entirety and substitute the following paragraph:

11.03.D.1 The quantity of any item of Unit Price Work performed by Contractor differs by more than 50 percent from the estimated quantity of such item indicated in the Agreement; and

SGC-13.03.A Add the following paragraph:

13.03.A.1 Timely notice for inspections, tests, or approvals shall mean not less than 48 hours prior to the time when inspection, test, or approval is required.

SGC-13.06.A Add the following to paragraph 13.06.A:

...and including all Owner's engineering costs associated with correction of the defective Work and re-inspection of the corrected Work.

SGC-13.07 Change the first sentence of paragraph 13.07 to read:

If within one year after the date of Final Acceptance or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable... [remainder stays the same.]

SGC-14.02.A.2 Add the following paragraphs:

14.02.A.2.a Payments of Liens, Withholding Taxes, Contributions to Industrial Accident Fund, Labor, and Materials. The Contractor shall make payment promptly as due to all persons supplying to the Contractor labor or materials for the prosecution of the work provided for herein, and shall pay all contributions or amounts due the State Industrial Accident Fund from the Contractor or subcontractors

incurred in the performance of this Contract. The Contractor shall permit no lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished, and shall promptly pay any and all withholding taxes, whether state or federal, all social security charges and all contributions on amounts due to the State Unemployment Compensation Trust Fund, and promptly pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees, or sums whatsoever which are now or may hereafter be required to be paid or withheld under any laws of the state and location where the work is to be performed. Contractor shall assume responsibility for satisfaction of any liens or claims filed or prosecuted and shall defend, indemnify, and hold Owner harmless against any such liens or claims.

14.02.A.2.b Payment of Claims by the Owner. In the event the Contractor shall fail, neglect, or refuse to make prompt payment of any claim for labor or services furnished to the Contractor or Subcontractor by any person in connection with this contract as such claim becomes due, whether said services and labor be performed for the Contractor or a Subcontractor, then in such event, the proper officer or officers representing the Owner may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due to the Contractor. The payment of a claim in the manner authorized herein shall not relieve the Contractor or its Surety from its obligation with respect to any unpaid claims. If the Owner is unable to determine the validity of any claim for labor or material furnished, the Owner may withhold from any current payment due Contractor an amount equal to said claim until its validity is determined, and the claim, if valid, is paid by the Contractor or the Owner. There shall be no Final Acceptance of the work under the Contract until all such claims have been resolved.

SGC-14.02.A.3 Delete paragraph 14.02.A.3 and add the following paragraph:

14.02.A.3 Retainage Withheld

a. A percentage of the amount requested on each payment certificate will be withheld as retainage until Final Acceptance of the work by the Owner. Retainage amounts and details will be as stipulated in the Agreement.

SGC-14.02.C Delete paragraph 14.02.C.1 and add the following:

14.02.C.1 After presentation of the Application for Payment to Owner by Engineer with Engineer's recommendation, the Application for Payment will be reviewed and processed by Owner and other involved funding agencies, if any, and the amount recommended and accepted by Owner and other involved agencies, if any, will (subject to the provisions of paragraphs 14.02.B.5 and 14.02.D) become due and

payable by Owner to Contractor on the date established for progress payments in the Agreement.

14.02.C.2 The Owner and the Contractor are bound by the rights and responsibilities of the prompt payment policies and shall comply with the procedures for prompt payment as stated in ORS 279C.515, 279C.570 and ORS 279C.580.

SGC-14.04.B

Add the following:

14.04.B.1 Substantially complete is further defined and clarified as being 100% complete in accordance with the Contract Documents with the exception of minor and specific corrective items that would normally be itemized on a final punch list and completed before final acceptance. Final completion of the entire project shall be no later than the time indicated on the Certificate of Substantial Completion. If no date is indicated, then thirty (30) calendar days from the date of substantial completion will be considered maximum. If final completion is not accomplished within the time indicated, liquidated damages if included in this Contract and as defined in the Agreement will be reinstated at that date and will continue until final completion or a time extension is granted.

SGC-14.04.F

Add the following:

14.04.F Liquidated Damages. Should the Contractor fail to accomplish Substantial Completion or Final Acceptance in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for every day that the Contract remains uncompleted after the date of completion given in the Contract. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the Work within the time agreed is the per diem rate stipulated in the Agreement as a minimum or actual expenses or damages if they exceed this agreed to minimum amount. The said amounts are hereby agreed upon as liquidated damages for the loss to the Owner and on account of the value of the operation of the works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as actual expense and damages experienced by the Owner for delay of completion beyond the agreed to Contract times. Owner is authorized to deduct the amount of such damages from any monies due the Contractor for work performed or material furnished under this Contract, and the Contractor and its sureties shall be liable for any excess. Liquidated damages include only cost and expenses incurred

by the Owner for delay of completion beyond the agreed to Contract times. Liquidated damages do not include any other cost, expense, or claim Owner may have against Contractor for any other reason.

SGC-14.07.A

Add the following paragraphs to paragraph 14.07.A:

14.07.A.4 Final payment will not be made to the Contractor until it files with the Owner a notarized affidavit containing the following statements:

- a. "I (we) hereby certify that all work has been performed and material supplied in accordance with the plans, specifications, and Contract Documents for the above work;
- b. No less than the prevailing rates of wages as ascertained by the governing body of the contracting Owner have been paid to laborers and workers employed on this work (a signed State-approved Wage Certification Form certifying that Contractor has paid not less than the prevailing rate of wages as required by law);
- c. No subcontract was assigned or transferred or performed by any subcontractor other than the original subcontractor, without prior notice having been submitted to the Engineer together with the names of all subcontractors;
- d. All suppliers and subcontractors connected with the Work have been paid in full;
- e. All claims for material and labor and other services performed in connection with these specifications have been paid;
- f. All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, hospital associations, and/or others have been paid."

SGC-14.07.C.1

Add the following sentence to paragraph 14.07.C.1:

Final Payment shall include all amounts withheld as retainage.

SGC-14.08.A

Add the following sentence to paragraph 14.08.A:

The remaining balance of any sum included in the final application for payment but held by Owner for Work not fully completed and accepted will become due when the Work is fully completed and accepted.

SGC-14.09.A.1

Replace paragraph 14.09.A.1 with the following paragraph:

14.09.A.1 A waiver of all claims by Owner against Contractor, except claims arising from unsettled liens, from defective work appearing after final inspection pursuant to paragraph 14.06, or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from negligent acts or omissions occurring during the work of the Contractor, any Subcontractor, or any of their agents or employees which resulted in property damage or personal injury to any person; however, it will not constitute a waiver by Owner of any rights in respect of Contractor's continuing obligations under the Contract Documents; and

SGC-16.01

Delete Paragraph 16.01 in its entirety and insert the following in its place:

“SGC-16.01 Third-Party Neutral Evaluation

A. Engineer’s action under Paragraph 10.05.B or a denial pursuant to Paragraphs 10.05.B or 10.05.C shall become final and binding 30 days after receipt of written notice of Engineer’s action or decision unless, within that time period, Owner or Contractor gives to the other party written notice of intent to submit the Claim to a third-party neutral as set forth below.

B. Within 30 days of delivery of the written notice described in Paragraph SGC-16.01.A, Owner and Contractor shall meet and agree on a qualified neutral individual to evaluate the Claim and make a non-binding recommendation for its resolution. In the event the parties cannot so agree within this 30-day period, either party may request that a judge of the Circuit Court of the State of Oregon for Coos County appoint a qualified third-party neutral.

C. Within 30 days of the appointment of the third-party neutral, Owner, Contractor, and the neutral shall attend a meeting to discuss the Claim and provide the neutral with information and documentation for evaluation of the Claim.

D. Within 30 days of the conclusion of the meeting described in SGC-16.01.C, the neutral shall issue a non-binding recommendation for settlement, including a statement of the rationale and Contract provisions relied upon.

E. The fees and expenses of the Court proceeding to appoint a third party neutral and the neutral shall be shared equally by Owner and Contractor.

F. If the Claim is not resolved by the third-party neutral evaluation, Engineer’s action under Paragraph 10.05.B or a denial pursuant to Paragraphs 10.05.B or 10.05.C shall become final and binding 30 days



after receipt of the neutral's recommendation unless, within that time period, Owner or Contractor:

1. Gives to the other party written notice of intent to submit the Claim to binding arbitration in accordance with the following procedures;
2. Any controversy or claim arising out of or relating to this contract, including the making, performance, or interpretation of this contract the contract documents, excluding only those claims resolved by the third-party neutral evaluation, shall, be settled by binding arbitration before a single arbitrator. The arbitrator shall be an attorney licensed to practice law in the State of Oregon. The party seeking arbitration shall give written notice to that effect to the other party in accordance with SGC 16.01 F.1. above, and shall, in that notice, select an arbitrator. Within fifteen (15) days thereafter, the other party shall by written notice either agree to the arbitrator selected or suggest another person to act as arbitrator. If the parties cannot agree within thirty (30) days to the selection of a single arbitrator, after the election to arbitrate, either party may request that the selection of an arbitrator be made by a judge of the Circuit Court for Coos County, Oregon. Owner and Contractor will pay their own costs of arbitration, and, unless costs are awarded by the arbitrator to the prevailing party, each are obligated to pay one half of the arbitrator's fee.

Unless otherwise agreed the arbitration shall be conducted in Coos County, Oregon. If arbitration is commenced, the parties agree to permit discovery proceedings of the type provided for by the Oregon Rules of Civil Procedure both in advance of and during recess of the arbitration proceedings, ORS 183.450 (1) through (4), where applicable, shall control the admission of evidence at the hearing in any arbitration conducted hereunder, provided however no error by the arbitrator in application of the statute shall be grounds as such for vacating the arbitrator's award. Each party shall be entitled to present evidence and argument to the arbitrator. The arbitrator shall give written notice to the parties stating the arbitration determination and shall furnish to each party a signed copy of such determination and judgment so the award may be entered in any court having jurisdiction over the parties. The parties agree that the Circuit Court of the State of Oregon for Douglas County shall have jurisdiction to enforce any award made as a result of the arbitration.

If arbitration is commenced, this contract shall be governed by and construed in accordance with the laws of the State of Oregon. The parties agree that the arbitrator shall have no jurisdiction to render an award or judgment for punitive damages. The parties agree that the decisions of the arbitrator shall be final and binding on the parties and a judgment may be entered on the arbitrator's award. The parties agree that all facts and other information relating to any arbitration arising under this contract shall be kept confidential to the fullest extent permitted by law. Unless otherwise inconsistent herewith, the provisions of ORS Chapter 36 shall apply to any arbitration hereunder. In the event of arbitration under the provisions of this agreement, the prevailing party shall be awarded reasonable attorney fees and related costs, disbursements, and expert witness fees as provided for in this contract. The duty to arbitrate shall survive the cancellation or termination of this Agreement.

**Attorney's Fees:** In the event any action, suit, arbitration or other proceeding shall be instituted by either party to this contract to enforce any provision of this contract or any matter arising therefrom or to interpret any provision of this contract, including any proceeding to compel arbitration, the prevailing party shall be entitled to recover from the other a reasonable attorney's fee to be determined by the Court or Arbitrator. In addition to recovery of a reasonable attorney's fee, the prevailing party shall be entitled to recover from the other costs and disbursements, including all costs of Arbitration, and the Arbitrator fees, disbursements, including all costs of Arbitration, and the Arbitrator fees, and expert witness fees, as fixed by the Arbitrator or Court in which the case is heard. In the event any such action, suit, arbitration or other proceeding is appealed to any higher court or courts, the prevailing party shall recover from the other reasonable attorney's fee for prosecuting or defending such appeal or appeals, in addition to the reasonable attorney's fees in the lower court or courts or arbitration proceeding such fee to be determined by the appellate court or lower court or arbitrator as the appellate court may determine. In addition to recovery of a reasonable attorney's fee on appeal, the prevailing party shall be entitled to recover from the other all costs and disbursements and expert witness fees as fixed by the Appellate court. All costs and disbursement that may be awarded pursuant to this paragraph shall bear interest at the maximum legal rate from the date they are incurred until the date they are paid by the losing party.

G. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SGC-16.01.F.1 shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer's action or denial shall become final and binding.

H. Arbitration as provided for in paragraph SGC16.01.F shall be the only means used to settle claims, disputes, or other matters between Owner and Contractor"

**END OF SECTION**

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## **SECTION 00810**

### **PERMITS**

INSERT AS ISSUED



**SECTION 00850**

**LIST OF DRAWINGS**





## SECTION 00850

### LIST OF DRAWINGS

The following drawings are incorporated in these specifications, whether they are bound into the specification document or bound separately.

Sheet List Table	
Sheet Number	Sheet Title
G-1	COVER SHEET
G-2	STANDARD ABBREVIATIONS LEGENDS
C-1	DEMOLITION PLAN
C-2	PLAN AND PROFILE SHEET 1
C-3	PLAN AND PROFILE SHEET 2
D-1	PROJECT DETAILS
D-2	PROJECT DETAILS

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## SECTION 00900

### SAMPLE FORMS

<u>Section</u>	<u>Description</u>
00940	Work Change Directive
00941	Change Order
00942	Field Order



# Work Change Directive

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

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

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

## Purpose for Work Change Directive:

- ☐ Authorization for Work described herein to proceed on the basis of Cost of the Work due to:
- ☐ Nonagreement on pricing of proposed change.
- ☐ Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

## Estimated change in Contract Price and Contract Times:

Contract Price \$ \_\_\_\_\_ (increase/decrease)

Contract Time \_\_\_\_\_ days (increase/decrease)

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Contractor by:	Date
Approved by Funding Agency (if applicable):	Date:

Sample

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# Change Order

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

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

## The Contract Documents are modified as follows upon execution of this Change Order:

Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Attachments: (List documents supporting change): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price:  \$ _____	Original Contract Times: <input type="checkbox"/> Working days <input type="checkbox"/> Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____:  \$ _____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order:  \$ _____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order:  \$ _____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order:  \$ _____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency (if applicable): _____		Date: _____

# Change Order

## Instructions

---

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.



## No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

00942-1

Sample

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**SECTION 00910**

**ADDENDA**

INSERT AS ISSUED



## **TECHNICAL SPECIFICATIONS**



# Technical Specifications

## Table of Contents

Section	Title
<b>Division 01</b>	
011100	Summary of Work
011150	Measure and Payment
011216	Construction Schedule
011400	Coordination
013300	Shop Drawings, Submittals, and Substitutions
014500	Testing and Laboratory Services
015000	Temporary Facilities and Controls
015100	Temporary Utilities – Bypass Pumping
015600	Site and Area Cleanup
015719	Temporary Environmental Control
017000	Project Closeout
<b>Division 02</b>	
022200	Site Conditions
024100	Demolition and Disposal
<b>Division 03</b>	
031000	Concrete Forming and Accessories
032000	Concrete Reinforcing
033000	Cast in Place Concrete
<b>Division 31</b>	
310000	Site Preparation
312213	Rough grading
312317	Trenching
<b>Division 32</b>	
321000	Surface Restoration
<b>Division 33</b>	
330130.13	TV Inspection of Sewer Pipeline
330132	Sewer and Manhole Testing
330513	Manholes and Cleanouts
334100	Sanitary Sewer Lines and Appurtenances

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**DIVISION 010000**

**GENERAL REQUIREMENTS**



## SECTION 01 00 00

### DIVISION 1--GENERAL REQUIREMENTS

<u>SECTION</u>	<u>TITLE</u>
01 11 00	SUMMARY OF WORK
01 11 50	MEASUREMENT AND PAYMENT
01 12 16	CONSTRUCTION SCHEDULE
01 14 00	COORDINATION
01 33 00	SHOP DRAWINGS, SUBMITTALS, AND SUBSTITUTIONS
01 45 00	TESTING AND LABORATORY SERVICES
01 50 00	TEMPORARY FACILITIES AND CONTROL
01 51 00	TEMPORARY UTILITIES - BYPASS PUMPING
01 56 00	SITE AND AREA CLEANUP
01 57 19	TEMPORARY ENVIRONMENTAL CONTROL
01 74 00	PROJECT CLOSEOUT

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## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 GENERAL

##### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work consists of furnishing all labor; materials, equipment, incidentals and performing all work required for construction of the City of Coos Bay, 10<sup>th</sup> Street & West Lockhart Sewer Improvements, as shown on the Drawings.
- B. Specific tasks of construction include but are not limited to, the following:
  - 1. Site preparation including finish grading; surface preparation and installation of site surfacing required for equipment access; environmental site controls including NPDES 1200 C permit (if required), sediment barriers as required for the control of water and prevention of construction related pollution; potholing utilities; maintenance and disposal of temporary asphalt or gravel material; notifications; and site and area cleanup.
  - 2. Installation of 765 lineal feet of 8" diameter PVC sanitary sewer main
  - 3. Installation of 232 lineal feet of 12" diameter PVC sanitary sewer main
  - 4. Installation of 7 manholes
  - 5. Reconnection of existing sewer laterals
  - 6. Restoration of all surfaces and areas disturbed
  - 7. Abandonment of the existing sanitary sewer main
- C. Location of Work

The project is located at, in and around south 10<sup>th</sup> Street, located in the City of Coos Bay, Oregon.
- D. Contractor's Duties
  - 1. Except as specifically noted, provide and pay for:
    - a. Labor, materials, and equipment not supplied by Owner.
    - b. Tools, construction equipment, and machinery
    - c. Water, heat, and utilities required for construction

- d. All other facilities and services necessary for proper execution and completion of work
2. Pay legally required sales, consumer, and use taxes.
3. Conform to the requirements of all permits.
4. Secure and pay for proper execution and completion of the work, and applicable permits and licenses, as necessary.
5. Give required notices.
6. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities.
7. Promptly submit written notice to Engineer of observed variance of contract documents from legal requirements.
8. Enforce strict discipline and good order of the employees. Do not employ on project:
  - a. Unfit persons,
  - b. Persons not skilled in assigned tasks.

## 1.2 CONTRACTS

- A. A single contract may be issued depending upon a determination by the Owner of what is in the best interest of the City of Coos Bay.
- B. If multiple contracts for the work are issued, Contractor shall coordinate work to avoid delays, interferences, and conflicts with other Contractors performing other work for the project.

## 1.3 WORK SEQUENCE

1. Submit construction schedule within 14 days from signing of the Contract as specified in Section 01 12 16.
2. Prior to commencement of work, the Contractor shall become familiar with the existing underground utilities and all improvements that might be affected by this Work.
3. Prepare all site controls.
4. Conduct all exploratory excavations for un-locatable utility conflicts.
5. Submit a traffic control plan to Engineer and City for approval.

6. Required equipment testing as set forth by the contract documents.
7. Complete project work outlined in these specifications within the required time frame.
8. Start-up and operator training on new equipment.
9. Restore site, complete surface restoration activities, clean-up construction and easement areas, and conduct Owner/Engineer walkthrough.
10. Complete electrical installation upgrade including control panels, conductors, instrumentation, and control system within the timeframe required by the Contract and as set forth in the Construction Schedule.

#### 1.4 CONTRACTOR'S USE OF PREMISES

- A. Right-of-way easements, construction easements, and encroachment permits will be obtained by the Owner and will be available for inspection at the office of the Engineer upon request. The Contractor shall become acquainted with, and abide by, any requirements of these documents.
- B. Contractor is responsible for the construction site, storage areas, and disposal sites. Contractor shall prepare construction area in accordance with all applicable state, federal, and local regulations and provide environmental site controls necessary to comply with the storm water pollution control. Upon completion of project, Contractor shall clean property to as good or better condition than pre-construction conditions.
- C. Confine operations at site to areas permitted by:
  1. Permits and Easements,
  2. Areas clearly delineated on drawings.
- D. Do not encumber site with materials or equipment.
- E. Coordinate Contractor's use of the premises with other contractors performing work on the project.
- F. Do not load structure or roadway with weight that will endanger or render unusable any structures or roadways.
- G. Assume full responsibility for protection and safekeeping of products stored on premises.
- H. Move any stored products that interfere with operations of Owner or other Contractor.

- I. Obtain and pay for use of additional storage or work area for operations in any areas other than the designated or the Drawings.

#### 1.5 SPECIAL PROJECT REQUIREMENTS

- A. Owner will operate existing facility as currently practiced except where Contractor specifically provides written requests to change operations to allow construction to proceed. Any damage to exiting facilities impacting facility operations will be repaired immediately. Cost for compliance with discharge permit requirements is included in payment for individual items of work, and no additional compensation for cost arising out of maintaining compliance will be allowed.

#### 1.6 PERFORMANCE CRITERIA

- A. Contractor is notified that facility is subject to agency performance testing criteria. Contractor Responsibilities during performance testing period shall include:
  - 1. Functional Testing.
  - 2. Start-up and Training
  - 3. Responding to construction related issues affecting Owner's ability to meet NPDES permit requirements for a period of 1 year after final completion.
- B. Criteria for determining Contractor's obligations during performance testing period include:
  - 1. Satisfactory Functional Testing as specified in equipment sections.
  - 2. Owner's demonstrated ability to meet NPDES permit requirements as specified in Owner's permit for the period of the performance testing.

PART 2 MATERIALS - NOT USED

PART 3 EXECUTION - NOT USED

**\*\*END OF SECTION\*\***



## SECTION 01 11 50

### MEASUREMENT AND PAYMENT

#### PART 1 GENERAL

##### 1.01 DESCRIPTION

- A. The work to be performed consists of all equipment, materials, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the Work in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Oregon Division of Industrial Safety and the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of work.
- B. Unless otherwise specified in other individual sections of these specifications, quantities of work shall be determined from measurements or dimensions in horizontal planes. However, linear quantities of pipe shall be considered as being the true length measured along the longitudinal axis.
- C. Units of measurement shall be in accordance with U.S. Standard Measures.
- D. Materials and unit price items of work that are to be paid for on the basis of measurement shall be measured in accordance with Part 2 of this section.

##### 1.02 LUMP SUM PRICE BREAKDOWN

- A. Immediately after award of the Contract and prior to approval of the initial payment request, the Contractor shall submit to the Engineer a schedule of prices providing a cost breakdown for lump sum bid items. This list shall consist of the major components of work that make up the bid items and shall be used for determining progress pay estimates. The progress schedule shall reflect the same work items identified in the cost breakdown. The Contractor shall fill in the amounts for each component, prorating general costs such as setup, overhead, and profit in each component. The total of all components shall equal the total of the bid items. If the amount indicated in the Contract for any item on the list appears unbalanced, it may be revised as deemed necessary by the Engineer, unless the Contractor can substantiate the listed amount.

- B. Only work items of value to the Owner shall be included in the list. An item for cleanup shall be listed in the breakdown, in the amount of at least 1 percent (1%) of the total bid item. If cleanup proceeds as the job progresses, then partial payments of this amount will be made accordingly.
- C. Following acceptance of the detailed cost breakdown list, the Contractor shall incorporate the values into the cost-loading portion of its Tabular Construction Schedule.
- D. Only elements of work of value to the Owner shall be included in the list. An item for cleanup shall be listed in the breakdown, in the amount of at least one quarter of one percent (0.25%) of the total bid price. If cleanup proceeds as the job progresses, partial payments of these amounts will be made accordingly.

## PART 2 PAYMENT

### 2.01 GENERAL

All work shall be installed and completed in compliance with the Plans and Specifications, and as directed by the Engineer.

### 2.02 PROGRESS PAYMENT REQUIREMENTS

- A. Payment for work performed shall be in accordance with the Contractor's cost loaded tabular construction schedule, required by "Section 01 11 00: Summary of Work." The Engineer will verify measurements and quantities. Each activity necessary to manage and complete the Work is to be identified on the contract schedule. Each activity will be assigned its respective value, a portion of the Contract Price, as shown on the cost breakdown list.
- B. Payment for all lump sum costs and services on this Contract shall be based on the earned value of work accomplished during the reporting period. Earned value is determined by the completion percentage of each activity applied to the total value of the activity.
- C. Earned value is derived from the current status of the Contractor's construction schedule as determined by the monthly schedule status submittals. Engineer must review and approve each schedule status submittal before approving Contractor's application for payment.
- D. The retainage specified in the General Conditions shall apply to all payments to the Contractor including permits and mobilization.

### 2.03 APPLICATION FOR PAYMENTS

- A. Application for payment shall be on the Owner's form provided by the Engineer and certified by signature of an authorized officer of the Contractor. Three copies of the application for payment shall be submitted. Application shall be made monthly.

- B. The Application for Payment shall contain all necessary references and attachments that substantiate the invoice for progress payment, (e.g., materials on hand, labor reports, progress schedule data, and summary of earned values, all as applicable to the Contract). It must be accompanied by an updated progress schedule and status data.
- C. With each progress payment request, Contractor shall certify that disbursements to subcontractors, suppliers, and employees have been made from previous progress payments and accounts payable are current to date.
- D. The Application for Payment is to be submitted according to the format and instructions provided by the Engineer and is to be based on Work completed through the last day of the previous month or through the date established by the Engineer.

## PART 3 MEASUREMENT

### 3.01 GENERAL

The Bids for the Work are intended to establish a total cost for the Work in its entirety, such that the bid constitutes a firm, fixed price for the Work in total. Should the Contractor feel that the cost for the Work has not been established by specific items in the Bid Schedule, he shall include the cost for that work in some related bid item so that his proposal for the Project reflects his total cost for completing the Work in its entirety.

### 3.02 BID ITEMS

- A. Bid items are defined and measured as follows:

- 1. Mobilization & Temporary Facilities/Utilities:

Payment for Mobilization & Temporary Facilities/Utilities will be on the basis of the lump sum bid price, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to move onto the site, establish a corporation yard, obtain bonding, obtain any permits not provided by the Owner, obtain additional work and/or disposal areas as needed, establish temporary facilities and utilities, set up and remove necessary traffic control per Engineer approved Traffic Control Plan, and demobilize upon completion of the project. Total compensation shall not exceed 15% of the total bid price. Compensation for moving onto the work site shall be included in the initial mobilization payment and shall be 2/3 of the total bid price for this item; compensation for moving off the work site, including dismantling and return of the corporation yard to original condition and final cleanup, shall be included in a remainder payment in the final progress payment.

2. Site Preparation:

Payment for Site Preparation will be on the basis of the lump sum bid price, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary to prepare the site for Work, as shown on the Drawings and specified for Site Preparation. Work shall include, but is not limited to, rough grading; surface preparation and installation of site surfacing required for equipment access; bypass pumping; environmental site controls including erosion and sediment control BMPs; potholing utilities; maintenance and disposal of temporary asphalt or gravel surfacing material; notifications; removal or protection of landscape materials, fencing, and minor structures.

3. Pavement Saw Cutting

Payment for Pavement Saw Cutting will be on the basis of the bid price per linear foot determined by field measurements of the surface of the in-place pavement. Payment shall be considered as full compensation for furnishing all necessary labor, equipment and materials to prepare the site and perform saw cutting of the edges of the existing asphalt concrete pavement and removal and disposal of excavation spoils; as required for trench installation of the new Sanitary Sewer and Laterals and as shown on the Plans, as specified, and as directed by the Owner.

4. Abandon Existing Sanitary Sewer:

Payment for Abandon Existing Sanitary Sewer will be on the basis of the lump sum bid price, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary to abandon the existing sanitary sewer line as shown on the Drawings, as specified, and as directed by the Owner. Work shall include, but is not limited to, plugging existing main lines, fill and compaction of manholes to be abandoned, removal of lid, frame and any other portions of the upper manhole necessary to restore the surface to match the surrounding area; and disposal of all removed materials.

5. Removal of Existing Manholes to Facilitate Lateral Reconnection

Payment for Existing Manhole Removal will be on the basis of the bid price per each as measured by field count, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary for excavation, dewatering, shoring, backfill and disposal as required for removal of existing as shown on the Drawings, as specified and as directed by Owner.

6. Standard Manhole, up to 8' Depth:

Payment for Standard Manhole, up to 8' depth will be on the basis of the bid price per each as measured by field count, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary for excavation, preparation of foundation subgrade, dewatering, shoring and backfill as required for installation of manhole as shown on the Drawings, as specified and as directed by Owner. The eight foot depth shall be measured from the top of rim of the manhole to the flow line of the sanitary sewer passing through it.

7. Manhole Extra depth beyond 8':

Payment for Manhole Extra depth beyond 8' will be on the basis of the bid price per vertical linear foot of depth greater than 8' from manhole rim to flowline of the sanitary sewer passing through it, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary for excavation, preparation of foundation subgrade, dewatering, shoring and backfill as required for installation of manhole as shown on the Drawings, as specified and as directed by Owner.

8. Sanitary Sewer Main:

Payment for Sanitary Sewer Main (all sizes and trench types), shall be made on a unit price per linear foot basis in accordance with the Contractor's bid price and detailed bid item breakdown. Payment shall be for the actual length of sewer pipe installed, measured horizontally between manhole centers, with no deduction for services wyes, regardless of depth of cut. Payment will be considered as full compensation for furnishing all material, equipment, and labor necessary for installing a sanitary sewer of the material, size, and depth of cut shown on the plans, complete and ready for use in accordance with the Contract Drawings and Documents. Work includes all related work and appurtenances required to: locate existing utilities, maintain existing utility service; maintain traffic including sidewalks, driveways, curbs, and pavement; protection, repair, and replacement of culverts and other storm water facilities; reconstruction or regrading of unpaved roads, road shoulders, and ditches; protection, repair, and replacement of sprinkler systems; protection of existing structures; making all pipe connections, dewatering, sheeting, shoring and bracing; disposal of surplus excavated material; making joints between pipes, manholes, or structures; and all other work incidental to the installation of sanitary sewers.

9. CLSM Trench Dam

Payment for CLSM Trench Dam will be on the basis of the bid price per each as measured by field count, and shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary for

excavation, preparation of foundation subgrade, dewatering, shoring and backfill as required for installation of trench dam as shown on the Drawings, as specified and as directed by Owner.

10. Lateral Reconnection:

Payment for Lateral Reconnection (all sizes and trench types), shall be made on a unit price per linear foot basis in accordance with the Contractor's bid price and detailed bid item breakdown. Payment shall be for the actual length of sewer lateral pipe installed, measured horizontally between the sanitary sewer main centerline or the manhole center and the reconnection point of the new lateral section to the existing lateral, regardless of depth of cut. Payment will be considered as full compensation for furnishing all material, equipment, and labor necessary for installing the lateral reconnections of the material, size, and depth of cut shown on the plans, complete and ready for use in accordance with the Contract Drawings and Documents. The work includes all related work and appurtenances required to: locate existing utilities, maintain existing utility service; maintain traffic including sidewalks, driveways, curbs, and pavement; protection, repair, and replacement of culverts and other storm water facilities; reconstruction or regrading of unpaved roads, road shoulders, and ditches; protection, repair, and replacement of sprinkler systems; protection of existing structures; making all pipe connections, dewatering, sheeting, shoring and bracing; disposal of surplus excavated material; making connections to existing laterals, new manholes or to the new main line and all other work incidental to the installation of sanitary sewers.

11. Asphalt Surface Restoration:

Payment for Surface Restoration, Asphalt Replacement shall be on the basis of the bid price per ton of asphalt installed as accounted for by collection of truck weight delivery ticket. Payment shall be considered as full compensation for furnishing all necessary labor, equipment and materials to prepare the site, to provide and to install the asphalt concrete pavement, aggregate base, aggregate sub-base including, placement and compaction of the aggregate sub-base and the aggregate base materials; placement of tack coat and placement/compaction of asphalt concrete pavement to the lines and grades shown on the Plans; and cleanup of work area, as shown on the Plans, as specified, and as directed by the Owner. No payment will be made for work exterior to the marked limits, unless such work has been requested and approved by the Owner.

12. Site Restoration and Clean-up:

Payment for Site Restoration will be on the basis of the lump sum bid price. Payment will be considered as full compensation for furnishing all labor, equipment, and materials necessary to restore the site to pre-construction conditions including clean-up of the work area, grading, seeding disturbed

ground, re-rocking and grading of disturbed areas of gravel driveway aprons to transition to new pavement, restoring planters and landscaped areas, replacing damaged or removed concrete and asphalt curbing, replacing disturbed fencing, signs, mailboxes, or other minor structures, and removal of temporary facilities and controls as shown on the Plans, as specified, and as directed by the Owner.

**\*\*\* END OF SECTION \*\*\***

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## SECTION 01 12 16

### CONSTRUCTION SCHEDULE

#### PART 1 GENERAL

##### 1.1 SCHEDULE REQUIREMENTS

- A. This section specifies detailed scheduling requirements and procedures including weekly, interim, and overall schedules.
- B. All work to be performed between the hours of 7:00 am and 6:00 pm.
- C. The Contractor shall provide a cost breakdown for the lump sum bid items.
- D. Submittals
  - 1. The Contractor shall submit the following items as specified in this Section:
    - a. Weekly Schedules
    - b. Interim Schedule
    - c. Overall Schedule
  - 2. Transmit schedule in accordance with the provisions specified in Section 01 33 00, Shop Drawings, Submittals, and Substitutions.
- E. Progress of the Work
  - 1. The Contractor shall execute Work with such progress as necessary to prevent delay to the overall completion of the project and with such forces, materials, and equipment to assure completion in the timeframe established by the Contract Documents.
  - 2. The Contractor may find it necessary to work overtime, double shifts, weekends, and/or holidays if such a schedule is required to complete the project within the time allowed.
- F. Interim Schedule
  - 1. Contractor shall submit within 10 days after execution of Contract, an Interim Schedule setting forth all activities for the first 2 months of construction.
  - 2. Overall Schedule, if it is sufficiently developed to equal or exceed the Interim Schedule requirements, may be submitted in lieu of a separately prepared Interim Schedule. In any event, the Interim Schedule shall form the basis for

the Overall Schedule and will be considered an integral part of the Overall Schedule.

3. Review comments by the Engineer concerning the Interim Schedule shall be considered in developing the Overall Schedule.
4. The Contractor shall submit three copies of the Interim Schedule.

G. Overall Schedule

1. The Contractor shall prepare and submit, within 14 days after the award of Contract, an Overall Schedule for construction composed of all construction operations in connection with the Contract.
2. Overall Schedule shall indicate the sequence of work and the time of starting and completion of each activity. Activities shall include, but not be limited to, the following items as they pertain to the Contract. Separate breakdown shall be provided for items noted.
  - a. Each subcontractor's items of work.
  - b. Submittals from Contractor to Engineer for review and return to the Contractor.
  - c. Material and equipment order, manufacture, and delivery.
  - d. Mobilization and de-mobilization.
  - e. Site preparation and earthwork.
  - f. Installation of sewer main.
  - g. Testing.
  - h. Asphalt paving.
  - i. Surface restoration and final clean-up.
  - j. Milestones.

H. No activity on the schedule shall have a duration longer than 14 days or assigned value greater than \$20,000, except activities comprising only fabrication, and delivery may extend for more than 14 days. Activities that exceed these limits shall be divided into more detailed components. The schedule duration of each activity shall be based on the work being performed during the normal 40-hour workweek with allowances made for legal holidays and normal weather conditions.

I. Upon completion of the Overall Schedule, the Contractor shall submit three copies to the Engineer for his review. Within 7 days after receipt of the submittal, the

Engineer will review the submitted schedule and return one copy of the marked-up original to the Contractor. If the Engineer finds that the submitted schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor for corrections and resubmitted.

J. Revisions to the schedule shall be made in accordance with the following parameters:

1. When delay in completion of any work item or sequence of work results in an estimated extension of project completion by fifteen (15) working days or more.
2. When, in the opinion of the Engineer, the schedule does not represent actual prosecution and progress of the project as being performed in the field.
3. When Contract modifications necessitate schedule revision.
4. After each revision, the Contractor shall submit the revised schedule to the Engineer.

K. Weekly Schedules

1. Once every week the Contractor shall prepare a bi-weekly schedule for the activities to be performed for the next two weeks. This will allow the Engineer to verify the current activities to those on the Overall Schedule and to assist in scheduling the project inspection and related work.
2. The Contractor shall submit two (2) copies of the Weekly Schedule to the Engineer at least 2 days prior to performing work shown on the Weekly Schedule.

L. Wet Weather Shutdown

1. Contract allows for Contractor to request wet season shutdown as stipulated in Agreement. Duration of shutdown shall be limited to a 6-month period.

PART 2 MATERIALS-NOT USED

PART 3 EXECUTION-NOT USED

**\*\*END OF SECTION\*\***

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## SECTION 01 14 00

### COORDINATION

#### PART 1 GENERAL

##### 1.1 CONTRACTOR

- A. The contractor shall coordinate his work with the following:
  - 1. City of Coos Bay
  - 2. SHN Consulting Engineers & Geologists, Inc.
  - 3. Private Property Owners and the public affected by the project
  - 4. Pacific Power
  - 5. Frontier
  - 6. Charter Cable
  - 7. Coos Bay – North Bend Water Board
  - 8. NW Natural Gas
  - 9. Oregon Department of Environmental Quality
  - 10. Other affected utilities and agencies
  - 11. Other contracts and contractors performing work on the project.
- B. Construct all work in a systematic manner and minimize public inconvenience.
- C. Cleanup and restoration work shall be completed in conjunction with the construction of each part of the project. The Contractor shall exercise every reasonable effort to maintain roads and property clean and clear of excess excavation, debris, dirt, and other materials.
- D. The Contractor shall make every reasonable effort to minimize the inconvenience to the public.
- E. The Contractor shall provide an emergency telephone number in the event of complications from problems in the work areas.

PART 2 MATERIALS--NOT USED

PART 3 EXECUTION--NOT USED

**\*\*END OF SECTION\*\***

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## SECTION 01 33 00

### SHOP DRAWINGS, SUBMITTALS, AND SUBSTITUTIONS

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Work Included
  - 1. Wherever possible throughout the Contract Documents, the minimum acceptable quality of work and materials has been defined either by manufacturer's name and catalog number, or by reference to recognized industry standards. Lump sum price named in the Bid Schedule.
  - 2. To ensure that the specified products are furnished and installed in accordance with design intent, the Engineer has established procedures for advance submittal of design data and for its review and acceptance or rejection.
- B. Related Work Described Elsewhere
  - 1. General Provisions: Contractual requirement for submittals
  - 2. Pertinent Sections of these Specifications: Individual submittals required

##### 1.2 PRODUCT HANDLING

- A. Make all submittals of Shop Drawings, Samples, requests for substitutions, and other items in strict accordance with the provisions of this Section.
- B. Tabulate submittals by each specification section.

##### 1.3 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select any product meeting standards by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or equal" after specified product, submit a request for substitution, for any product not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option, and no substitution will be allowed.

## PART 2 PRODUCTS

### 2.1 SHOP DRAWINGS

#### A. Scale Required

1. Unless otherwise specifically directed by the Engineer, make all Shop Drawings accurately to a scale sufficiently large enough to show all pertinent features of the item and its method of connection to the Work.

#### B. Type of Prints Required

1. Unless otherwise specifically directed by the Engineer, make all Shop Drawing prints in blue or black line on white background.

#### C. Number of Prints Required

1. Submit all Shop Drawings in the quantity: four minimum. One copy will be returned, one copy will go to the City, and two copies will be retained by the Engineer. One of the copies submitted shall be a reproducible transparency if larger than 11 by 17 inches.

### 2.2 SAMPLES

#### A. Accuracy of Sample

1. Unless otherwise specifically directed by the Engineer, all Samples shall be of the precise article proposed.

#### B. Number of Samples Required

1. Submit all Samples in the quantity that is required to be returned plus one, which will be retained by the Engineer.

### 2.3 SUBMITTAL

#### A. Engineer's Approval Required

1. The Contract is based on the materials, equipment, and methods described in the Contract Documents.
2. The Engineer will consider proposals for "or-equal" materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Engineer to evaluate the proposed substitute item and determine the compatibility of the proposed equipment with the specified equipment.
3. Do not substitute materials, equipment, or methods unless the Engineer has specifically approved the substitute item as an equal.



4. Where the phrase "or equal" occurs in the Contract Documents, do not assume that the Engineer will approve material, equipment, or methods as equal unless the Engineer has specifically approved the item for this Work.
5. The Engineer's decision in determining the qualification of an item as an "or equal" shall be final.
6. Items that are submitted which do not qualify, as "or-equal" will be considered a proposed substitution item as specified below.

B. Availability of Specified Items

1. Before bidding, verify that all specified items would be available in time for installation during orderly and timely progress of the Work.
2. In the event specified item or items will not be available, so notify the Engineer prior to receipt of bids.
3. Costs of delays because of non-availability of specified items, when the Contractor could have avoided such delays, shall be the Contractor's responsibility.

C. Product List

1. Within fifteen (15) days after date of the Notice to Proceed, submit to Engineer five (5) copies of complete list of all products that are proposed for substitution as "or-equal".
2. Tabulate list by each specification section.
3. Include the following with the listing of each product:
  - a. Name and address of Manufacturer
  - b. Trade name
  - c. Model or catalog designation
  - d. Manufacturer's data
    - 1) Performance and test data
    - 2) Reference standards

## 2.4 SUBMITTAL OF SUBSTITUTION ITEMS

A. Submittal Content:

1. Complete data substantiating compliance of proposed substitutions.

2. For products:
    - a. Product identification, including Manufacturer's name and address
    - b. Manufacturer's literature:
      - 1) Product description
      - 2) Performance and test data
      - 3) Reference standards
    - c. Samples
    - d. Name and address of similar projects on which product was used, and date of installation
  3. For construction method:
    - a. Detailed description of proposed method(s)
    - b. Drawings illustrating method(s)
  4. Itemized comparison of proposed substitution with product or method specified.
  5. Data relating to changes in construction schedule and construction cost.
  6. Relation to separate contracts.
  7. Accurate cost data on proposed substitution in comparison with product or method specified.
- B. In making request for substitution, Contractor represents that:
1. Contractor has personally investigated the proposed product or method, and has determined that it is equal or superior in all respects to the product or method specified.
  2. Contractor will provide the same guarantee for substitution as for the product or method specified.
  3. Contractor will coordinate installation of the accepted substitution into the work, making such changes as may be required for work to be complete in all respects.
  4. Contractor waives all claims for additional costs related to substitutions that consequently become apparent.

5. Cost data is complete and includes all related costs required for performance of the work, but excludes:
  - 1) Costs under separate contracts
  - 2) Engineer's design
- C. In the event an approved substitution results in a decrease in cost of an item of work, the contract price shall be decreased as determined in the General Conditions.
- D. Substitutions will not be considered if:
  1. They are indicated or implied on shop drawings or project date submittals without a formal request having been submitted in accordance with the substitution provisions of this Section.
  2. Acceptance will require substantial revision of the Contract Documents.

## PART 3 EXECUTION

### 3.1 SUBMITTAL FORM

- A. Transmit all submittals with a completed copy of the "SHOP DRAWING/MATERIAL REVIEW REQUEST" form provided at the end of this Section.
- B. Transmit all submittals with a completed copy of the "American Recovery and Reinvestment Act Compliance Certification" form provided at the end of this section.

### 3.2 COORDINATION OF SUBMITTALS

- A. General
  1. Prior to submittal for Engineer's review, use all means necessary to fully coordinate all material, including the following procedures:
  2. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
  3. Coordinate as required with all trades and public agencies involved.
  4. Secure all necessary approvals from public agencies and others; signify by stamp or other means that they have been secured.
  5. Clearly indicate all deviations from the Contract Documents.
- B. Grouping of Submittals

1. Unless the Engineer specifically permits otherwise, make all submittals in groups containing all associated items by specification section; the Engineer may reject partial submittals as not complying with the provisions of the Contract Documents.
- C. Shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp or other approved means, that the work shown conforms to the Contract Documents and has been checked for dimensions and relationship with work of all other trades involved.

### 3.3 TIMING OF SUBMITTALS

#### A. General

1. Make all submittals far enough in advance of scheduled installation dates to provide all required time for reviews, securing necessary approvals, making possible revisions, resubmitting the item(s), placing orders, and securing delivery.
2. In scheduling, allow at least ten (10) working days for the Engineer's review following his or her receipt of the submittal.

#### B. Delays

1. Costs or loss of time due to delays occasioned by tardiness of submittals are the Contractor's responsibility and shall not be borne by the Owner.

### 3.4 SUBMITTALS REQUIRED

- A. Specific submittals are required by the various Sections of these Specifications and are indicated therein.
- B. After the Engineer reviews each submittal, the documents will be returned to the Contractor with the Engineer's review action. Possible Engineer's review actions are defined as follows:
  1. **NO EXCEPTIONS TAKEN** – The Engineer has accepted the documentation subject to compatibility with possible later submittals or with additional documentation required to cover work requirements not covered in this submittal. This review action does not constitute approval of any variations in scope of work, which shall be formalized by separate correspondence.
  2. **MAKE CORRECTIONS NOTED**--Meaning is the same as above for "No Exceptions Taken," except that the Contractor must resolve and correct minor inconsistencies and errors, as noted. Formal resubmittal for the Engineer's review is not required unless so specified.
  3. **AMEND AND RESUBMIT** – The Engineer has not accepted the submitted material because of major inconsistencies, number of errors, or unauthorized

departures from the Technical Specifications. The Contractor must resolve and correct all matters before resubmittal to the Engineer for review.

4. **REJECT/RESUBMIT**-- The Engineer has not accepted the submitted material because the submittal documents show nonconformance with Contract Drawings and Technical Specifications in major respect: technical, administrative, or both. The Engineer will not conduct a detailed review due to the nonconformance.

### 3.5 RESUBMITTAL

- A. Practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish is not acceptable. Shop drawings that, in the opinion of the Engineer, clearly indicate that the Contractor has not checked them will be considered as not complying with the intent of the Contract Documents and will be returned to the Contractor for resubmission in the proper form.
- B. Engineer shall complete two detailed reviews of Shop Drawings and submittals at no cost to the Contractor. The Owner will deduct the cost of additional reviews resulting from improper submission or completion of Shop Drawings from the Contract sum.

**\*\*END OF SECTION\*\***

**Note: "SHOP DRAWING/MATERIAL REVIEW REQUEST" FORM FOLLOWS**

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## Shop Drawing/Material Review Request

**Instructions:** Complete this form and attach to each specific Shop Drawing Submittal. Provide the same number of completed forms as specific Shop Drawing copies.

1. Contract Name: \_\_\_\_\_
2. Submission No.: \_\_\_\_\_
3. Submittal:            3a.New                      3b.Resubmittal                      \_\_\_\_\_
4. Date of this submittal \_\_\_\_\_
5. Date of Receipt by Architect/Engineer \_\_\_\_\_
6. Previous Submission No. (if any) \_\_\_\_\_
7. Contractor \_\_\_\_\_
8. Submitted by (signature and date) \_\_\_\_\_
- | 9a. <u>Item</u> | 9b. Specification<br><u>Section and Paragraph</u> | 9c. Description of Material<br><u>(Name, Type, Model, Catalog No., Mfg., Etc.)</u> |
|-----------------|---|--|
|-----------------|---|--|

10. Comments: (Include all drawing titles and numbers, specific information not on drawings, information coming later, etc.)

For use of Engineer only:

11. Action taken\* \_\_\_\_\_
12. Reviewed by (signature and date) \_\_\_\_\_

\*See review stamp on individual items.

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## SECTION 01 45 00

### TESTING AND LABORATORY SERVICES

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. From time to time during the progress of the Work, the Owner will require that testing be performed by the Contractor to determine that materials provided for the Work meet the specified requirements; such testing includes, but is not necessarily limited to:
  - 1. Soil compaction
  - 2. Material compliance
  - 3. Leak testing
  - 4. Requirements for testing as described in various Sections of these Specifications
- B. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require testing to be performed under current pertinent standards for testing.

##### 1.2 QUALITY ASSURANCE

- A. Selection of Testing Laboratory
  - 1. Testing laboratory services will be supplied and paid for by the Contractor through a testing laboratory selected by the Contractor. Testing laboratories shall be subject to the approval of the Engineer.
- B. Codes and Standards
  - 1. Testing, when required, will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

##### 1.3 PRODUCT HANDLING

- A. Promptly process and distribute all required copies of test reports and related instructions to ensure all necessary retesting and/or replacement of materials with the least possible delay in the progress of the Work.

#### 1.4 PAYMENT FOR TESTING SERVICES

- A. The Contractor will pay for all testing and laboratory services for all work, unless specifically stated otherwise in these Specifications.
- B. Inspections and tests required by public laws, regulations, codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for and coordinated by the Contractor, unless otherwise provided in the Contract Documents.

#### 1.5 COOPERATION WITH ENGINEER

- A. The testing laboratory shall provide the Engineer with access to the laboratory at all times, and shall provide facilities for such testing as required in order that required testing may be properly performed.
- B. Upon request by Engineer, the Contractor shall provide necessary equipment and operations required to expose portions of the work for testing at no additional cost to the Owner.

#### 1.6 SCHEDULES FOR SAMPLING AND TESTING

- A. Establishing Schedule
  - 1. By 48-hour minimum advanced notice from the Contractor, Engineer will determine the type, location, and time for the testing laboratory to perform sampling and testing and to issue its findings.
  - 2. The construction schedule shall include all required sampling and testing time.
- B. Revising Schedule
  - 1. When changes to the construction schedule are necessary during construction, coordinate all such changes of schedule with the Engineer, as required.
- C. Adherence to Schedule
  - 1. When the Engineer is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the Work or unavailability of equipment, the Owner will deduct all costs attributable to the delay from the Contract Sum.

#### 1.7 COLLECTING SPECIMENS

- A. Unless otherwise indicated in these Contract Documents, the Testing Laboratory or Engineer's Representative will collect all specimens or samples for testing at locations required by the Engineer and will provide all sampling equipment and personnel.

## 1.8 SUBMITTALS

- A. The testing laboratory will submit three copies of all test results directly to the Engineer indicating all pertinent data including:
  - 1. Date issued
  - 2. Project title and number
  - 3. Testing Laboratory name and address
  - 4. Name and signature of Inspector
  - 5. Date of inspection or sampling
  - 6. Record of temperature and weather
  - 7. Date of test
  - 8. Identification of product and specification section
  - 9. Location in project
  - 10. Type of inspection or test
  - 11. Observations regarding compliance with Contract Documents

## 1.9 TESTING PROGRAM

- A. The Contractor's testing laboratory shall submit a proposed testing program for the Engineer's review and acceptance. The program shall reflect local practice and shall include unit costs of services and testing, as well as proposed modifications (if any) to the specific requirements herein.
- B. The intent of this Section is to ensure that all sampling, testing, and special inspection shall be conducted so as to control the work adequately and to establish that the work conforms to the requirements of these Drawings and Specifications.
- C. Testing frequency and location shall be at the Engineer's sole discretion. The Contractor shall direct the testing laboratory to fully cooperate with the Engineer in all aspects of the testing program.
- D. The Owner reserves the right to retain a separate testing firm to perform independent testing for verification of contractor's test results at no additional cost to the Contractor.

PART 2 MATERIALS - NOT USED

PART 3 EXECUTION - NOT USED

**\*\*END OF SECTION\*\***

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## SECTION 01 50 00

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This Section covers the work necessary to move in personnel and equipment, set up offices, and related facilities necessary to prepare the work area for construction. Temporary facilities and controls required for this work include, but are not necessarily limited to:
  - 1. Temporary utilities such as water, electricity, and telephone
  - 2. Sanitary facilities
  - 3. Site Survey Control
  - 4. Traffic Control
- B. Related Work Described Elsewhere
  - 1. Section 01 11 00: Summary of Work

##### 1.2 PRODUCT HANDLING/PROTECTION

- A. Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.
- B. Where Engineer-established survey points are damaged or moved by Contractor, Contractor shall re-establish points at no additional cost to the Owner.

#### PART 2 PRODUCTS

##### 2.1 UTILITIES

- A. General
  - 1. Provide and pay all costs for temporary water, electricity, and telephone required for the performance of the Work.
- B. Temporary Water
  - 1. The Contractor shall make his or her own arrangements and pay all costs for obtaining and transporting water to the area of usage.
  - 2. The Contractor shall pay all costs for water, both temporary and permanent, used during construction as quickly as possible.

C. Temporary Electricity

1. Make all arrangements and pay all operating costs for electrical power used during construction, testing, and up to the time of the Owner's final acceptance.
2. Pay for all services associated with the temporary power.

D. Temporary Telephone Service

1. Make all arrangements and pay all operating costs for telephone service used during construction, testing, and up to the time of the Owner's final acceptance.

2.2 SANITARY FACILITIES

- A. Furnish and install all required temporary toilet buildings with sanitary toilets for use of all workers; comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain sanitary conditions at all times.

2.3 SURVEY CONTROL

- A. Engineers Representative will set control points for establishing horizontal and vertical survey control on the project. Stakeout will include:
1. Two control points for construction site control.
- B. Established points are to be used by the Contractor to assist in locations, pipelines, and setting pipeline grades.
- C. Contractor shall be responsible for setting pipeline grades as shown on the Drawings.
- D. Contractor shall be solely responsible for laying out the work from the stakeout control; all additional stakeouts will be at the expense of the Contractor.
- E. The Contractor shall preserve construction controls for the duration of construction. If stakeout control is lost or disturbed, and in the judgment of the Engineer needs to be replaced, such replacement shall be by the Engineer at the expense of the Contractor
- F. Contractor will not be allowed extension of time or damages caused by loss of construction staking.

2.4 TRAFFIC CONTROL

- A. This covers all work necessary to conduct construction operations so as to offer the least possible obstruction and inconveniences to the public and to protect pedestrian and vehicular traffic.

- B. Flagmen barricades, signs and traffic control devices shall conform to the Oregon Department of Transportation's publication, *"TRAFFIC CONTROL ON STATE HIGHWAYS FOR SHORT TERM WORK ZONES,"* latest edition. The Contractor shall provide a detailed traffic control plan for each phase of the work, showing signs and cones prior to beginning work. These plans will be submitted to the Engineer for review.
- C. The contractor shall provide and maintain such signs and barricades and warning lights as necessary to warn and protect the public at all times on highways, roads or streets affected by work operations. In addition, the contractor shall also provide all necessary flagmen and guards necessary to warn and protect the public. In addition, the Contractor shall also provide all necessary flagmen and guards necessary to warn and protect the public.
- D. When necessary, public traffic shall be permitted to pass through with as little inconvenience and delay as possible.
- E. The contractor shall provide access to private properties at all times, except during urgent stages of construction when it is impractical to carry on the construction and maintain traffic simultaneously. Coordinate all construction activities with the affected property owners.
- F. The Contractor shall patrol the traffic-control area and reset all disturbed signs and traffic-control devices immediately, and will remove or cover all non-applicable signs during periods not needed.
- G. The Contractor shall construct and maintain approved temporary detours for the protection of the work and the safe passage of traffic through the work area.
- H. At the end of each day, the Contractor shall leave work in such condition that it can be traveled without damage to the work and without danger to the public.

## PART 3 EXECUTION

### 3.1 REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work; remove all such temporary facilities and controls as rapidly as progress of the Work will permit or as the Engineer directs.
- B. Mobilization shall include de-mobilization and consist of prep-work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to and from the project site; for the establishment of offices, buildings, and other facilities necessary for work on the project; for premiums on bond and insurance for the project, and for other work and operations which the Contractor must perform or costs he must incur before beginning work on the project and after completion of the project.

C. Fences and Barricades

1. Barricades: Provide barricades as necessary to prevent unauthorized entry to construction areas. Also provide barricades to protect existing facilities and adjacent properties from potential damage. Locate barriers to enable access by facility operators and property owners.
2. All temporary fencing and barricades shall be removed after completion of the improvements.

D. Safety Requirements

1. The Contractor shall at his own expense furnish, install and maintain suitable signs, lights, barricades, fences, and other protective devices as may be necessary or as may be directed by the Engineer to insure the safety of the public and those connected with the work.
2. The Contractor shall be solely responsible for maintaining the reasonable safety precautions and facilities, and failure of the Engineer to so notify the Contractor shall not relieve the Contractor from this responsibility.
3. Whenever the Contractor's operations create a potentially hazardous condition, the contractor shall also furnish certified flaggers equipped with proper clothing and flagging devices.
4. All signs, barricades, lights, flags, and other warning and safety devices shall meet the requirements of the MUTCD.
5. Access for police and fire shall be maintained at all times.
6. Notify the fire department, police department, and (when applicable) the School District before closing any street or portion thereof. No closing shall be made without the engineer's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block emergency vehicle access to any area in excess of 300 feet unless the Contractor obtains special written permission from the chief of the fire department.

**\*\*END OF SECTION\*\***



## SECTION 01 51 00

### TEMPORARY UTILITIES -BYPASS PUMPING

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This Section covers all labor, materials equipment, power and maintenance to implement a temporary pumping system if needed for the purpose of diverting the existing flow around the work area. Temporary utilities and controls that may be required for this work include, but are not necessarily limited to:
1. Primary pumping equipment
  2. Power source
  3. Back-up pumping plan and equipment
  4. Plugs and appurtenances
  5. Level Control

##### 1.2 SUMMARY

- A. The design, installation and operation of the temporary by pass pumping system shall be the Contractor's responsibility. The Contractor assumes all liability for operation of the by pass system.
- B. The pumping system shall meet all requirements of all codes and regulatory agencies having jurisdiction of the system operation.
- C. Under restricted circumstances, the Owner may allow the Contractor to utilize the existing pump station services for assistance in controlling of wastewater flows. Use of the Owners pump station will require the Contractor to assume any liability for any damage to the Owners pump station.

##### 1.3 SUBMITTALS

- A. Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. No construction activities shall begin until all provisions and requirements have been reviewed by the Engineer and approved. This plan shall be specific and complete and shall at a minimum include:
1. Staging area for pumps
  2. Sewer plugging methods and types of plugs
  3. Size, material, location and method of installing suction piping

4. Size, material, location and method of installing discharge piping
5. Bypass pump size, capacity and power requirements
6. Calculation of static lift, friction losses, flow velocities and pump curves showing pump operational ranges
7. Method of noise control
8. Method of alarm system for unmanned or overnight operation.

## PART 2 PRODUCTS

### 2.1 PUMPS

- A. All bypass pumps shall be fully automatic self-priming units.
- B. All pumps shall be electric or diesel powered.
- C. Contractor shall supply all necessary stop/start control for pumps.
- D. Provide at a minimum, one (1) primary bypass pump and one (1) backup bypass pump unit online and ready for operation.
- E. Pumps shall be constructed to accommodate the cyclical nature of wastewater flows.

### 2.2 PIPING

- A. Contractor shall provide temporary discharge piping constructed to withstand bypass pumping operational pressures.
- B. Discharge piping shall be a water tight system.
- C. No aluminum irrigation piping will be allowed.
- D. Bypass hose requires Engineers approval.

## PART 3 EXECUTION

### 3.1 PERFORMANCE

- A. It is essential to the operation of the sewage system that there be no interruption in the flow of sewage throughout the duration of this project.
- B. The Contractor shall provide, maintain and operate temporary bypassing system as necessary to intercept all wastewater, convey flows past work area and return to the existing sewer system downstream.
- C. Bypass system shall maintain wastewater flow around the work area in a manner that will not cause surcharging, flooding or damage to existing sewer system or public and private property.
- D. The Contractor shall protect water resources, wetlands and other natural resources.

- E. Bypass pumping system will be required to operate 24 hours a day.

### 3.2 DESIGN REQUIREMENTS

- A. The bypass pumping system shall have sufficient capacity to pump peak flows experienced in the existing system.

### 3.3 QUALITY ASSURANCE

- A. The Contractor shall perform leakage and pressure test on the entire bypass pumping discharge lines using clean water prior to the actual operation.
- B. Inspect system at a minimum at least every two hours to ensure that the system is functioning properly.
- C. Contractor shall provide for all maintenance, servicing, spare part, etc. for entire bypass system.
- D. Provide bypass pumping for all phases of the work as required.

### 3.4 SAFETY

- A. The Contractor shall be solely responsible for maintaining safety precautions and temporary facilities, and failure of the Engineer to so notify the Contractor shall not relieve the Contractor from this responsibility.
- B. Access for police and fire shall be maintained at all times.

**\*\*END OF SECTION\*\***

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## SECTION 01 56 00

### SITE AND AREA CLEANUP

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. These Specifications are in general agreement with permits issued by various governing authorities; however, the Contractor should check with the following agencies where facilities fall within their rights-of-way or jurisdiction.
  - 1. City of Coos Bay
- B. Burning and related air pollution shall conform to rules of the Oregon Department of Environmental Quality. Fire permits must be obtained from the various fire authorities or Forest Service agencies having such jurisdiction in the area involved.
- C. Maintain the site and general area free from accumulations of waste, debris, dust, and mud caused by Contractor's operations.
- D. At completion of work, remove all waste materials, tools, equipment, machinery, and surplus materials and clean all exposed surfaces; leave property clean and ready for occupancy; leave all rights-of-way in a condition equal to that at the beginning of work.
- E. Stockpiling material on City, County or State right-of-way paved surfaces is prohibited.

#### PART 2 PRODUCTS

##### 2.1 MATERIALS

- A. The Contractor shall contact the local utilities to determine availability and pay all cost required for said utilities relating to outlined project.

#### PART 3 EXECUTION

##### 3.1 CLEANING

- A. Clean all spilled dirt, gravel, or other foreign material caused by the construction operations from all streets and roads at the conclusion of each day's operation. Cleaning activities shall be performed to avoid change to paved surfaces.
- B. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, or newly painted surfaces.

### 3.2 DURING CONSTRUCTION

- A. Clean any affected buildings, grounds, streets, and public properties to ensure that they are maintained free from accumulation of waste materials, dust, mud, and debris. Storm drains; culverts, and ditches plugged as a result of the Contractor's operation shall be restored to the satisfaction of the Engineer. Where required, wet down surfaces to lay down dust and prevent it from blowing to nearby businesses, residences, or public properties.
- B. The Contractor shall keep all streets and the parking areas, clean and free of mud, and debris resulting from his or her own operations. Conduct daily cleanup for the job's duration.
- C. All waste materials, debris, drilling fluids, cuttings, and rubbish shall be disposed of at sites to be chosen by Contractor unless specific sites have been obtained as may be outlined in Division 1 of these Specifications. Prior to dumping spoils on any private property, a letter of permission allowing such dumping shall be obtained from the property owner and a copy presented to the Engineer. At the completion of work, a letter from affected property owners will be required releasing the Contractor and Owner from future liability.
- D. If the Contractor does not properly clean up (in the opinion of the Engineer or the Owner), then either the Engineer or the Owner shall have the option of using outside equipment to perform the work and will withhold such cost from the Contract.
- E. During construction, the work associated with stockpiling construction materials and excavated trench materials shall proceed in a manner so as to do the least damage to adjacent lawns, grassed areas and paved surfaces, gardens, shrubbery, fences, or any landscaped area, regardless of whether these are on private property, federal, city, state, or county rights-of-way. Refrain from storing construction materials on grassed or planted landscaped areas, and leave these surfaces in a condition equivalent to their original condition and free from all rocks, gravel, boulders, or other foreign material. Restore or replace any ground covering (trees, shrubs, bark chips, cinders, river rock, and so on) asphalt or gravel to the original condition or better. Replace topsoil areas, rake and grade to conform to their original contours. All existing irrigation and drainage ditches and culverts shall be reopened and graded and natural drainage, restored. Culverts broken or damaged shall be restored to their original condition and location using culvert materials that match the existing materials.

### 3.3 FINAL CLEANING

- A. Where earth moving, trenching, or piping operations are concerned, the Contractor shall remove all waste materials, rubbish, tools, equipment, machinery, and all surplus materials and clean all exposed surfaces leaving the entire project area clean and suitable for public use.
- B. Remove all mud, spoils, and construction debris from all roadways, ditches, shoulders, and private property (except fills or spoils placed on private property at property owner's written request).

- C. Upon completion of pipe laying and backfilling operations in any section, all former grassed and/or planted areas shall be hand-raked and dragged, leaving all disturbed areas free from rocks, gravel, clay, or any other foreign material. The finished surface shall conform to the original surface, and shall be free draining, free from holes, rough spots, or other surface features detrimental to a seeded area. Contractor shall reseed and/or restore ground cover to all areas damaged by construction work.
- D. Unless approved in writing by the affected property owner, originally seeded area outside dedicated rights-of-way or easements shall be fertilized and reseeded with first-quality seed approved by the owner. All ground preparation and reseeding shall be done in accordance with the best-accepted practices for lawn planting. Contractor shall be responsible for obtaining a release from the property owner stating the work is acceptable and furnishing the Engineer with a copy.

**\*\*END OF SECTION\*\***

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## SECTION 01 57 19

### TEMPORARY ENVIRONMENTAL CONTROL

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This section covers the control of surface water runoff, dewatering of pipeline trenches and structural excavations, and other elements required for control of water if the site conditions should dictate the need.
- B. Discharge of turbid waters shall be strictly prohibited. Contractor shall construct facilities to control the release of turbid water.

##### 1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS:

- 1. Section 31 23 17 - Trenching

##### 1.3 SUBMITTALS

- A. Prior to performing any excavation, the Contractor shall submit the proposed dewatering plan to the Engineer for review. The submittal shall include method of installation and details of the proposed dewatering system.
- B. Prior to any ground disturbing activities, Contractor shall submit plan for on site erosion controls showing location of silt fence, straw bales, rock filter, and other on site environmental controls.

#### PART 2 MATERIALS

- 2.1 Materials and equipment required for control of water shall be furnished and maintained as required to perform the construction.

#### PART 3 WORKMANSHIP

##### 3.1 GENERAL

- A. The necessary machinery, appliances and equipment shall be provided and operated to keep excavations free from water during construction, and to dispose of the water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public. The dewatering systems shall not be shut down between shifts, on holidays or weekends, or during work stoppages without written permission from the Engineer.
- B. The control of groundwater shall be such that softening of the bottom of excavations, or formation of "quick" conditions or "boils" during excavation, shall be prevented. Dewatering systems shall be designed and operated so as to

prevent removal of the natural soils. Natural or compacted soils softened by saturation with groundwater or standing surface water shall be removed and replaced as instructed by the Engineer at no additional expense to the Owner.

- C. During construction of structures, installation of pipelines, placing of structure and trench backfill and the placing and setting of concrete, excavations shall be kept free of water except as specified. Surface runoff shall be controlled so as to prevent entry or collection of water in excavations. The static water level shall be drawn a minimum of one (1) foot below the bottom of the excavation so as to maintain the undisturbed state of the soils and allow the placement of fill or backfill to the required density. The dewatering system shall be installed and operated so that the groundwater level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.
- D. Open and cased sumps shall not be used as primary dewatering for excavations deeper than three (3) feet below the static water table. Location of open or cased sumps shall be outside of trench excavation or limits of structural excavation.
- E. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures and pipelines.
- F. The Contractor shall not obstruct the gutter of streets and roads but shall use proper measures to provide for the free passage of surface water.
- G. Provisions shall be made to take care of surplus water, mud, silt, or other runoff pumped from excavations and trenches or resulting from sluicing or other operations. Silt from completed or partially completed structures and pipelines by surface water or by disposal of water from dewatering operations shall be cleaned up at the Contractor's expense.
- H. Discharge of ground and surface runoff water shall be to the existing drainage ways and storm systems.
- I. The Contractor shall be responsible for any damages to existing on- and off-site facilities and work in-place resulting from mechanical or electrical failure of the dewatering system.

**\*\*END OF SECTION\*\***

## SECTION 01 70 00

### PROJECT CLOSEOUT

#### PART 1 GENERAL

##### 1.1 General

- A. Comply with requirements stated in Contract Forms, Contract Requirements, and General Requirements, and in Specifications for administrative procedures in closing out the Work.
- B. The Engineer shall prepare a punch list when notified in writing by the Contractor that work is completed. (Note: Failure of Engineer to include any items on punch list does not alter the Contractor's responsibility to complete the work in accordance with the Contract Documents.) Deliver all items called for herein and under various Specifications sections to the Engineer at the completion of the work. Receipt of items is necessary to permit the release of the project completion notice.

##### 1.2 Final Inspection

- A. Prior to substantial completion and following receipt of written notice and final application for payment (but not retainable), the Engineer will make the inspection and issue a work list. Related agency representatives and Owner will be present at this inspection. When the final work list has been made and those items have been picked up, the Engineer will authorize the execution of the memorandum for acceptance and occupancy.

##### 1.3 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract. Contractor shall refer to General Conditions Section and as modified in the Supplemental General Conditions for requirements pertaining to affidavits required for final completion and acceptance by Owner.

#### PART 2 MATERIALS

##### 2.1 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project record documents including the following:
  - 1. Drawings showing As-Built Modifications.
  - 2. Specifications.
  - 3. Addenda.

4. Change Orders and other modifications to the Contract.
  5. Engineer's Field Orders or written instructions.
  6. Approved Shop Drawings and Product Data.
  7. Field test records.
  8. Construction photographs.
- B. Spare Parts and Maintenance Materials: As specified in the individual Specification sections herein.
- C. Evidence of payment and release of liens: As specified in the General and Supplementary Conditions.
- D. Two (2) copies of each specified special bond, warranty, and service contract.

## PART 3 GENERAL

### 3.1 GENERAL

- A. At Contract closeout, deliver Record Documents to Engineer for Owner.
- B. Accompany submittal with transmittal letter in duplicate, containing:
1. Date.
  2. Project title and number.
  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\*\***

**DIVISION 020000**

**EXISTING SITE CONDITIONS**



## SECTION 02 00 00

### DIVISION 2 ~~EXISTING~~ SITE CONDITIONS

<u>SECTION</u>	<u>TITLE</u>
02 22 00	SITE CONDITIONS
02 41 00	DEMOLITION AND DISPOSAL

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## SECTION 02 22 00

### SITE CONDITIONS

#### PART 1 GENERAL

##### 1.1 INFORMATION ON SITE CONDITIONS

- A. All information obtained by the Engineer regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities, existing underground utilities, and similar data are shown on the Drawings, in these Specifications, or are referenced in subsurface investigations prepared by Owner.

##### 1.2 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall satisfy himself or herself as to:
  - 1. The nature and location of the work,
  - 2. The general and local conditions (particularly those bearing upon availability of transportation, disposal, handling, and storage of materials; availability of labor, water, electric power, roads; and uncertainties of weather, wind speeds and directions, or similar physical conditions at the site),
  - 3. The conformation and conditions of the ground,
  - 4. The character of equipment facilities needed before and during the execution of the Work, and
  - 5. All other matters that can in any way affect the Work, or the cost thereof under this Contract.
- B. The Contractor shall become familiar with the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site, any exploratory work done by the Owner, and from information presented by the Drawings and Specifications made a part of this Contract. Any failure by the Contractor to become acquainted with all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the Work.
- C. The Contractor shall anticipate underground obstructions such as water lines, sewer lines, utility lines, concrete, water table, soil conditions, and debris. No extra payment will be allowed for the removal, replacement, repair, or possible increased cost caused by underground obstructions. Any such lines or obstructions indicated on the map show only the approximate location and must be verified in the field by the Contractor. The Owner and Engineer will endeavor to familiarize the Contractor with all known underground service laterals for utilities and obstructions, but this will not relieve the Contractor from full responsibility in anticipating and locating all underground obstructions.

- D. Existing survey monuments, reference points, wetland boundary and rare plant area delineation, and other existing monumentation shall be preserved. If such facilities must be removed, the Contractor shall notify the Engineer within ten (10) working days of the required removal so that such points can be referenced for reinstallation. The Contractor using a licensed Land Surveyor, at no additional cost to the Owner, shall complete such surveys and reinstallation.

### 1.3 ADDITIONAL INFORMATION

- A. Prior to bidding, Bidders may make their own subsurface investigations subject to time schedules and arrangements approved in advance by the Engineer. Before any subsurface test holes are excavated, Bidders shall obtain permits from the agencies governing the right-of-ways prior to performing such work.

PART 2 MATERIALS - Not Used

PART 3 EXECUTION - Not Used

**\*\*END OF SECTION\*\***

## SECTION 02 41 00

### DEMOLITION AND DISPOSAL

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Work covered by this Section consists of the necessary demolition, removal, and disposal of existing sanitary sewer, manholes ground surface and additional excavations as required and as shown on the Drawings.

##### 1.2 RELATED WORK DESCRIBED ELSEWHERE

- A. Section 015600: Site and Area Cleanup
- B. Section 321000: Surface Restoration

##### 1.3 QUALITY ASSURANCE

- A. In addition to complying with all pertinent codes and regulations, comply with the requirements of those insurance carriers providing coverage for this work.
- B. Contractor performing demolition of lead containing structure shall have a mandatory program of worker protection from lead poisoning.

##### 1.4 JOB CONDITIONS

- A. Dust Control: Use all means necessary to minimize the spread of dust during performance of this work.
- B. Burning: On-site burning will not be permitted.
- C. Protection of Existing Structures: Use any means necessary to protect existing structures to remain. In the event of damage, immediately make all repairs and replacements necessary to obtain the Engineer's approval, at no additional cost to the Owner. Erect barriers, fences, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.

##### 1.5 SUBMITTALS

- A. Submit MSDS sheet for all substitution materials proposed for use during demolition activities.
- B. Submit permits for transport and disposal of hazardous material and non-hazardous material debris prior to beginning work.

- C. Proposed method of demolition, proposed schedule, and proposed method of leaving existing facilities operational.

## PART 2 PRODUCTS

### 2.1 SALVAGED ITEMS

- A. All salvaged items shall be delivered to the Owner for storage on the site.
- B. Provide caps, plugs and blind flanges for pipeline ends to be abandoned and or removed and install concrete or grout plugs to permanently seal openings.

### 2.2 EXISTING CONSTRUCTION

- A. Prior to bidding, the Contractor shall inspect the existing construction and make their own determination as to the difficulty of performing this work. The Drawings indicate the general construction and are not intended to be complete in every detail.
- B. Prior to any demolition work, carefully re-inspect the site and determine the extent of work involved. Immediately report any discrepancies to the Engineer.

### 2.3 DISPOSAL SITE

- A. The Contractor is responsible for removal and disposal at an approved disposal site of all materials not being salvaged by the Owner.

## PART 3 EXECUTION

### 3.1 SAFETY

- A. All work shall conform to pertinent OSHA regulations and to other State and local codes and ordinances as applicable. Contractor shall follow all confined space entry requirements when performing work in enclosed/confined spaces.
- B. Provide temporary shoring or bracing which may be required during demolition.
- C. Do not commence demolition work until conditions are acceptable to Engineer and Owner.

### 3.2 UNDERGROUND PIPING AND CONDUIT

- A. Underground piping shall be removed to within three (3) feet of existing structures unless shown otherwise in the Drawings. Cut ends flush, grout plug or cap and finish to match existing surfaces.
- B. Where provided by Engineer, mark the plugged or capped piping, wiring, and conduit with a marker, which extends from the plug or cap to surrounding ground conditions. Record placement end of abandoned pipe, wiring, or conduit on project record documents.

### 3.3 GENERAL DEMOLITION

- A. Fill and compact demolished areas excavated at grade to 95 % maximum density with crushed rock or approved material to proposed sub grade.
- B. Any demolition occurring over an existing structure to remain, or over a structure containing liquid shall be accomplished so all items demolished will not fall and cause damage to structure below or into liquid.
- C. If concrete or metal, cut into manageable pieces and support such that removal may be done in an orderly, safe, and systemic manner.
- D. Take extra precautions to ensure that small items such as nails, screws, bolts, and concrete pieces are removed from site.

### 3.08 REMOVAL OF DEBRIS

- A. Remove all debris and items not to be salvaged from the site and leave the site in a neat and orderly condition. All debris must be disposed of at an approved disposal site, at the Contractor's expense.
- B. Do not store, burn, or bury materials on site.

**\*\*END OF SECTION\*\***

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**DIVISION 030000**

**CONCRETE**





## SECTION 03 00 00

### DIVISION 3—CONCRETE

<u>SECTION</u>	<u>TITLE</u>
03 10 00	CONCRETE FORMING AND ACCESSORIES
03 20 00	CONCRETE REINFORCING
03 30 00	CAST-IN-PLACE CONCRETE

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## SECTION 03 10 00

### CONCRETE FORMING AND ACCESSORIES

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. The work included under this section consists of furnishing all material, supplies, equipment, tools, transportation, and facilities, and performing all labor and services necessary for, required in connection with or properly incidental to furnishing, installing, and removing formwork as described in this section of the specifications, shown on the accompanying Drawings, or reasonably implied there from, except as hereinafter specifically excluded.
- B. Work Included
  - 1. Design of formwork, shoring and false work
  - 2. Construction and removal of all forms.
  - 3. Installation of items furnished under other sections but indicated therein to be installed under this section.
- C. Related Sections:
  - 1. Section 03 20 00 - Concrete Reinforcing.
  - 2. Section 03 30 00 - Cast-In-Place Concrete.

##### 1.2 REFERENCES

- A. The following is a list of Reference Standards referred to in this portion of the specifications.
  - 1. West Coast Lumber Inspection Bureau (W.C.L.I.B.) "Standard Grading and Dressing Rules No. 17."
  - 2. APA -Engineered Wood Association Stamp
  - 3. Corps of Engineers' Specification CRD-C-572

### 1.03 CODES AND REGULATIONS

- A. Comply with all federal, state, and local codes and safety regulations. In addition, comply with the provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified.
  - 1. Uniform Building Code, current governing edition.
  - 2. American Concrete Institute:
    - 1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
    - 2. ACI 301 - Specifications for Structural Concrete.
    - 3. ACI 318 - Building Code Requirements for Structural Concrete.
    - 4. ACI 347 - Guide to Formwork for Concrete.
  - 3. American Forest and Paper Association:
    - a. AF&PA - National Design Specifications for Wood Construction.
  - 4. The Engineered Wood Association:
    - 1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.
  - 5. American Society of Mechanical Engineers:
    - a. ASME A17.1 - Safety Code for Elevators and Escalators.
  - 6. ASTM International:
    - a. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
    - 2. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
  - 7. West Coast Lumber Inspection Bureau:
    - a. WCLIB - Standard Grading Rules for West Coast Lumber.

### 1.3 SUBMITTALS

- A. Section 01 33 00 – Shop Drawings, Submittals, and Substitutions.
- B. Shop Drawings:
  - 1. Submit formwork, shoring, and reshoring shop drawings.
  - 2. Indicate the following:
    - a. Pertinent dimensions, openings, methods of construction, types of connections, materials, joint arrangement and details, ties and shores, location of framing, studding and bracing, and temporary supports.
    - b. Means of leakage prevention for concrete exposed to view in finished construction.
    - c. Sequence and timing of erection and stripping assumed compressive strength at time of stripping, height of lift and height of drop during placement.
    - d. Vertical, horizontal and special loads in accordance with ACI 347, Section 2.2 and camber diagrams, when applicable.
    - e. Notes to formwork erector showing size and location of conduits and piping embedded in concrete in accordance with ACI 318, Section 6.3.
    - f. Procedure and schedule for removal of shores and installation and removal of reshores.

### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with [ACI 347] [ACI 301] [ACI 318].
- B. For wood products furnished for work of this Section, comply with AF&PA.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver void forms and installation instructions in manufacturer's packaging.
- B. Store off ground in ventilated and protected manner to prevent deterioration from moisture.

## 1.6 COORDINATION

- A. The Contractor shall obtain information and instructions from other trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete.
- A. Coordinate this Section with other sections of work, requiring attachment of components to formwork.

## PART 2 PRODUCTS

### 2.1 WOOD FORM MATERIALS

- A. Plywood Forms:
  - 1. Application: Use for exposed finish concrete.
  - 2. Forms: Conform to PS 1; full size 4 x 8 feet panels; each panel labeled with grade trademark of APA/EWA.
  - 3. Plywood for Surfaces to Receive Membrane Waterproofing: Minimum of 5/8 inch thick; APA/EWA "B-B Plyform Structural I Exterior" grade.
  - 4. Plywood where "Smooth Finish" is required, as indicated on Drawings: APA/EWA "HD Overlay Plyform Structural I Exterior" grade, minimum of 3/4 inch thick.
- B. Sheathing shall be Douglas fir "Standard" grade per Grading Rules #17, W.C.L.I.B., and paragraph 118-c
- C. Hardboard shall be 1/8-inch tempered.
- D. Lumber Forms:
  - 1. Application: Use for edge forms and unexposed finish concrete.
  - 2. Boards: 6 inches or 8 inches in width, shiplapped or tongue and groove, "Standard" Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast Lumber. Surface boards on four sides.

### 2.2 FORMWORK ACCESSORIES

- A. Spreaders: Standard, non-corrosive metal form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders or through bolts are not permitted.

- B. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture or impair natural bonding characteristics of coatings intended for use on concrete.
- C. Corners: Chamfer, rigid plastic or wood strip type; 3/4 x 3/4 inch size; maximum possible lengths.
- D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, or sufficient strength and character to maintain formwork in place while placing concrete.
- E. Form Anchors and Hangers:
  - 1. Do not use anchors and hangers exposed concrete leaving exposed metal at concrete surface.
  - 2. Symmetrically arrange hangers supporting forms from structural steel members to minimize twisting or rotation of member.
  - 3. Penetration of structural steel members is not permitted.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Furnish and install all forms, clamps, accessories, etc., required for all poured-in-place concrete on the below grade and unexposed portions above grade. Where sides of excavations have been cut neat and accurate to size for pouring of concrete directly against the excavation, forms for footings will not be required.
- B. Furnish and install all forms, clamps, sealer, accessories, etc., required for all poured-in-place concrete above grade that will be exposed.
- C. Provide crack control and keyed cold joint forms.
- D. Verify lines, levels, and centers before proceeding with formwork. Verify dimensions agree with Drawings.

### 3.2 INSTALLATION

- A. Manufactured assemblies may be used as forms provided that maximum loadings and deflections used on jacks, brackets, columns, joists and other manufacturer devices does not exceed the manufacturer's recommendations.

A. Earth Forms:

1. Trench earth forms neatly, accurately, and at least 2 inches wider than footing widths indicated on Drawings.
2. Trim sides and bottom of earth forms.
3. Construct wood edge strips at top of each side of trench to secure reinforcing and prevent trench from sloughing.
4. Form sides of footings where earth sloughs.
5. Tamp earth forms firm and clean forms of debris and loose material before depositing concrete.

B. Formwork - General:

1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.
2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
3. Camber forms where necessary to produce level finished soffits unless otherwise shown on Drawings.
4. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
5. Complete wedging and bracing before placing concrete.

C. Forms for Smooth Finish Concrete:

1. Use steel, plywood or lined board forms.
2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
3. Install form lining with close-fitting square joints between separate sheets without springing into place.
4. Use full size sheets of form lines and plywood wherever possible.



5. Tape joints to prevent protrusions in concrete.
  6. Use care in forming and stripping wood forms to protect corners and edges.
  7. Level and continue horizontal joints.
  8. Keep wood forms wet until stripped.
- D. Architectural Form Liners:
1. Erect architectural side of formwork first.
  2. Attach form liner to forms before installing form ties.
  3. Install form liners, square with joints and pattern aligned.
  4. Seal form liner joints to prevent grout leaks.
  5. Dress joints and edges to match form liner pattern and texture.
- E. Forms for Surfaces to Receive Membrane Waterproofing: Use plywood or steel forms. After erection of forms, tape form joints to prevent protrusions in concrete.
- F. Framing, Studding and Bracing:
1. Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood.
  2. Size framing, bracing, centering, and supporting members with sufficient strength to maintain shape and position under imposed loads from construction operations.
  3. Construct beam soffits of material minimum of 2 inches thick.
  4. Distribute bracing loads over base area on which bracing is erected.
  5. When placed on ground, protect against undermining, settlement or accidental impact.
- G. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of [ACI 301] [ACI 318].
- H. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

- I. Obtain Architect/Engineer's approval before framing openings in structural members not indicated on Drawings.

### 3.3 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces are indicated to receive [special finishes] [or] [applied coverings] that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.
- D. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer's specifications. Do not coat forms for concrete indicated to receive "scored finish". Apply form coatings before placing reinforcing steel.

### 3.4 INSTALLATION - INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Forms shall be constructed of sound material, of the correct shape and dimension, mortar tight, and of sufficient strength, and so braced and tied together that the movement of equipment, men, materials, or placing and vibrating the concrete will not throw them out of line or position. Construct so that they may be easily removed without damage to the concrete. Any movement or bellying of forms during construction shall be considered just cause for their removal and, in addition, the concrete work so affected. All formed joints on concrete surfaces to be exposed shall be taped and shall align so joints will not be apparent on the concrete surfaces. All dirt, chips, sawdust, and other foreign matter shall be completely removed before concrete is placed.
- B. Before concrete is placed in forms, all inside surfaces of the forms shall be thoroughly coated with an approved form sealer. The form sealer shall be of high penetrating quality leaving no film on the surface of the forms that can be absorbed by the concrete.
- C. Form supports shall be placed on adequate foundations and have sufficient strength and bracing to prevent settlement or distortion from the weight of the concrete or other cause. Support shall rest on double-wedged shim, or other approved means, so that the forms will be maintained at the proper grade.

- D. Before concrete is placed in any form, the horizontal and vertical position of the form shall be carefully verified and all inaccuracies corrected. All wedging and bracing shall be completed in advance of placing of concrete.
- E. Boards or other form materials that have been damaged or checked or warped prior to placing of concrete shall be removed from the forms and replaced with approved materials or otherwise corrected to the satisfaction of the Engineer.
- F. Assign a sufficient number of men to keep watch on and maintain the forms during placing of concrete. Satisfactorily remedy any displacement or looseness of forms or reinforcement before placing of concrete. No form shall be moved or altered except as may be specifically directed.
- G. Locate and set in place items required to be cast directly into concrete.
- H. Install accessories straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- I. Install water stops continuous without displacing reinforcement
- J. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.
- K. Form Ties:
  - 1. Use sufficient strength and sufficient quantity to prevent spreading of forms.
  - 2. Place ties at least 1 inch away from finished surface of concrete.
  - 3. Leave inner rods in concrete when forms are stripped.
  - 4. Space form ties equidistant, symmetrical and aligned vertically and horizontally unless otherwise shown on Drawings.
- L. Arrangement: Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.
- M. Construction Joints:
  - 1. Install surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints.
  - 2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.

3. Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
4. Arrange joints in continuous line straight, true and sharp.

N. Embedded Items:

1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, water stops, and other features.
2. Do not embed wood or uncoated aluminum in concrete.
3. Obtain installation and setting information for embedded items furnished under other Specification sections.
4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
5. Verify conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 for size and location limitations.

O. Openings for Items Passing Through Concrete:

1. Frame openings in concrete where indicated on Drawings. Establish exact locations, sizes, and other conditions required for openings and attachment of work specified under other sections.
2. Coordinate work to avoid cutting and patching of concrete after placement.
3. Perform cutting and repairing of concrete required as result of failure to provide required openings.

P. Screeds:

1. Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs.
2. Slope slabs to drain where required or as shown on Drawings.
3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.

Q. Screed Supports:

1. For concrete over waterproof membranes and vapor retarder membranes, use cradle, pad or base type screed supports which will not puncture membrane.
2. Staking through membrane is not be permitted.

R. Cleanouts and Access Panels:

1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris and waste material.
2. Clean forms and surfaces against which concrete is to be placed. Remove chips, saw dust and other debris. Thoroughly blow out forms with compressed air just before concrete is placed.

### 3.5 FORM REMOVAL

- A. Formwork, false work, and shoring shall not be removed until the concrete members have acquired sufficient strength to support their weight and the loads to be superimposed thereon safely.
- B. Vertical forms shall remain on columns, walls, pilasters, etc., for at least seven (7) days.
- C. Shoring and false work under beams, girders, slabs, etc., shall remain in place for at least 14 days.
- D. The Contractor shall request to have field-cured compression test specimens taken for any concrete where it is planned to remove formwork, false work, or shoring sooner than indicated above.
- E. In removing plywood forms, no metal pinch bars shall be used, and special care shall be taken in stripping. Start at top edge or vertical corner where it is possible to insert wooden wedges. Wedging shall be done gradually and shall be accompanied by light taping of the plywood panels to crack them loose. Do not remove forms with a single jerk after it has been started at one end.
- F. Forms shall be left in place as long as possible to permit shrinkage away from concrete.

- G. Nothing herein shall be construed as relieving the Contractor of any responsibility of the safety of the structure.
- H. After stripping, properly protect all concrete to be exposed in the finish work from damage with boards and building paper to prevent staining, spoiled edges, chips, etc.
- I. Whenever the formwork is removed during the curing period, the exposed concrete shall be cured by one of the methods specified in Section 03 30 00.

### 3.6 FORM CLEANING

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

### 3.7 FIELD QUALITY CONTROL

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- B. Notify Architect/Engineer after placement of reinforcing steel in forms, but prior to placing concrete.
- C. Schedule concrete placement to permit formwork inspection before placing concrete.

**\*\*END OF SECTION\*\***

## SECTION 03 20 00

### CONCRETE REINFORCING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. The work included under this section consists of furnishing all material, supplies, equipment, tools, transportation, and facilities, and performing all labor and services necessary for, required in connection with or properly incidental to furnishing and installing all reinforcing bars, ties, spacing devices, inserts, and all other material required to complete installation, as described in this section of the specifications, shown on the accompanying Drawings, or reasonably implied there from.
- B. Work Included
  - 1. Fabricating and installing all reinforcing steel for cast in place concrete.
  - 2. Fabrication of reinforcing steel dowels to be embedded in existing concrete and existing masonry.
- C. Section Includes:
  - 1. Reinforcing bars.
  - 2. Welded wire fabric.
  - 3. Reinforcement accessories.
- D. Related Sections
  - Section 03 11 00: Concrete Formwork
  - Section 03 30 00: Cast-in Place Concrete

##### 1.2 REFERENCES

The following is a list of Reference Standards referred to in this portion of the specifications:

- A. American Concrete Institute:

4. ACI 301 - Specifications for Structural Concrete.
5. ACI 318 - Building Code Requirements for Structural Concrete.
6. ACI 530.1 - Specifications for Masonry Structures.
7. ACI SP-66 - ACI Detailing Manual.

B. ASTM International:

1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
5. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
6. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
7. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
8. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
9. ASTM A775/A775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
10. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.
11. ASTM A934/A934M - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
12. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.



13. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Reinforcing Steel Bars.

C. American Welding Society:

1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

D. Concrete Reinforcing Steel Institute:

1. CRSI - Manual of Standard Practice.
2. CRSI - Placing Reinforcing Bars.

### 1.3 SUBMITTALS

- A. Submit shop drawings in accordance with Section 13 33 00.
- B. Indicate bar materials and size, spacings, locations, and quantities of reinforcing steel, bending and cutting schedules, supporting and spacing devices.
- C. Certificates: Submit AWS qualification certificate for welders employed on the Work.

### 1.4 QUALIFICATIONS

- A. Welders: AWS qualified within previous 12 months.

### 1.5 COORDINATION

- A. Coordinate with placement of formwork, formed openings and other Work.

### 1.6 OTHER

- A. Store reinforcement during fabrication and at site to avoid excessive rusting or coating with grease, oil, dirt, or other objectionable materials.
- B. Coordinate work with all trades so as not to interfere with the work of other trades. Bring interferences between trades to Engineer's attention and resolve before any concrete is placed.

## PART 2 PRODUCTS

### 2.1 REINFORCEMENT

- A. Bars for reinforcement shall be deformed, intermediate grade steel conforming to the requirements of ASTM A 615, Grade 60 including Supplement S1.

## 2.2 ACCESSORY MATERIALS

- A. All wire for concrete reinforcement shall conform to "Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement," ASTM A 82.
- B. All wire fabric for concrete reinforcement shall conform to "Specification for Welded Steel Wire Fabric for Concrete Reinforcement," ASTM A 185.
- C. All other materials, not specifically described by these specifications but required for complete and proper placement of reinforcement shall be new, first quality of their respective kinds, and subject to the approval of the Engineer.

## 2.3 FABRICATION

- A. Bends for reinforcing steel shall be made in accordance with ACI 318 latest edition. Bend all bars cold.
- B. Bars shall not be cut by gas torch.

## 2.4 SAMPLING, TESTING, AND INSPECTION

- A. All materials and work shall be subject to inspection at the mill, the fabrication shop, and at the building site. Material or workmanship not complying fully with the drawings, and/or specifications will be rejected.
- B. If the Engineer, through oversight or otherwise, has accepted material or work which is defective or contrary to specifications, this material or work, regardless of state of completion, may be rejected.
- C. The Contractor shall cooperate with and notify the Engineer at least 24 hours in advance of inspections required and shall provide samples, test pieces, and facilities for inspection without extra charge.
- D. The Contractor shall identify each lot of fabricated reinforcing steel to be shipped to the site by assigning an individual lot number that identifies steel by heat number and shall be tagged in such a manner that each such lot can be accurately identified at the job site.
- E. The Contractor shall remove all unidentified reinforcing steel, anchorage assemblies and bar couplers received at the site.

## PART 3 EXECUTION

### 3.1 PLACEMENT

- A. Prior to all work of the section, carefully inspect the installed work of other trades and verify that all work is sufficiently complete to permit the start of work under this section and that the completed work of this section will be in complete accordance with the original design and the reviewed shop drawings. In the event of discrepancy, immediately notify the Engineer in writing.
- B. In the event conduits, pipes, inserts, sleeves, or any other items interfere with placing the reinforcement as indicated on the Drawings or approved shop drawings, or as otherwise required, immediately notify the Engineer and obtain approval on procedure before placement of reinforcement is started.
- C. Do not field-bend reinforcing steel in a manner that will injure material, cause the bars to be bent on too tight a radius, or that is not indicated as allowed on the Drawings or permitted by Engineer. Do not straighten bent or kinked bars for use on project without permission of Engineer. Replace bars with kinks or bends not shown on the Drawings.
- D. All reinforcement shall be placed in strict conformity with the requirements of the engineering Drawings, both as to location, position and spacing of members. It shall be supported and secured against displacement by the use of adequate and proper wire supporting and spacing devices, tie wires, etc. so that it will remain in its proper position in the finished structure.
- E. Preserve clear space between parallel bars of not less than 1-1/2 times the nominal diameter of round bars and in no case shall the clear distance be less than 1-1/2 inches nor less than 1-1/3 times the maximum size of aggregate for concrete. Bars placed in shotcrete shall have a minimum clearance between bars of 2-1/2" for No. 5 and smaller and 6 bar diameters for bars larger than No. 5.
- F. Lap splices shall be contact lap splices in accordance with ACI 318 unless noted otherwise on the Contract Drawings. Bars shall be wired together at laps. Wherever possible, stagger splices in adjacent bars. Make all splices in wire fabric at least 1-1/2 meshes wide or 12-inches which ever is greater. When splicing in areas to receive shotcrete, lap splices shall be non-contact with at least 2" clearance between bars.
- G. Take all means necessary to ensure that steel reinforcement, at the time concrete is placed around it, is completely free from rust, dirt, loose mill scale, oil, paint and all coatings which will destroy or reduce the bond between steel and concrete.

- H. The Contractor shall notify the Engineer at least 24 hours in advance of when inspections are required.

### 3.2 FIELD QUALITY CONTROL

- A. Perform field [inspection and] testing in accordance with ACI 318.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Reinforcement Inspection:
  - 1. Placement Acceptance: Specified ACI 318 material requirements and specified placement tolerances.
  - 2. Welding: Inspect welds in accordance with AWS D1.1.
  - 3. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.
  - 4. Weldability Inspection: Inspect for reinforcement weldability when formed from steel other than ASTM A706/ A706M.
  - 5. Continuous Weld Inspection: Inspect reinforcement as required by ACI 318.
  - 6. Periodic Weld Inspection: Other welded connections.

**\*\*END OF SECTION\*\***

## SECTION 03 30 00

### CAST-IN-PLACE CONCRETE

#### PART 1 GENERAL

##### 1.1 SUMMARY

A. The work included under this section consists of furnishing all material, supplies, equipment, tools, transportation, and facilities, and performing all labor and services necessary for, required in connection with or properly incidental to furnishing, and installing cast-in-place concrete work as described in this section of the specifications, shown on the accompanying Drawings, or reasonably implied there from, except as hereinafter specifically excluded.

B. Work Included:

1. All concrete and cement finishing; all surface treatment and curing.
2. Installation of all reglets, bolts, anchors, cans, sleeves, column anchor bolts, etc., whether furnished under this section or by others.
3. The furnishing of all items required to be or shown on the Drawings as embedded in concrete, which are not specifically required under other sections.
4. Drilling of existing concrete and masonry for placement of bars, dowels, and rods.

C. Related Work Specified Under Other Sections

Section 03 10 00      Concrete Forming and Accessories

Section 03 20 00:      Concrete Reinforcing

##### 1.2 REFERENCES

The following is a list of Reference Standards referred to in this portion of the Specifications:

- A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- B. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.

- C. ASTM C33 - Standard Specification for Concrete Aggregates.
- D. STM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- E. ASTM C42/C42M - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- F. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- G. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
- H. ASTM C150 - Standard Specification for Portland Cement.
- I. ASTM C 171 "Specification for Sheet Materials for Curing Concrete"
- J. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
- K. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- L. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- M. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
- N. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
- O. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
- P. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
- Q. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- R. ASTM C685/C685M - Standard Specification for Concrete Made By Volumetric Batching and Continuous Mixing.
- S. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
- T. ASTM C 881 - "Specification for Epoxy-Resin-Base Bonding Systems for Concrete"

- U. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
- V. ASTM C1017/C1017M - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
- W. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
- X. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
- Y. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
- Z. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
- AA. ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
- BB. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
- CC. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- DD. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- EE. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- FF. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
- GG. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- HH. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- II. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
- JJ. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

### 1.3 CODES AND REGULATIONS

Comply with all Federal, State and Local Codes and Safety Regulations. In Addition, comply with the provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified.

- A. ACI 301 "Specifications for Structural Concrete for Buildings", current edition.
- B. ACI 306.1 - Standard Specification for Cold Weather Concreting.
- C. ACI 308.1 - Standard Specification for Curing Concrete.
- D. ACI 318 - Building Code Requirements for Structural Concrete.
- E. ACI 318 - "Building Code Requirements of Reinforced Concrete", current edition.
- F. ACI 350 - "Code Requirements for Environmental Engineering Concrete Structures."
- G. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."
- H. ASTM C 94 "Specifications for Ready Mixed Concrete."

### 1.4 SUBMITTALS

#### A. General Requirements

- 1. Submittals shall be made to Engineer in accordance with the requirements of Section 0133 00 of these specifications.
- 2. Construction and fabrications or mixing of materials shall not begin until contractor has received submittals reviewed by Engineer governing all aspects of the intended work.

#### B. Product Data

Manufacturer's catalog sheets including instruction for use and description of application shall be provided on each of the following materials:

- 1. Epoxies
- 2. Grout
- 3. Admixtures



4. Curing Compounds

5. Chemical Hardener

6. Moisture Barriers

7. Pozzolan

C. Design Data:

1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:

a. Hot and cold weather concrete work.

b. Air entrained concrete work.

2. Identify mix ingredients and proportions, including admixtures.

D. Samples

Submit samples of materials as specified and as otherwise required by Engineer, including names, sources, and descriptions.

E. Manufacturer's Installation Instructions: Submit installation procedures and interface required with adjacent Work.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Project Closeout.

B. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 318 and ACI 350.

B. Conform to ACI 305 when concreting during hot weather.

C. Conform to ACI 306.1 when concreting during cold weather.

D. Acquire cement and aggregate from one source for Work.

1.7 SEQUENCING AND SCHEDULING

A. Obtain information and instructions from other trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be

embedded in concrete so provision for their work can be made without delaying the project.

- B. Do any cutting and patching made necessary by failure or delay in complying with these requirements, at no cost to Owner.

## 1.8 SAMPLING, TESTING AND INSPECTION

- A. All materials and work shall be subject to inspection at the batch plant, and at the building site. Material or workmanship not complying fully with the Drawings, and/or specifications will be rejected.
- B. If the Engineer, through oversight or otherwise, has accepted material or work which is defective or contrary to specifications, this material or work, regardless of state of completion, may be rejected.
- C. The Contractor shall cooperate with and notify Engineer at least 24 hours in advance of inspection required and shall provide samples and facilities for inspection without extra charge.

## PART 2 MATERIALS

### 2.1 PORTLAND CEMENT

Portland Cement shall conform to ASTM C 150 for Type II cement. Use a single, approved standard brand throughout work.

### 2.2 CONCRETE AGGREGATES

Aggregates for hardrock concrete shall conform to ASTM C 33 Class 1S.

### 2.3 WATER

- A. Mixing Water for concrete shall be clean and free from deleterious amounts of acids, alkalis or organic materials.

### 2.4 MEMBRANE

- A. Liquid membrane curing compounds: Liquid membrane curing compounds shall conform to the requirements of ASTM C 309.
- B. Waterproofing Paper: Waterproofing paper for curing concrete shall conform to the requirements of ASTM C 171.

## 2.5 AIR-ENTRAINING ADMIXTURE

Air-entraining admixtures shall conform to the requirements of ASTM C 260. Subject to that compliance, provide one of the following.

- A. Sika Aer; Sika Corporation.
- B. MB-VR or MB-AE; Master Builders.
- C. Dorex AEA; W.R. Grace.
- D. Edoco 2001 or 2002; Edoco Technical Products.

## 2.6 WATER-REDUCING ADMIXTURE

Water-reducing admixtures shall conform to the requirements of ASTM C 494, Type A, and contain not more than 0.1% chloride ions. Subject to compliance with requirements, provide one of the following.

- A. Eucon WR-75: Euclid Chemical Company
- B. Pozzolith 344: Master Builders
- C. Plastocrete 160: Sika Chemical Corporation
- D. Chemtard: Chem-Masters Corporation

## 2.7 HIGH-RANGE WATER-REDUCING ADMIXTURE (SUPER PLASTICIZER)

Super Plasticizer shall conform to the requirements of ASTM C 494, Type F or Type G and contain not more than 0.1% chloride ions. Subject to compliance with requirements, provide one of the following.

- A. WRDA 19: W.R. Grace
- B. Sikament: Sika Chemical Corporation
- C. Pozzolith 400: Master Builders

## 2.8 WATER-REDUCING, RETARDING ADMIXTURE

Water-reducing, retarding admixtures shall conform to the requirements of ASTM C 494, Type D, and contain not more than 0.1% chloride ions. Subject to compliance with requirements, provide one of the following.

- A. Pozzolith 300-R: Master Builders.

B. Daratard: W.R. Grace.

C. Plastiment: Sika Chemical Corporation.

## 2.9 CONCRETE

A. Concrete Mix Requirements: Concrete shall have a minimum 28-day compressive strength, minimum cement content, and maximum water/cement ratio as listed in the table below:

Concrete Class	Minimum 28 day Compressive Strength	Minimum Cement Content	Maximum Water/Cement Ratio Non-Air Entrained
Class A	4,000 psi	6 sacks	0.48
Class B	3,000 psi	5.5 sacks	0.55
Class C	2,500 psi	5 sacks	0.60
Class D	2,000 psi	5 sacks	0.75

B. Concrete Mix Designs

The following table presents a schedule of classes of concrete, maximum aggregate, maximum slump, and air content for each type of concrete, which shall be as follows.

Concrete Element	Class of Concrete	Max. Size Aggregate	Max. Slump (Inch)	Total Air Content
Grade Beams, Pile Caps, Equip. Pedestal	A	3/4	3	5 - 7%
Foundations, Floor Slabs, Slab on grade, Tank Walls	B	3/4	3	5 - 7%
Paving, Sidewalks	C	3/4	4	--
All Other Concrete	D	3/4	4	--

- C. Admixtures are not required. Contractor may add specified admixtures provided he has submitted, for review and comment by the Engineer, a complete submittal of the proposed admixture prior to mixing the concrete.

## 2.10 NON SHRINK GROUT

Non shrink grout shall be premixed compound consisting of non-metallic aggregate, cement, water retarding, and plasticizing agents; capable of developing a minimum compressive strength of 2400 psi in 2 days and 7000 psi in 28 days.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Produce concrete of required consistency and strength to present appearance satisfactory to the Engineer.
- B. Use only one brand of cement unless otherwise authorized by the Engineer.
- C. Embedded Items.

Place all pipe sleeves, inserts, anchors bolts, angle frames, ties, and other embedded items required for adjoining work or for its support prior to concreting. Embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts, and anchor bolt slots shall be filled temporarily with a readily removable material to prevent entry of concrete into the voids.

- D. Store materials delivered to the job and protect from foreign matter and exposure to any elements that would reduce the properties of the material.

### 3.2 MIXING

- A. Use ready-mixed concrete complying with ASTM C 94 and with the requirements of Contract Documents. Mix for a period of not less than ten (10) minutes; at least three (3) minutes of mixing period shall be immediately prior to discharging at the job.
- B. Materials shall be proportioned by weighing. Pozzolan shall be introduced into the mixer with cement and other components of the concrete mix; Pozzolan shall not be introduced into a wet mixer ahead of other materials or with mixing water.
- C. Concrete shall be delivered to the site of work and discharge shall be completed within 1½ hours after introduction of the water to the mixture.

- D. Introduction of additional water after initial mixing not permitted.

### 3.3 WEATHER REQUIREMENTS

- A. Do not mix or place when atmospheric temperature is below 40 degrees F. or when conditions indicate temperature will fall below 40 degrees within 72 hours. Reinforcement, forms, and ground which concrete will contact shall be completely free of frost. Keep concrete and formwork at a temperature not less than 50 degrees F. for not less than 72 hours after pouring.
- B. When temperature is above 80 degrees F. Contractor shall take precautions to insure that rebar temperature does not exceed ambient temperature.
- C. Temperature of concrete at time of placing shall not be less than 50 degrees F. and not more than 85 degrees F.

### 3.4 CONVEYING AND PLACING

- A. All concrete shall be mixed and delivered in accordance with the requirements of ASTM C 94. All concrete shall be placed, finished, and cured and all other pertinent construction practices shall be in accordance with the requirements of ACI 301.
- B. Notify Engineer at least 48 hours before placing any concrete.
- C. Before placing, clean mixing, and conveying equipment, clean forms and space to be occupied by concrete and wet forms. Remove ground water until completion of work.
- D. Place no concrete in any unit of work until all formwork has been completely constructed, all reinforcements secured in place, all items to be built into concrete are in place, and form ties at constructions joints tightened.
- E. Concrete shall be placed so that a uniform appearance of surfaces will be obtained. The concrete will be free of all rock pockets, honeycombs and voids. Deposit as neatly as practical in its final position.
- F. The sub grade must be moist when the concrete is placed for floor slab to prevent excessive loss of water from the concrete mix.
- G. Carry on concreting, once started, as a continuous operation until the section of approved size and shape is completed. Make pour cut-offs of approved detail and location.
- H. Handle concrete as rapidly as practicable from mixer to place of deposit by methods that prevent separation or loss of ingredients. Deposit as nearly as

practicable in final position to avoid rehandling or flowing. Do not drop concrete freely where reinforcing bars will cause segregation, nor drop freely more than four feet. Deposit to maintain a plastic surface approximately horizontal. In walls, deposit in horizontal layers not over eighteen inches deep. In pouring columns, walls or thin sections of considerable heights, use openings in forms, elephant trunks, tremies or other approved devices which permit concrete to be placed without segregation or accumulation of hardened concrete on forms or metal reinforcement above the level of the concrete. Install so concrete will be dropped vertically.

- I. Concrete that has partially hardened shall not be deposited in the work.
- J. Vibrating

Employ as many vibrators and tampers as necessary to secure the desired results. Minimum: one per each 20 cubic yards of concrete placed per hour. Eliminate the following practices: Pushing of concrete with vibrator; external vibration of forms; allowing vibrator to vibrate against reinforcing steel where steel projects into green concrete; allowing vibrator to vibrate contact faces of forms. Vibrators shall function at a minimum frequency of 3600 cycles per minute when submerged in concrete. Supplement vibration by forking and spading along the surfaces of the forms and between reinforcing whenever flow is restricted.

### 3.5 CURING

#### A. General

Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures and shall be maintained with minimum moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete.

#### B. Initial Curing

1. Initial curing shall immediately follow the finishing operation. Concrete shall be kept continuously moist at least overnight. One of the following material or methods shall be used: Ponding or continuous sprinkling; absorptive mat or fabric kept continuously wet.
2. Curing compounds conforming to ASTM C 309. Such compounds shall be applied in accordance with the recommendations of the manufacturer and shall not be used on any surface against which additional concrete or other cementitious finishing materials are to be bonded, where epoxy flooring is called for, where concrete topping is to receive waterproofing

membrane, nor on surfaces where such curing is prohibited by the project specifications.

C. Final Curing

Immediately following the initial curing and before the concrete has dried, additional curing shall be accomplished by one of the following materials or methods.

1. Continuing the method used in initial curing.
2. Waterproofing paper conforming to the requirements of ASTM C 171.
3. Other moisture-retaining coverings as approved.

D. Duration of Curing

The final curing shall continue until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is above 50 degrees F. has totaled seven days. If high-early-strength concrete has been used, the final curing shall continue for a total of three days. Rapid drying at the end of the curing period shall be prevented.

E. Formed Surfaces

Steel forms heated by the sun and all wood forms in contact with the concrete during the final curing period shall be kept wet. If forms are to be removed during the final curing period, one of the above curing materials or methods shall be employed immediately. Such curing shall be continued for the remainder to the curing period.

### 3.6 PROTECTION

Protect from injurious action of elements and defacement of any nature during operations.

### 3.7 CONSTRUCTION JOINTS

- A. Location and details of construction joints shall be as indicated on drawings, specified, or as approved by the Engineer. Locate so as not to impair the strength of the structure. Submit drawings with construction joints clearly defined, and schedule of pouring operations for approval in accordance with the required submittals of this specification section, prior to starting concreting.
- B. Sandblast all construction joints using coarse sand or waterblast to clean and roughen entire surface of joint, exposing coarse aggregate solidly embedded in



mortar matrix. Clean forms and reinforcing of drippings. Clear away debris by compressed air.

### 3.8 PATCHING AND CLEANING

- A. After forms are removed, remove projecting fins, bottles, form ties, nails, etc. not necessary for the work or cut back one inch from the surface. Joint marks and fins in exposed work shall be smoothed off and cleaned as directed by the Engineer.
- B. Repair all defects in concrete work exceeding 1/4-inch in any direction as directed by the Engineer. Chip voids and stone pockets to a depth of one inch or more as required to remove all loose material. Voids, surface irregularities, chipped areas, etc., shall be filled by patching, Guniting or rubbing, as directed by the Engineer. Repaired surfaces shall duplicate appearance of unpatched work.
- C. Clean exposed concrete surfaces and adjoining work stained by leakage of concrete to approval of Engineer.

### 3.9 CLEANUP

In addition to the requirements of Supplementary General Conditions, clean up all concrete and cement work on completion of this portion of the work, except protective coatings or building papers shall remain until floors have completely cured or until interior partitions are to be installed.

### 3.10 DEFECTIVE WORK

Work considered to be defective may be ordered by the Engineer to be replaced in which case the Contractor shall remove the defective work at his expense. Work considered to be defective shall include, but not be limited to, the following.

- A. Concrete in which defective or inadequate reinforcing steel has been placed.
- B. Concrete incorrectly formed, or not conforming to details and dimensions on the drawings or with the intent of these documents, or concrete surfaces that are out of plumb or level.
- C. Concrete below specified strength.
- D. Concrete not meeting the maximum allowable drying shrinkage requirements.
- E. Concrete containing wood, cloth, or other foreign matter, rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the drawings.

- F. Defects that allow leakage from any fluid-retaining tank.

### 3.11 CORRECTION OF DEFECTIVE WORK

- A. The Contractor shall, at his expense, make all such corrections and alleviation measures as directed by the Engineer.
- B. Concrete work containing rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the drawings, shall be chipped out until all unconsolidated material is removed.
- C. Secure approval of chipped-out areas before patching. Patch per ACI 301, or as ordered by the Engineer.
- D. Leaks shall be repaired by epoxy injection or by other sealing methods approved by the Engineer.

**\*\*END OF SECTION\*\***

**DIVISION 310000**

**EARTHWORK**



## SECTION 31 00 00

### DIVISION 31 – EARTHWORK

<u>SECTION</u>	<u>TITLE</u>
31 00 00	SITE PREPARATION
31 22 13	ROUGH GRADING
31 23 17	TRENCHING

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## SECTION 31 00 00

### SITE PREPARATION

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This section specifies site preparation, which consists of clearing, grubbing, stripping, and tree removal and pruning.
- B. The Contractor shall determine the actual condition of the site as it affects this portion of work.
- C. Disturbed areas shall be kept to a minimum.
- D. It is the intent of this specification that all disturbed areas shall be restored to a condition at least equivalent to the condition prior to the Contractor's work.
- E. Clearing and grubbing in sensitive areas shall be prohibited.

#### PART 2 MATERIALS - NOT USED

#### PART 3 EXECUTION

##### 3.1 CLEARING AND GRUBBING

- A. Areas that are to receive fill shall be stripped to a depth of at least three (3) inches.
- B. The Contractor shall remove obstructions such as brush, trees less than six (6) inches in diameter, logs, stumps, roots, heavy sod, vegetation, rock, stones larger than six (6) inches in any dimension, broken or old concrete and pavement, debris, and structures where the completion of the work require their removal.
- C. Stumps shall be removed to approximately 18" below ground surface.
- D. Material that is removed and is not to be incorporated in the work shall be disposed of off the site. The cost of disposal shall be borne by the Contractor.
- E. Dispose of all cleared materials by hauling away from project site. The Contractor is responsible for obtaining any required permits.
- F. All holes resulting from grubbing shall be filled with suitable material and compacted.
- G. Contractor shall comply with all applicable local, State and Federal laws and regulations pertaining to fire permits, burning and disposal. Remove and replace all improvements and/or facilities damaged or destroyed by Contractor's operations.

### 3.2 FENCE REMOVAL

- A. In areas where existing fence will conflict with performance of the Work, Contractor may temporarily remove fence and posts.
- B. Remove existing fence by cutting fence to nearest post and rolling fence to clear of construction areas. Where existing posts interfere with construction, Contractor shall remove posts and replace with new.

### 3.3 TREE PRUNING

- A. Tree pruning shall be performed to allow access for equipment. Pruning shall be performed by cutting only those branches necessary to allow equipment access and safe operation. Tree pruning shall be accomplished by cutting the individual branch back to the nearest unobstructed branch or trunk. All places in the tree where branches have been removed shall be coated with a suitable pruning patch coating.

**\*\*END OF SECTION\*\***



## SECTION 31 22 13

### ROUGH GRADING

#### PART 1 GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Excavating topsoil.
2. Excavating subsoil.
3. Cutting, grading, filling, rough contouring, compacting, and preparing site for building pads.
4. Borrow pit excavation.

B. Related Sections:

1. Section 013300 – Shop Drawings, Submittals, and Substitutions
2. Section 014500 – Testing and Laboratory Services
3. Section 017000 – Project Closeout
4. Section 31 23 17 - Trenching

##### 1.2 REFERENCES

A. ASTM International:

1. ASTM C136 - Standard Test Method for Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
4. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

5. ASTM D2434 - Standard Test Method for Permeability of Granular Soils
6. ASTM D2922 - Standard Test Method for Density of Soil
7. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

### 1.3 SUBMITTALS

- A. Section 01 33 00 – Shop Drawings, Submittals, and Substitutions.
- B. Materials Source: Submit name of imported materials suppliers.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 – Project Closeout
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C136, ASTM D2419, and ASTM D2434.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Topsoil: as specified in Section 31 23 17 – Trenching.
- B. Backfill: as specified in Section 31 23 17 – Trenching.
- C. Aggregate Base: as specified in 31 23 17 – Trenching.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify survey benchmark and intended elevations for the Work, are as indicated on Drawings.

### 3.2 PREPARATION

- A. Call Oregon Utility Notification center 1-800-332-2344 before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Protect utilities, indicated to remain, from damage.
- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- D. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

### 3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated or regarded or other identified areas, without mixing with foreign materials, for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site and protect from erosion. Stockpile material on impervious material and cover until ready for use.
- D. Remove excess topsoil not intended for reuse, from site to an approved disposal site.

### 3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated or re-graded.
- B. Do excavate and process wet material to obtain optimum moisture content.
- C. When excavating through roots, perform Work by hand and cut roots with sharp axe.
- D. Remove excess subsoil not intended for reuse, from site to an approved disposal site.
- E. Benching Slopes: Horizontally bench existing slopes greater than 1: 4 to key placed fill material to slope to provide firm bearing.
- F. Stability: Replace damaged or displaced subsoil as specified for fill.
- G. Borrow Excavation: Shall be graded to a maximum slope of 2 horizontal to 1 vertical.

### 3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials.

- B. Place fill material in continuous layers and compact.
- C. Place material in continuous layers as follows:
  - 1. Subsoil Fill: Maximum 8 inches compacted depth.
  - 2. Structural Fill: Maximum 6 inches compacted depth.
  - 3. Granular Fill: Maximum 6 inches compacted depth.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Slope grade away from buildings a minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.
- F. Make grade changes gradual. Blend slope into level areas.
- G. Repair or replace items indicated to remain, damaged by excavation or filling.

### 3.6 TOLERANCES

- A. Section 01 45 00 – Testing and Laboratory Services
- B. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

### 3.7 FIELD QUALITY CONTROL

- A. Section 01 45 00 - Testing and Laboratory Services and 01 70 00 – Project Closeout
- B. Perform laboratory material tests in accordance with ASTM D1557.
- C. Perform in place compaction tests in accordance with the following:
  - 1. Density Tests: ASTM D2922.
  - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

### 3.8 EROSION CONTROLS

- A. Comply with Section 01 57 19 - Temporary Environmental Controls.
- B. Provide silt fence and straw bale barrier at perimeter of borrow excavation.

- C. Hand apply mulch and reseed areas of excavation including exposed surfaces at borrow pit.

**\*\*END OF SECTION\*\***

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## SECTION 31 23 17

### TRENCHING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### A. Section Includes:

1. Excavating trenches for utilities.
2. Bedding and backfill materials.
3. Backfilling and compaction.

###### B. Related Sections:

1. Section 310000 - Site Preparation
2. Section 312213 - Rough Grading
3. Section 321000 - Surface Restoration

##### 1.2 REFERENCES

###### A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

###### B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).

4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2487 - Standard Classification of Soils for Engineering Purposes.
6. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
7. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

### 1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

### 1.4 SUBMITTALS

- A. Section 013300 - Shop Drawings, Submittals, and Substitutions
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan. Excavation protection plans shall be per OSHA standards.
- C. Samples: Submit, in air-tight containers, 10 lb sample of each type of fill to testing laboratory.
- D. Materials Source: Submit name of imported fill materials suppliers.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with City of Coos Bay and ODOT standards.

### 1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## PART 2 - PRODUCTS

### 2.1 PIPE ZONE MATERIAL

- A. As shown on Drawings



- B. The pipe zone shall be defined as the cross sectional area extending from subgrade to 12 inches above the pipeline. Pipe zone material shall consist of one of the following materials:
- a. Pipe zone materials shall be clean sand with a minimum sand equivalent (SE) of 30. Materials excavated for the trench with a SE of 30 or greater can be used for pipe zone materials if properly placed and compacted. Fine-grained soils shall be segregated and not used within the pipe zone.
  - b. Pipe zone bedding shall be imported  $\frac{3}{4}$ -inch - 0-inch granular material meeting requirements of granular backfill as specified herein.

## 2.2 NATIVE BACKFILL

- A. Backfill may be excavated material where the encountered material are segregated after determining the material meets the specifications described for pipe zone material or the materials are free of organics, debris and other deleterious materials, and they are screened to remove particles greater than 3-inches in diameter.
- B. The use of native backfill shall be limited to the areas of the trench zone shown in the Plans.

## 2.3 GRANULAR BACKFILL

- A. Granular backfill under roadways and minor structures such as manholes shall be sand-cement slurry or  $\frac{3}{4}$ " - 0" crushed angular rock meeting the requirements of base aggregate as specified in Oregon State Highway Division Standard Specification 02630. The use of native backfill shall be limited to the areas of the trench zone shown in the Plans.
- B. Granular backfill shall be provided with written statement from Quarry that all material provided for the project is certified by Quarry as "Gorse free."
- C. Quarry shall provide gradation curves and standard proctor for all granular material proposed for the project.

## 2.4 AGGREGATE BASE MATERIAL

- A. Base Material for roadway and gravel surfacing shall be  $\frac{3}{4}$ -inch - 0-inch crushed rock meeting the requirements of granular backfill as specified herein.

## 2.5 TOP SOIL

- A. Top Soil shall be stockpiled material removed from the top 12-inches of the trench or structural excavation segregated from remaining excavated material.
- B. In lieu of stockpiling and replacing topsoil, imported topsoil from borrow pits may be substituted. Borrow pits shall be free of noxious weeds. Engineer shall investigate topsoil borrow pit to determine if soil and area surrounding borrow pit is Gorse free.

## 2.6 WATER FOR COMPACTION

- A. Water shall be clean and free of oil, acids, salts, and other deleterious substances. Contractor shall furnish water as required to meet moisture content required to achieve specified compaction.

## PART 3 - EXECUTION

### 3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
  - 1. Owner reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

### 3.2 PREPARATION

- A. Maintain and protect above and below grade utilities indicated to remain.
  - 1. Existing power, gas, water, sewer, storm drain, and telephone lines, trees, fences, pipelines or other conduits, embankments, and structures in the vicinity of the work shall be supported and protected from injury by the Contractor during the construction and until the completion of the Work. The Contractor shall be liable for all damages to such structures, as herein provided, and shall save and keep the Owner and Engineer harmless from any liability or expense for injuries, damages, or repairs to same.
  - 2. A thorough attempt has been made to show the type, size, location, and number of all utilities. However, no guarantee is made as to the location and number of such utilities. The Contractor shall repair, in a manner satisfactory to the Engineer, all utilities damaged in the progress of his work. The Contractor shall notify all owners of utilities of commencement of Work and sufficiently in advance to have the utilities mark the location of their facilities. The Contractor shall be prepared at all times with labor, equipment, and materials to make repairs on damaged mains or utilities.
- B. Identify required lines, levels, contours, and datum locations.

- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

### 3.3 TRENCHING

- A. The Contractor shall excavate all material encountered, regardless of type, nature, or condition encountered, as shown on the Plans. All materials suitable for use as backfill shall be piled in an orderly manner a sufficient distance from the edge of the trench to avoid overloading and to prevent sliding into the trench, except in areas where interim storage is not allowed. In these areas excavated material shall be immediately placed in transport vehicles and removed from the job site. The Contractor shall provide grading or surface work as necessary to prevent surface water from entering the excavation.
- B. On public rights-of-way, except with specific approval of the Engineer, no more than 100 feet of open trench shall be excavated in advance of laying the pipe. No excavated trench shall remain open at the end of each day's work. The trench shall be backfilled, initially compacted, and opened to traffic. All operations shall be carried out in an orderly fashion. Backfilling, compacting, base placement, and cleanup shall be accomplished as sections of the pipe are installed. Traffic through the work area shall be impeded or obstructed as little as possible.
- C. Remove lumped subsoil, boulders, and rock.
- D. Where the trench crosses land not in a roadway, the top 12 inches of soil shall be stripped and stockpiled separately from the balance of the excavated material so that it may be later replaced in the top of the trench. It is the Contractor's responsibility to remove all clay or imported material from adjacent disturbed areas.
- E. Cut trenches to width indicated on Drawings. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches to width indicated on Drawings.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. When subsurface materials at bottom of trench are loose or soft, notify Architect/Engineer, and request instructions.
- I. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Granular Fill.
- J. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

- K. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
- L. Remove excess subsoil not intended for reuse, from site.
- M. If disturbed, native vegetation and residential landscaping shall be restored to the original condition.

### 3.4 PAVING REMOVAL

- A. Asphalt concrete and armor coats on streets shall be cut with a suitable tool before excavation. Cutting with a spade or jackhammer will be allowed as will cutting with a suitable grader-mounted wheel, provided that a neat, orderly result is accomplished. Breaking of concrete or seal coats with excavation equipment will not be permitted.
- B. All edges of asphalt, armor coats, or seal coats shall be cut vertically. In any case, the tool must provide a neat, square edge.
- C. In all cases, existing paving shall be broken out after construction and just prior to final paving to a point 6 inches or more wider than each side of the trench line. Edges of all asphalt concrete on permanent asphalt paving, finished streets and roadways shall be saw-cut at least 2 inches in depth with a concrete saw. Saw-cuts shall parallel or be perpendicular to centerline of the trench.
- D. Excess paving shall be disposed of and shall not be used as backfill material.

### 3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place material in continuous layers as follows:
  - 1. Subsoil Fill: Maximum 8 inches compacted depth.
  - 2. Structural Fill: Maximum 6 inches compacted depth.
  - 3. Granular Fill: Maximum 6 inches compacted depth.
- D. Employ placement method that does not disturb or damage utilities in trench.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.

### 3.6 PLACING TOPSOIL

- A. After rough grading is completed and reviewed by the Engineer, spread topsoil hereinbefore specified, over entire graded area to a minimum compacted depth of 12 inches with surface elevations as shown. Loosen the finished surface to a depth of 2 inches and leave in smooth condition, free from depressions or humps, ready for seeding.

### 3.7 TOLERANCES

- A. Top Surface of Backfilling: Plus or minus 1 inch from required elevations.

### 3.8 FIELD QUALITY CONTROL

- A. Section 017000 - Project Closeout
- B. Perform laboratory material tests in accordance with ASTM 1557.
- C. Perform in place compaction tests in accordance with the following:
  - 1. Density Tests: ASTM D1556.
  - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- E. Frequency of Tests: Every 100 feet.

### 3.9 PROTECTION OF FINISHED WORK

- A. Section 017000 - Project Closeout
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

### 3.10 SCHEDULE

- A. Compaction Requirements:
  - 1. Granular Material: 95 percent of maximum density
  - 2. Native Material: 90 percent of maximum density

**END OF SECTION**

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**DIVISION 320000**

**EXTERIOR IMPROVEMENTS**





## SECTION 32 00 00

### DIVISION 32 – EXTERIOR IMPROVEMENTS

<u>SECTION</u>	<u>TITLE</u>
32 10 00	SURFACE RESTORATION

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## SECTION 32 10 00

### SURFACE RESTORATION

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Surface restoration includes but is not limited to, the following:
1. Restoration of all surfaces disturbed during construction including asphalt concrete pavement, gravel, topsoil, and nature landscaping.
  2. Surfaces to be restored in-kind unless directed otherwise by the Engineer or designated on the Drawings.
  3. Maintain all surfaces until final surface restoration is completed.
  4. In paved areas, install aggregate base materials and asphalt surface as designated on the Drawings.
  5. Outside of paved surfaces, restoration includes: gravel shoulder replacement, graveled road replacement, curb replacement and topsoil and restoration of plant areas.
  6. Restore gravel travel ways with a minimum 2-inch compacted crushed rock surface.
- B. General Intent
1. Replace all roadway surfaces damaged by construction in a manner that results in a surface better than existing surfaces prior to the initiation of the trenching operations. Paving materials and roadway base materials replaced by the project shall exceed existing paving and base materials. Where existing paving is old and in need of replacement, integrate saw cut patch with overlay to provide new competent surfaces.

##### Related Work Described Elsewhere

2. Section 31 00 00: Site Preparation
3. Section 01 74 00: Site and Area Cleanup

##### 1.2 SUBMITTALS

- A. Submit granular material data in accordance with Section 01 33 00. Shop Drawings, Submittals and Substitutions

B. Compaction

1. Submit one (1) sieve analysis test (ASTM C136-01) for each source of granular material used for surface restoration. The maximum dry unit weight and optimum moisture content shall be indicated per ASTM D1557-00.
  - a. Where tests indicate insufficient values, perform additional tests as required by the resident project representative. Testing shall continue until specified values have been attained by additional compaction effort.
  - b. Re-tests shall be referenced to the corresponding failing test.

1.3 QUALITY ASSURANCE

A. Qualifications of Workers

1. Provide sufficient skilled workers and supervisors who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

B. Codes and Standards

1. Test methods referenced in this section, shall be conducted in accordance with the most current test method in use by the Oregon Department of Transportation or the most current version of American Society of Testing and Materials (ASTM) as listed below:

Test	ASTM
Sand Equivalence	D2419
Sieve Analysis (Grading)	D422
Durability Index	C131 or C535
% Crushed	D693-98

2. Relative compaction is defined as the ratio, in percent, of as-compacted dry density to the laboratory maximum dry density. The laboratory maximum dry density is defined in accordance with ASTM D 1557-00.

C. Warranty

1. Contractor shall provide a two (2) year warranty for all pavement surfacing and trench patching installed in public right-of-way.

## PART 2 MATERIALS

### 2.1 ASPHALT CONCRETE

- A. Asphalt concrete shall be a mixture of asphalt cement, aggregate, mineral filler, and additives as required, heated, and plant-mixed into a uniform coated mass.
- B. Asphalt concrete shall be a ½" or ¾" Dense Graded Mix and shall conform to Section 00745 of the Oregon State Highway Division Standard Specifications for Highway Construction 2008 or the latest version.
- C. Provide trench patch in areas designated and in accordance with the Drawings.
- D. Asphalt areas shall be hot mix patched within 7 days of cutting "T" trench.
- E. Tack coat to conform to ASTM D-977 for "Emulsified Asphalt," RVS-1 or RS-2 grade or approved equal.

### 2.2 GRANULAR MATERIAL

- A. Unless otherwise shown on the Drawings, granular material consisting of crushed rock, including sand, shall meet the requirements of OSHD 02640 for gradation requirements of ¾-inch-0-inch.

### 2.3 TOP SOIL

- A. Native topsoil shall be used for topsoil.
- B. Depth of topsoil shall be 12 inches unless determined otherwise by actual field conditions or as directed by the Engineer.

### 2.4 LAWN SEEDING MATERIALS

- A. Mulch: Green colored fibrous, wood cellulose mulch, free from germination or growth inhibiting factors.
- B. Straw: Free of delirious materials and certified weed free.
- C. Fertilizer: Granular type, commercially mixed, with the following chemical analysis by weight:
  - 1. Nitrogen, 16%
  - 2. Available Phosphorous, 20%
  - 3. Water Soluble Potash, 0%
- D. Grass Seed Mix: northwest variety-shade mix.

## PART 3 EXECUTION

### 3.1 GENERAL

- A. Trench backfill shall meet compaction requirements prior to proceeding with surface restoration work. All surface restoration shall be placed on firm and competent material. Notify Engineer if existing surface materials to be covered by new surface restorations are soft, yielding, or pumping.
- B. The intent is that cleanup activities and surface restoration work immediately follow the installation of pipe, construction of structures, etc. This is imperative so as to impact activities by the property owner, or other users, as little as possible.

### 3.2 GRAVEL SURFACES, DRIVES, AND ROADWAYS

- A. Place and compact base and surface materials to minimum depth shown in typical cross sections on the Drawings or as otherwise directed by Engineer.
- B. Compact by means of wheel loading unless otherwise directed by Engineer.
- C. Compacted depth of gravel surfacing shall be a minimum of 2-inches on either side of trench across entire roadway. Smooth crown and slope gravel surfacing to an even grade across entire road width to allow finished surface to drain.
- D. Vault lids, Manhole lids, Cleanouts and/or meter boxes shall be set to finished grade of existing roadways.

### 3.3 BACKFILL AND COMPACTION

- A. Granular material and topsoil is to be placed in lifts no greater than 6 inches, each compacted to the specified density.
- B. Compact granular material to a firm and competent condition and a minimum of 95% relative compaction, ASTM D1557-00.
- C. Native material shall be compacted to minimum of 90 % relative compaction, ASTM D1557-00. Native material near top of trench or structural excavation shall be topped with granular material in accordance with the Drawings.

### 3.4 LAWN RESTORATION

- A. Grade: Bring surfaces to finish grades as shown on Drawings.
- B. Surfaces: Free of debris, dead plant materials, etc. Remove all stones large that 1-1/2 inch in diameter.
- C. Apply seed, using commercial seed spreading equipment to achieve a uniform visible coverage, distributed over the entire seeding area in specified portions.
- D. On Fill Slopes, spread straw, double punch, and then apply seed.

- E. In addition to requirements of Division 1 contained herein, do not operate equipment over areas that have been seeded.
- F. Maintenance: Maintain seeded areas for a period of thirty (30) days following final acceptance, including watering, repair of erosion, and any required reseeding.
- G. Make second application of seed to areas not achieving specified coverage within the guarantee period.

**\*\*END OF SECTION\*\***

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**DIVISION 330000**

**UTILITIES**



## SECTION 33 00 00

### DIVISION 33 – UTILITIES

<u>SECTION</u>	<u>TITLE</u>
33 01 30 .13	TV INSPECTION OF SEWER PIPELINES
33 01 32	SEWER AND MANHOLE TESTING
33 05 13	MANHOLES AND CLEANOUTS
33 41 00	SANITARY SEWER LINES AND APPURTENANCES

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## SECTION 33 01 30.13

### TV INSPECTION OF SEWER PIPELINE

#### PART 1 GENERAL

##### 1. Requirements Included

- A. Contractor shall show adequate prior experience in the examination and inspection of sewer lines.
- B. Television inspections shall be conducted only after the sewer lines have been cleaned. Cleaning is required for each television inspection.
- C. Flow Control: Contractor shall control upstream flow.
- D. Television inspections are required for the sewer improvements at the following intervals for each specific type of improvement:
  - 1. Gravity Sewer line Construction - all sewer lines shall have television inspection for the following periods:
    - 1. After completion of entire project.
  - 2. Contractor shall provide Engineer 48 hour notice prior to conducting television inspections.

##### 2. Description

- A. Contractor shall provide a TV camera, monitor, and video recording (DVD format) for sewer inspection. The TV camera must be specifically designed for sewer inspection - small, rugged, self-propelled, and waterproof. The camera shall have pan and tilt capability and be capable of viewing directly into laterals that connect to the main line. The camera must have its own light source suitable to provide a clear picture of the entire periphery of the pipe. Camera and monitoring equipment shall provide a color picture. A 1-inch diameter red ball shall extend in front of the camera image and shall drag in front of camera during video operation.
- B. The Contractor shall provide a TV monitor, which shall be capable of producing a high-resolution picture. The picture shall be adequate for continual monitoring during the television investigation. Contractor shall be able to adjust the monitor contrast, brightness, and other factors as necessary to provide a clear picture. The Engineer on the initial run shall determine the adequacy of the picture. Future runs shall provide quality at least as good or better than the initial run as determined by the Engineer. Quality less than the initial run will require the pipe sections to be re-inspected at no additional cost to Owner.

## PART 2 MATERIALS

- A. Use quality monitoring, recording, and field equipment designed and constructed specifically for sewer inspection.
- B. Provide written records that show the location of the subject inspection.
- C. Provide DVD's to Engineer and City.
- D. Provide sewer plugs, which do not damage pipe.

## PART 3 WORKMANSHIP

### 1. Television Inspection

- A. Within 48 hours of cleaning the pipe sections between manholes shall be inspected by means of close-circuit television. The inspection will be done one manhole section at a time and the flow in the section being inspected will be suitably controlled as specified herein.
- B. The camera shall move through the line in either direction under its own power and at a moderate rate. A one (1) inch diameter white sphere shall be hung in front of the camera in full immerge view and drag along the invert of the pipe. In no case will the camera travel at a speed greater than 30 feet per minute. The camera shall be stopped when necessary to permit proper assessment and documentation of the sewer line condition and defects. Mechanisms, which move the camera through the sewer line, shall not obstruct the camera view or interfere with proper documentation of the sewer conditions.
- C. The Contractor shall use radios or telephone communication to assure suitable communication between crewmembers and the camera operator/video monitor operator.
- D. If, during the inspection operation, the television camera will not pass through the entire section from manhole to manhole, the pipe section shall be rejected and Contractor shall make repairs at no cost to Owner.
- E. If the television camera encounters broken pipe the pipe section shall be rejected and Contractor shall make repairs at no cost to Owner.
- F. Measured distance shall be determined by means of a footage meter attached to the television camera. The measurement meter shall be "zeroed" at the center of the start manhole. The measurement meter shall be configured such that the pipe distance is shown on the monitor and in the recorded DVD. Contractor shall also measure the above ground distance from center of manhole to center of manhole for the pipe section being inspected using a steel field tape. Such distance shall be recorded in the log using the manhole designations shown on the drawings. The variation between metered distance and measured distance shall not exceed one (1) percent of measured

distance or the pipe section shall be re-inspected until metered distance matches measured distance.

- G. Written television inspection logs shall be prepared at the same time the television inspection is being performed.
1. The inspection log shall contain the following information: Contractor's crew chief's name, date, general weather conditions and observations, manhole designations at start and end of inspection run, direction of flow, type of pipe, type of joints (if it can be determined), joint spacing, manhole conditions, measured section length (by steel tape), pipe size, approximate depth of pipe at each manhole and direction of inspection (camera movement). Oral logging of the above information onto the DVD with an audio voice-over shall not be acceptable in lieu of the written log.
  2. Pipe and system defects shall be located by footage. If the Contractor proposes codes or shorthand designations for describing defects, such codes shall be reviewed and accepted by the Engineer prior to recording. Defects described shall include cracked pipe, open pipe, open cracks, broken pipe, crushed pipe, collapsed pipe, circumferential defects, longitudinal defects, erosion, corrosion, dips or sags, misalignment, offset joint, separated joint, infiltration joint, and defective or poorly formed lateral joint or connection.
  3. Each lateral connected to the sewer line shall be located by footage. The camera shall stop and view directly into each lateral. Any infiltration sources in the laterals or excessive flow from the laterals shall be noted in the log.
  4. Television inspection shall start and end at the inside face of each manhole with particular attention given to the first (and last) two (2) feet of recording to identify any pipe shear condition at the manhole connection.
  5. The original and one copy of each DVD shall be supplied to the Engineer. Each DVD shall be clearly identified using indelible ink and a tape log provided with DVD identification related to the manhole sections, designated by manhole number, that the DVD contains.
  6. Sewer Flow Control
    - a. When sewer line depth of flow at the upstream manhole of the manhole section being worked is above the maximum allowable for television inspection, the flow shall be reduced to the level shown below by plugging or blocking of the flow or by pumping and bypassing of the flow as necessary.
    - b. Depth of flow shall not exceed that shown below for the respective pipe sizes as measured in the downstream manhole when performing television inspection.

Pipe Size	Depth of Flow
6" - 10" Pipe	20% of pipe diameter

12" - 24" Pipe

25% of pipe diameter

- c. Plugging or Blocking: A sewer line plug shall be inserted into the line upstream of the section being worked. The plug shall be so designed that all or any portion of the sewage can be released. During TV inspection, flow shall be reduced to within the limits specified above. After the work has been completed, flow shall be restored to normal.
  - d. Pumping and Bypassing: When pumping and bypassing is required, the Contractor shall supply the pumps, conduits and other equipment to divert the flow of sewage around the manhole section in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during a rainstorm. The Contractor will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system. If pumping is required between 7:00 p.m. and 7:00 a.m., engines shall be equipped in a manner to keep noise to a minimum.
  - e. Flow Control Precautions: When flow in a sewer line is plugged, blocked or bypassed; sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to insure the sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.
- H. Contractor shall be solely responsible for the safety of his crew. Adherence to OSHA regulations is the responsibility of the Contractor. The Engineer may recommend to the Owner that the Contractor stop the work if appropriate safety regulations are not complied with by the Contractor.

**\*\*END OF SECTION\*\***



## SECTION 33 01 32 SEWER AND MANHOLE TESTING

### PART 1 GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Testing Manholes:
  - a. Vacuum Test.
  - b. Hydrostatic Leakage Test.
2. Testing Gravity Sewer Piping:
  - a. TV Inspection.
  - b. Deflection Test (Mandrel Test).

B. Related Sections:

1. Section 01 45 00: Testing and Laboratory Services.
2. Section 01 70 00: Project Closeout.
3. Section 33 05 13: Manholes and Cleanouts
4. Section 33 41 00: Sanitary Sewer Lines.

#### 1.2 REFERENCES

A. ASTM International:

1. ASTM C1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

B. APWA-1990 Oregon Section – Standard Specifications for Sanitary Sewer Construction, Section 306.3.03

#### 1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Submit the following prior to start of testing:

1. Testing procedures.
  2. List of test equipment.
  3. Testing sequence schedule.
  4. Provisions for disposal of flushing and test water.
  5. Certification of test gauge calibration.
  6. Deflection mandrel drawings and calculations.
- C. Test Reports: Indicate results of manhole and piping tests.

## PART 2 PRODUCTS

### 2.1 VACUUM TESTING EQUIPMENT

- A. Vacuum pump.
- B. Vacuum line.
- C. Vacuum tester base with compression band seal and outlet port.
- D. Shut-off valve.
- E. Stop watch.
- F. Plugs.
- G. Vacuum gauge, calibrated to 0.1 inch Hg

### 2.2 TV INSPECTION EQUIPMENT

- A. See Section 33 01 30.13.

### 2.3 HYDROSTATIC TEST EQUIPMENT

- A. Hydro pump.
- B. Pressure hose.
- C. Water meter.
- D. Test connections.
- E. Pressure relief valve.

- F. Pressure gauge, calibrated to 0.1 psi.

## 2.4 DEFLECTION TEST EQUIPMENT

- A. Go, No-Go mandrels.
- B. Pull/retrieval ropes.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify manholes and piping are ready for testing.
- B. Verify trenches are backfilled to required compaction.
- C. Verify pressure piping concrete reaction support blocking or mechanical restraint system is installed.

### 3.2 PIPING PREPARATION

- A. Plug outlets, wye-branches and laterals; brace plugs to resist test pressures.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Gravity Sewer Piping:
  - 1. TV Inspection: See Section 33 01 30.13.
  - 2. Deflection Testing:
    - a. Perform vertical ring deflection testing on 3034 PVC and ABS sewer piping, after backfilling has been in place for at least 30 days but not longer than 12 months.
    - b. Allowable maximum deflection for installed plastic sewer pipe limited to 5 percent of original vertical internal diameter.
    - c. Perform deflection testing using properly sized rigid ball or 'Go, No-Go' mandrel.
    - d. Furnish rigid ball or mandrel with diameter not less than 95 percent of base or average inside diameter of pipe as determined by ASTM standard to which pipe is manufactured. Measure pipe in compliance with ASTM D2122.
    - e. Perform test without mechanical pulling devices.

- f. Locate, excavate, replace and retest pipe exceeding allowable deflection.

B. Testing Manholes:

1. General: Test using air whenever possible prior to backfilling to assist in locating leaks. Make joint repairs on both outside and inside of joint to ensure permanent seal. Test manholes with manhole frame set in place.
2. Vacuum test in accordance with ASTM C1244 and as follows:
  - a. Plug pipe openings; securely brace plugs and pipe.
  - b. Inflate compression band to effectively seal between vacuum base and structure; connect vacuum pump to outlet port with valve open; draw vacuum to 10 inches of Hg; close valve; start test.
  - c. Test:

- 1) Determine test duration for manhole from the following table:

Manhole Diameter	Test Period
4 feet	60 seconds
5 feet	75 seconds
6 feet	90 seconds

- 2) Record vacuum drop during test period; when vacuum drop is greater than 1 inch of Hg during test period, repair and retest manhole; when vacuum drop of 1 inch of Hg does not occur during test period, discontinue test and accept manhole.
  - 3) When vacuum test fails to meet 1 inch Hg drop in specified time after repair, repair and retest manhole.
3. When unsatisfactory test results are achieved, repair manhole and retest until result meets criteria; repair visible leaks regardless of quantity of leakage.

F. HYDROSTATIC TESTING

1. Hydrostatic leakage tests shall be conducted on all manholes installed unless vacuum testing is performed.
2. The test shall consist of plugging all inlets and outlets and filling the manhole with water to a height determined by the Engineer. Leakage in each manhole shall not exceed 0.1 gallon per hour per foot of head above the invert. A manhole may be filled 24 hours prior to time of testing, if desired, to permit normal absorption into the walls to take place. Test duration shall be 60 minutes minimum.

3. Repair all manholes that do not meet the leakage test, or are unsatisfactory from visual inspection, to conform to the requirements herein. Retest in presence of Engineer.

**\*\*END OF SECTION\*\***

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## SECTION 33 05 13

### MANHOLES AND CLEANOUTS

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This section covers the work necessary for the construction of manholes and cleanouts.
- B. Related Work Specified Elsewhere
  - 1. Section 321000: Site Restoration
  - 2. Section 312317: Trenching
  - 3. Section 033000: Cast-In-Place Concrete
  - 4. Section 330132: Sewer and Manhole Testing

##### 1.2 SUBMITTALS

- A. Contractor shall submit manufacturer's certification that manhole castings, clean outs, frames, and covers meet specification requirements. Shop Drawings and load test data shall be submitted to the Engineer for approval before furnishing castings, frames, and covers in conformance with "Section 013300: Shop Drawings, Submittals and Substitutions."

#### PART 2 MATERIALS

##### 2.1 PRECAST CONCRETE MANHOLE SECTIONS

- A. Precast concrete manhole sections shall be as shown on the Drawings and shall meet the requirements of ASTM C 478-78a Specifications with subsequent amendments. Minimum wall thickness shall be five-inches. Manhole steps shall not be provided as noted in these Specifications and as shown on the Drawings.
- B. Manhole cone shall be barrel top as shown on the Drawings and have same wall thickness and reinforcement as manhole section. Cone sections shall have a minimum wall thickness of 8" at top.
- C. Flat top slab manhole shall be provided to match the details shown on the Drawings.
- D. All manholes are to be watertight, and joints between manhole sections shall be made tight with gaskets.

## 2.2 MANHOLE EXTENSIONS

- A. Concrete grade rings for extensions shall be a maximum of 6 inches high and shall be approved by Engineer before installation.
- B. In general, manhole extensions will be used on all manholes in roads or streets or in other locations where a subsequent change in existing grade may be likely. Extensions will be limited to a maximum height of 16 inches unless noted otherwise on the Drawings. Finish grade for manhole covers shall conform to finished ground or street surface and joints shall be grouted with non-shrink grout unless otherwise directed by the Engineer.
- C. Concrete collars shall be provided for all manhole covers in unpaved areas, and where shown on the Drawings.

## 2.3 MANHOLE CASTINGS, FRAMES, AND COVERS

- A. Manhole castings, frames, and covers shall conform to dimensions shown on Drawings and these Specifications. Iron castings shall be gray iron conforming to ASTM A159-70-T, Class G-3000. Castings shall be of consistently high quality and shall be free of material and manufacturing defects. After installation, the covers shall not be loose fitting, wobbly, or subject to noise or uplift due to traffic. The horizontal bearing surfaces between frame and cover shall be machined smooth and true, ensuring close fit. After machining and cleaning and while still at the foundry, frames and covers shall be dipped in asphalt applied at a temperature of 300°F in such a manner as to provide a firm and durable coating.
- B. Covers shall have a skid-resistant design with a pick-hole entry and shall have a casting mark, "Sanitary Sewer," of approximately 2-inch high letters. Covers and frames shall have minimum weights of 140 pounds and 132 pounds, respectively. Frames shall be approximately 4-1/2 inches high with a 24-inch clear opening. The bottom flange of the frame shall have four anchor bolt slots or holes.
- C. Manholes located in graveled streets and roads, shall have manufacturer's standard dustpans, together with the required frame and cover.
- D. The manufacturer for AASHTO HS20 wheel loading shall certify all manhole covers and appurtenances.

## 2.4 JOINT SEALING COMPOUND COMPONENTS

- A. Joint sealing compound components shall be Ram-Nek Primer and Ram-Nek Joint Sealing Compound as manufactured by K.T. Snyder Company, Houston, Texas, Quick-Seal Joint Sealing Compound as manufactured by Associated Concrete Products, Inc., or equal.

## 2.5 GROUT

- A. Grout shall be non-shrink.



## 2.6 CONCRETE

- A. Cast-in-place concrete shall conform to "Section 033000: Cast-In-Place Concrete," and shall have a 28 day compressive strength of 3,000 psi.

## 2.7 PIPE AND FITTINGS

- A. Pipe and fittings shown on the Drawings shall be provided in accordance with Section 334100: Sanitary Sewer Lines, of these Specifications.

## 2.8 PIPE TO MANHOLE CONNECTIONS

- A. Pipe to manhole connections shall utilize rubber flexible pipe-to-manhole collar connections conforming to ASTM C923 with Type 316 stainless steel band and tightener, or an annular pipe seal may be employed as an alternate. Connector shall be KOR-N-SEAL as manufactured by NPC, Inc. Annular Seal shall be as specified in Section 40-05-14 Fittings and Appurtenances

## PART 3 EXECUTION

### 3.1 CONCRETE BASE

- A. Pre-cast concrete base sections may be used. An alternate cast in place base may be used for no additional cost to Owner.
- B. Construct concrete base as shown on the Drawings. Vibrate to densify the cast-in-place concrete base and screen so that the first precast manhole section to be placed has a level, uniform bearing for the full circumference. Tie reinforcement bar for anchor collar into manhole base.
- C. A groove, shaped to match the tongue of the first precast concrete riser section of the manhole, shall be formed in the base slab. A circular aluminum form suited to the particular precast manhole manufacturer's joint shall be used to form the groove. In areas where speed in completion is essential as determined by the Engineer, up to 1% calcium chloride additive may be used in the base section. Do not place precast manhole sections for at least four hours after base pour.
- D. Hand-trim the base of the excavation to obtain firm, undisturbed soil. Where water and soil conditions require it, over excavate 6 inches minimum, and install a coarse, granular fill. Level/work course back to grade.
- E. Pump any groundwater down prior to pouring concrete, or installing pre-cast manhole base.
- F. Place pre cast base on 12-inches of compacted granular fill. Provide foundation stabilization as required.

### 3.2 MANHOLE INVERTS

- A. Construct invert for Manholes in conformance with Drawings, and with smooth transitions to ensure an unobstructed flow through manhole. Remove all sharp edges or rough sections that tend to obstruct flow.

### 3.3 MANHOLE CONSTRUCTION

- A. Manhole segments and rings shall be set evenly with the use of an approved joint sealing compound. The bottom segment shall be set in a pre-formed lip section, and shall be grouted inside and outside and all around, to make a watertight joint.
- B. In areas where shown and on all un-graded streets, the upper section of the manhole may have up to 16 inches of grade rings, as directed by the Engineer. Install frames and covers on top of manholes to positively prevent all infiltration of surface or groundwater into manholes. Contractor shall take special care to see that the manhole cover is slightly above the surrounding grade so that water does not run toward, but away from the manhole to the extent of the surrounding concrete ring. In any event, the area around the manhole ring shall not be subject to any flooding during rainfall.
- C. Contractor shall provide concrete collar on all manholes constructed outside of paved surfaces.
- D. At each sewer line junction to the manhole, a transition support region should be provided between the structural backfill under the manhole and the pipe bedding as shown on the Drawings. The soil next to the manhole is over-excavated to a depth of not less than 12 inches over a distance of two pipe diameters along the pipe line; over the next two pipe diameters away from the manhole over-excavation is gradually decreased until it meets the normal trench depth. Pipe grade is restored by the addition of structural backfill that is compacted followed by a minimum of 6-inches of pipe-zone material.
- E. Pipe to manhole connections shall utilize rubber flexible pipe-to-manhole collar connections. Interstitial space between pipe wall and rubber collar shall be open. All grout, rocks, and debris shall be removed prior to testing.

### 3.4 CLEANOUTS

- A. Construct the cleanouts in accordance with the Drawings.
- B. Cleanouts shall be watertight.
- C. The sewer pipe shall not support Cleanout frame and cover. Install mechanical plug in top of sewer pipe so that it does not directly bear any loads placed on the cover.

### 3.5 FITTINGS

- A. Assemble fittings and flange assemblies to be located inside manholes under observation of Engineer.

### 3.6 MANHOLE TESTING

- A. All manholes shall be tested by the hydrostatic test method or the vacuum test method as specified in 33 01 32: Sewer and Manhole Testing

**\*\*END OF SECTION\*\***

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## SECTION 33 41 00

### SANITARY SEWER LINES AND APPURTENANCES

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. This item shall include furnishing and installing all gravity sewer lines, service laterals, and appurtenances specified or shown on the Drawings.
- B. The Contractor shall provide manufacturer's certification including test results for all piping and related fittings supplied.
- C. All work shall conform to the latest version of the American Public Works Association (APWA) Division 3 for Sanitary Sewers except as specified herein and shown on the Plans.

#### PART 2 MATERIALS

##### 2.1 POLYVINYL CHLORIDE (PVC)

- A. Sewer piping for this project shall be PVC Sewer pipe with nominal pipe size of 8" or 12", as specified on the Drawings. Pipe shall meet the requirements of ASTM D3034 (SDR35), PVC sewer pipe.
- B. Pipe shall be manufactured with an integral bell provided with a factory-installed gasket of elastomeric type meeting the requirements of ASTM F 477.
- C. Furnish in standard lengths with sufficient shorter lengths as required for connections and fittings.
- D. PVC pipe shall be as manufactured by Certainteed, Johns-Manville, Simpson or approved equal.
- E. Gravity sewer mains that are in conflict with existing waterlines shall be PVC pressure pipe conforming to the requirements of Section 02664, ASTM D1784, and AWWA C905. Class 160. Simpson, Johns-Manville, or approved equal.

##### 2.2 APPURTENANCES

- A. Sanitary tees, caps, and wyes shall be PVC and provided by, or approved for use by, the same manufacturer as the sewer pipe.
- B. Flexible connectors for connection to manholes shall be as specified in the Drawings.
- C. Annular seal for pipe's penetrating existing concrete structures shall be core drilled and installed with annular seal.

- D. Slurry for sealing around existing service connections shall be Class D concrete conforming to Section 03 30 00.

## 2.3 TRACER WIRE

- A. Tracer wire shall be No. 12 AWG copper wire with appropriate AWWA color.
- B. Tape shall be co-extruded polyethylene tape suited for buried service. Tape shall be green in color for sewer application.

## PART 3 WORKMANSHIP

### 3.1 GENERAL

- A. All pipe and fittings shall be installed in accordance with the manufacturer's recommendations.
- B. At connections to existing pipe, excavate underneath joints so that the coupling/joint does not act as a point support for the pipe and so that the pipe is uniformly supported within a minimum of three (3) feet on either side of coupling while coupling is being installed.
- C. Inspect pipe and fittings prior to installation. Damaged or defective materials will not be used. Cut on sectionalized pipe shall be perpendicular to the flow line. Jagged and broken ends on either side of the pipe joint shall be grounds for rejecting joint or connection.
- D. Remove all dirt and debris from pipe interior.
- E. Pipe zone or bedding shall be placed and compacted in trench before installing pipe. Bedding shall be shaped such that pipe will be supported over its full length.
- F. Install all pipes to line and grade shown on the Drawings. Maximum deviation shall not exceed 0.02 feet.
- G. Service laterals shall be installed at a minimum 2% grade from the mainline or manhole to the connection with the existing lateral from the building or the end of the new lateral for future connection, unless otherwise approved by the Engineer. Provide transition couplings for connection to existing service laterals.
- H. The Contractor shall verify the location, size, and elevation of each building sewer to be re-connected to prior to installing the service lateral. New service lateral shall be same size as existing.
- I. Size of service laterals for future connections shall be 4-inch unless directed otherwise by the Engineer.
- J. Install a transition coupling or a pipe bell on all pipes at manholes within 12-inches of the outside wall of the manholes.

K. Engineer shall inspect all pipe installation prior to backfill. Contractor shall provide Engineer 48-hour notice prior to scheduled inspections.

L. TRACER WIRE AND TAPE

1. Tracer wire will be tested to ensure continuity of system. Any deficiencies found during testing shall be corrected by the Contractor and the tracer wire, re-tested for continuity.
2. An insulated copper wire and marker tape shall be buried within the trench area for all buried PVC sewer pipe as shown on the Plans.
3. Wire shall be buried the entire length of trench and shall be brought to the surface at all valve boxes or other permanent structures. Maximum distance between day-lighting the tracer wire shall be 1,000 lineal feet. A soldered connection with watertight shrink-wrap splice shall be made where necessary to achieve electrical continuity between valve boxes and/or other structures.

3.2 TESTING

A. Deflection Testing

1. In addition to air testing and television inspection, all sewer lines shall have a deflection test conducted by pulling an approved mandrel through the completed pipeline. The diameter of the mandrel shall be 95 percent of the pipe inside diameter.
2. Testing shall be conducted between each manhole and shall be done after the line has been completely flushed out with water. The tests shall be conducted not less than 30 days after the trench backfill and compaction has been completed and may be conducted concurrently with television inspection.

**\*\*END OF SECTION\*\***

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## **DRAWINGS**